A Rhinoplasty Tetralogy

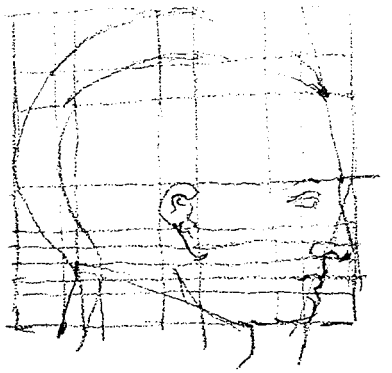
Corrective, Secondary, Congenital, Reconstructive

1.
Corrective Rhinoplasty

BOOKS on rhinoplasty invariably devote one or more chapters to anatomy and physiology. They all say about the same thing, because as far as I know anatomy and physiology really have not changed over the centuries. Thus, I am sparing you, the reader of this book, repetition of these chapters because if you have read other chapters on anatomy and physiology you would be bored, and, if you have not, you should do so. Once you understand general normal nasal anatomy then you have the potential to be sensitive to the inevitable individual variation of each nose, and that is essential to accurate diagnosis and adept surgery.

IDEAL, BEAUTIFUL, NORMAL

Great artists like Leonardo da Vinci divided the face vertically into three nearly equal parts: forehead, nose, and lips and chin. Albrecht Dürer's horizontal line extended from the lower lobe of the ear forward to the base of the nose. He similarly divided the face into three parts, one part from hairline to brows, the second from brows to nasal base, and the third



composed of lips and chin. In primary rhinoplasty the most common discrepancy in the three divisions of the face is seen in the long nose or prominent nasal spine, which not only lengthens the nasal proportion but foreshortens the effect of the upper lip.

In 1962 M. Gonzalez-Ulloa established a quantitative plan for the study of the human profile using two imaginary guidelines on the face. The first was the Frankfort or horizontal line extending from the upper margin of the external auditory meatus to the lower orbital ridge; the second was the vertical line extending downward from the nasion, a fixed point on the facial frame, to meet the horizontal line at a right angle. These two crossing lines constitute the axis of a frame from which the following can be mapped out: (1) shape of the skull, (2) angle of the facial plane, (3) size of each segment, and (4) protraction or retraction of each of the constituent segments of the face. As noted by Gonzalez-Ulloa, "In almost all the beautiful faces of history, the relation of the facial plane to the Frankfort line is always very close to 90 degrees, and with all the segments aligned to the facial plane."

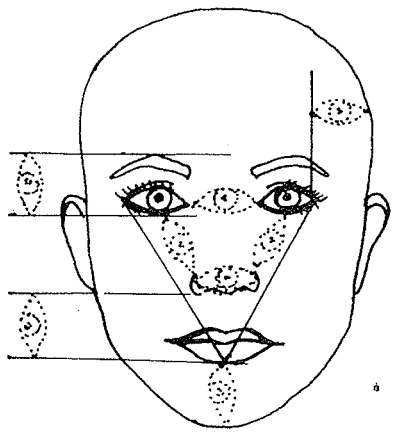
Each race has its own special beauty. For Caucasian beauty the nasal bridge should be reasonably high, straight, and slim. The nasolabial angle should be no more than 90 to 100 degrees in the male and as much as 120 degrees in the female, each with a golden triangle tilt at the tip. In African-Americans, generally the bridge height is low, the tip broad, the columella short, and the nostrils flared. In Asians, the nose seems to lie between Caucasians and Blacks in bridge height, tip width, columella length, and alar flare.

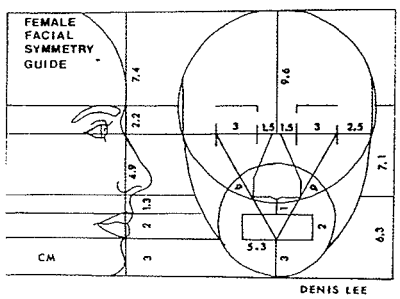
There may be no prototype of classic beauty as crossbreeding mixes traits. Outbreeding among races may at times accentuate the positive to produce beauties such as the exotic Eurasian and Polynesians, Circes of the South Seas, renowned for their beauty of facial blending.

Quest for Guide to Beauty

L.G. Farkas in 1985 discussed the inclinations of the facial profile, art versus reality, comparing ancient to modern, which is worthy of attention.

Medical sculptor Denis Lee in 1982 introduced an interesting female facial symmetry code guide to beauty in the form of a clear plastic to be placed directly over the patient's face or over a one-to-one photograph. The unit of measurement was the width of the female eye, which averages 3 centimeters. The guide was designed after careful measurement of 50 attractive Caucasian women. All of these women's features fit within the guidelines of this device.





University of Indiana medical illustrator Craig G. Gosling polled members of the 1993 meeting of the Association of Medical Illustrators and the Association of Biomedical sculptors on their ideas of beauty. They referred to art anatomy studies done by the masters throughout the ages pertaining to size and proportion of the head and facial components. They were reluctant to get specific. They claimed that since beauty is such a relative, ambiguous, and changing concept depending on views, prejudice, culture, age, and race, no specific guideline was valid. They did agree that moderation was desirable, that too large or too small were easily identifiable as undesirable and something in between was acceptable.

Beauty Is in the Eye of the Beholder

For the Caucasian nose, which is the type I face mostly in corrective, secondary, congenital, and reconstructive rhinoplasty, I prefer a profile that shows an indentation at the frontonasal junction or radix with the relatively high nasal bridge ascending straight until the gentle rise at the tip from the natural prominence of the alar cartilages. The nasolabial angle should be no less than 90 degrees and in the female may be as much as 120 degrees. Yet for me, it is important that the nasolabial angle not be so wide that the nostrils are exposed from front view. Rather if the nasal portion of this angle is broken in its

upper one-third in golden proportion to tilt the tip without further exposing the nostrils, then the effect is provocative. There will be detailed description in how this is achieved.

In noses of Asian and Black patients that I have been requested to alter or reconstruct, the patients have expressed a desire for a nose more in the direction of the ideal Caucasian proportions (i.e., a higher, narrower bridge; a more slender tip; a narrower base with reduction of the flaring alae).

A WARNING

It is generally acknowledged that the penis, the breasts, and the nose are the most psychologically loaded structures operated on by the plastic surgeon. Not surprisingly, of the three plastic surgeons murdered by their patients, one had operated on the penis, one had operated on the nose, and one had shriveled a testicle. This should serve as a warning to us all, and as, so far, only male patients have been the murderers, select your male noses with care and caution. Recently Joan Kron of *Allure* called my attention to an exception when a woman murdered her plastic surgeon after continued pain following a face lift.

CONSULTATION

At the first consultation, I have a list with the primary concern of each new patient noted. When it is the nose, I ask what they do not like about their nose and what they would like to have done. It is essential that the surgeon be cognizant of and understand the true underlying desires of the patient. Only then can the surgeon determine if the requests are realistic, compatible, and possible. If the patient's desires are unrealistic, then the surgeon should attempt to explain what is possible and aesthetic. For instance, a tall patient cannot tolerate a short, up-turned nose because the height places the nose on or above average eye level forcing a view directly into the nostrils. Short patients, on the other hand, usually have people looking down on them so that the effect of the nose is lengthened and there is little chance for a direct view of the

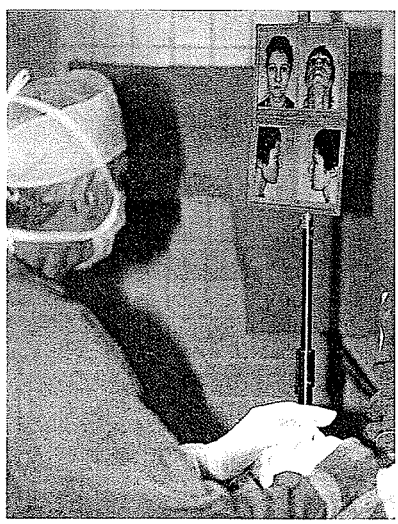
nostrils. In this situation the patient may flourish with a short, moderately turned-up nose.

Only if there can be a reasonable meeting of minds should the surgeon accept the surgical responsibility. Once I know the special desires and fears of the patient, I outline my general plan explaining that my goal is to reduce and shape each nose to aesthetic proportions so that it not only looks better but at the same time appears natural. Most patients are happy with this general plan.

Occasionally a patient may have a special request. It is good to know about this before the surgery. This young woman had her bridge lowered but the primary result retained the slightest suggestion of her original hump. A secondary correction was offered but refused as the patient expressed a desire to keep a bit of her ethnicity.

After the consultation the patient sees my secretary who explains any details such as fees, hospital choice, outpatient status, and convalescent arrangements. In cosmetic cases the fee is collected before the surgery is carried out and the patients are happier with their results when the fee is no longer a concern.

Photographic Records



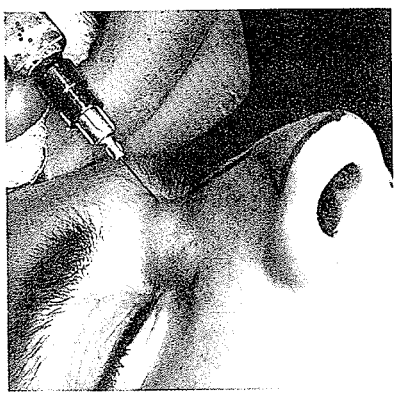
The patient is then directed to the photography room with a slip indicating the photographic views required. In the case of a preoperative rhinoplasty a straight front, a front under the nostrils and both profiles are taken for color 4 × 5 prints and a similar series of color slides are also made. The prints are hung in the operating room for constant reference during the corrective surgery.

Final Count Down

A few days before the rhinoplasty operation the patient is seen again for a final review of the corrective plan and for the physician to carry out a careful physical examination. The patient comes to the hospital as an outpatient, receives sedation and then is placed on the operating table and an IV is started. The nasal vibrissae are clipped, the nostrils cleaned and the

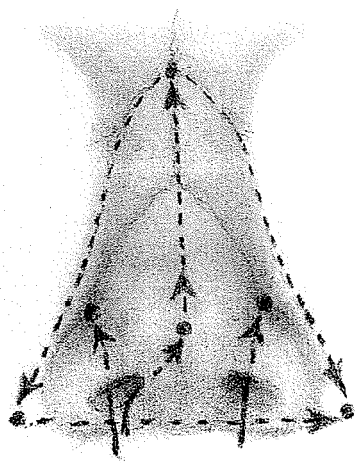
nose and face prepped. Then the face is draped from hairline above to under the chin. It is essential that the entire face be exposed.

While drying my hands after scrubbing and while being gowned and gloved I again study the nose in relation to the face to get a final impression of the preoperative proportions. The patient's photographs are hanging in view to refresh my memory because after the local injection the nose changes as it does during each phase of the corrective surgery. A line is marked along the bridge to indicate the estimated adjustment required. The nasal tip skin is marked bilaterally along the line of desired alar cartilage reduction.



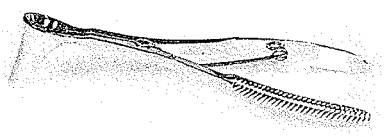
Local Anesthesia

A fine needle starts the injections of 2% xylocaine with 1:100,000 adrenalin at the glabella join to the root of the nose extending down each side of the nose along its join with the cheek. Then at the base of the nose horizontally from ala through columella to ala the nose is circumscribed. Injections through the upper buccal sulcus can be effective. Injections from inside the vestibule laterally to the nasal bones and into the area of the lower lateral cartilages as well as into the tip and subcutaneously along the bridge keeping the amount of injection minimal and equal so not to distort the contours. If the septum is to be corrected then its mucosa is injected which also aids the dissection. The nasal passages are then packed snugly with Vaseline gauze to seal off the flow of blood down the throat. The patient is told to breathe through the mouth. I then sit down to operate, which provides a comfortable but steadier position.



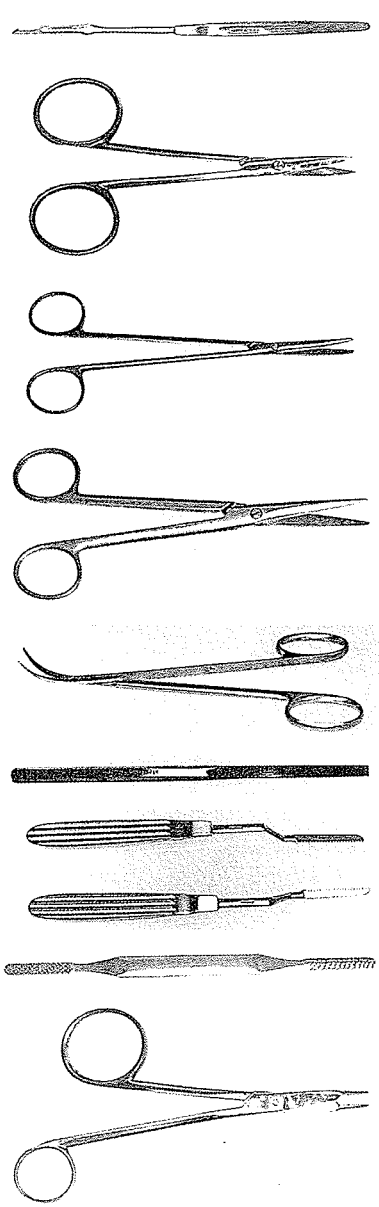
CORRECTIVE RHINOPLASTY INSTRUMENTS

Regular and Special



Most instruments I use in corrective rhinoplasty are standard. A speculum facilitates vestibular and septal inspection. A regular handle carrying a No. 15 Personna plus blade make the membranous septal and anterior vestibular incisions. A

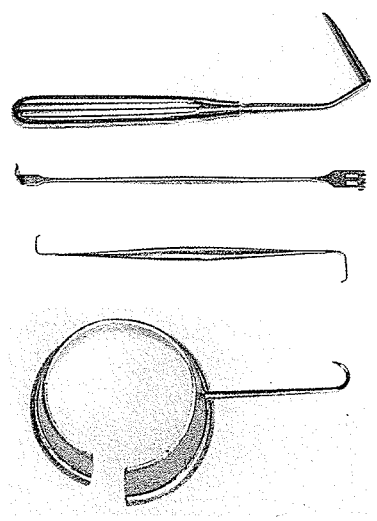
No. 10 P. P. blade does my undermining. The No. 11 P. P. stabs out the alar base wedges. Occasionally the long thin scalpel handle is helpful in deep dissections of limited width. Small sharp pointed scissors are used for dissecting cartilage subperichondrally, Metzenbaum scissors are useful for occasional subcutaneous dissections. Fine straight scissors are used in trimming mucosa, alar and upper lateral cartilages. Large straight scissors serve in cutting septal cartilage. Right-angled scissors are useful for angled dissections and awkward trimming of cartilage. Moderately weighted mallet and large sharp, straight chisel with the edges rounded are used for hump removal. A small chisel is effective for severing any green-stick fracture during osteotomy. Special prong chisel for osteotomies will be described in detail during section on osteotomy. Nasal saws are used for occasional shaving of the hump. Rasp is effective for smoothing rough edges of the bridge. Rongeur is essential for nibbling off bony discrepancies and especially for reducing excess nasal spine. Gillies scissor-needle holder for suturing lining, cartilage and alar bases. The Aufricht retractor and the regular and small Senn retractors help in good exposure. A two-prong hook slipped under the freed skin and snagged on to palpable bridge and tip discrepancies mark the site for careful correction. For submucous septal resection a flat dissector and a blunt elevator are used along with a swivel knife and a narrow chisel.

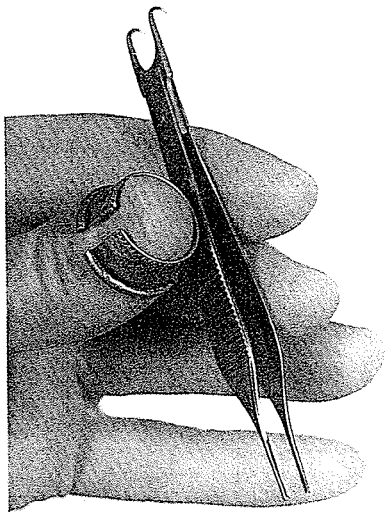


Personal Rhinoplasty Instruments

The dexterity and effectiveness of the hook on the end of the stump of the fictional pirate Captain Hook inspired me to create thimble hooks (1960) for the left thumb in surgery especially useful to pick up the upper end of the severed columella in open rhinoplasty.

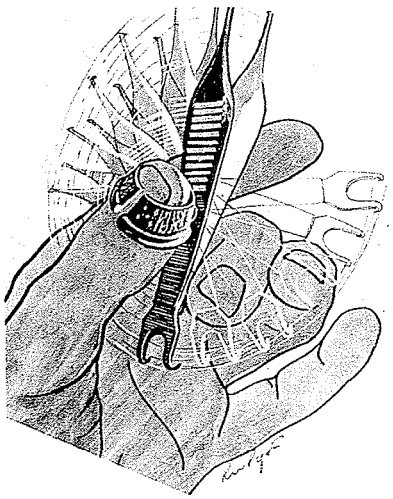
By attaching a double hook to the opposite end of the handle of an Adson forceps and fixing between them a pivoting split-thimble for the thumb, a versatile rhinoplasty instrument is produced which, with a half revolution, presents at will a retractor or a pick-up (1967). It provides the surgical





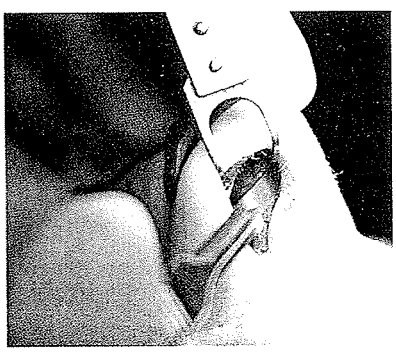
efficiency of two guns spinning on one thumb, each equally available in a quick draw. This instrument by-passes the necessity of constantly putting down one instrument to pick up another with all the eye to hand interruptions associated with each distracting action during the flow of surgery.

The thimble principle leaves the other fingers free to feel, evert and counterpress, and the surgeon has only to disengage his thumb to turn over the retractor to his assistant. This instrument is available at Storz and Padgett. I personally would not do a rhinoplasty without this instrument and those who have learned to use it, agree.

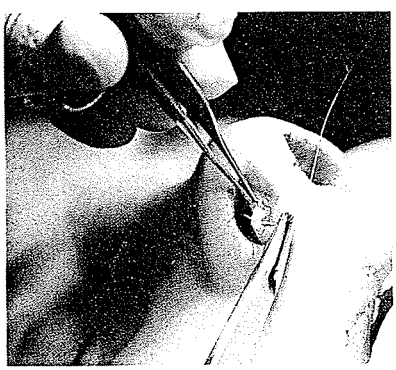


PRIMARY CORRECTIVE RHINOPLASTY OPERATION

Corrective rhinoplasty is a cosmetic operation concerned with surpassing the normal by altering the normal nose to more aesthetic proportions. It is true, however, that the variations of normal can reach such extremes that in reality they can be considered deformed.



The reduction and artistic reshaping of a nose is one of the most exacting procedures in surgery and, if not respected as such, what is presumed to become a portrait may turn out a cartoon. A truly large, thick nose may not reach the peak of perfection that can be achieved by a less difficult one but at least an improvement should be assured. To correct a nose that requires only a fraction of improvement calls for as much skill and more courage for there is less to gain, more to lose with a frighteningly slim margin of error.



There is no blueprint for all rhinoplasties as success or failure is a matter of degrees and millimeters in each case. Only generalities can be taught, for eventually the surgeon is on his own, guided by *inherent artistic instinct and the memory of bitter experience.* It is not possible even to predict a winner. Every time I start a corrective rhinoplasty, in spite of the years of experience, I get a little nervous. Noses are difficult to predict. Some go smoothly with the standard approach and others can

be difficult, almost perverse, requiring far more detailed surgery than was suspected during the pre-surgical exam. Nevertheless, our goal is to improve the size and shape of the nose and still maintain a naturalness with the least possible residual tell-tale signs indicating a surgeon has been there.

At the American Society of Plastic and Reconstructive Surgeons meeting in San Francisco, October 1964, I presented adjuncts to corrective rhinoplasty which advocated a logical change in the order of operative stages beginning with alar cartilage reduction and ending with osteotomies, use of the intracartilaginous approach and adjuncts such as alar base wedge and marginal reductions and columella cartilage struts for tip definition. These were modifications I had effected over a twenty year period and have continued to use with other modifications and improvements for thirty more years.

ORDER OF OPERATIVE STAGES

The order of operative stages has remained as described in 1965 and for good reason. As the nasal tip is encountered first it is corrected first. Then the anterior septal shortening and hump removal or bridge adjustment are next. The vestibular lining is then tailored and sutured. If the septum requires further corrective surgery it is carried out at this time. Then if alar wedge reductions are indicated they are marked and excised but not sutured to give better access to the bilateral osteotomies. A cartilage graft for tip definition is accomplished and finally the nose is ready for the osteotomies.

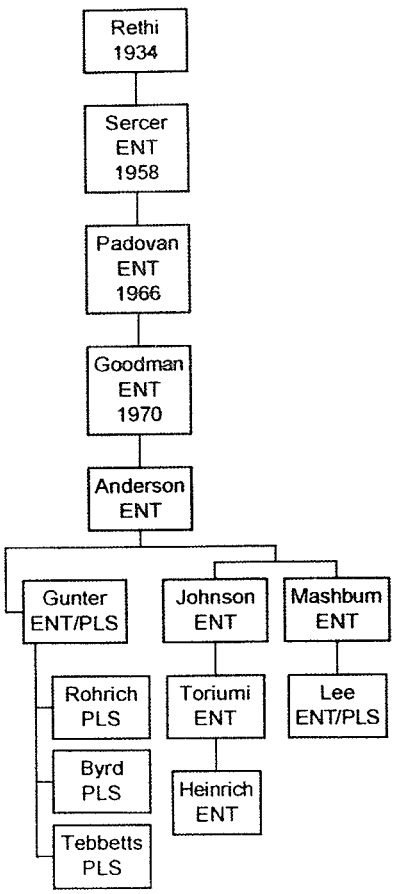
Each phase of the rhinoplasty operation not only affects the anatomy being directly altered, hump removal, septal shortening, but also influences associated structures. Thus there is a continuous changing scene as inevitable as diverse waves of falling dominoes. It is important that the surgeon not be smug in his memory of the original condition but rather alert to and cognizant of all the changes as he literally follows up and evaluates the effect of each step of the operation with a critical eye.

To Open or Not to Open

Open rhinoplasty has become popular among the younger surgeons and even with some of the older surgeons who were never really at ease with the standard endorhinoplasty. There are a few surgeons for whom open rhinoplasty is actually their "raison d'etre." It is enough of a fad that general rhinoplasty books are including it in the subtitle to attract young readers much like a naked lady in a circus sideshow sign serves to bait the yokels to buy tickets.

It has been my good fortune to have Charles S. Lee, a Korean American trained in otolaryngology at Loma Linda University, come to the University of Miami for a residency in plastic surgery. It is interesting to see his observations from this vantage point.

Open Rhinoplasty



When I first heard that endorhinoplasty was emphasized here I thought plastic surgeons might be retarded. I had learned open rhinoplasty from M. Mashburn, and felt that this was a new approach which should be used on every rhinoplasty. As I became familiar with the open rhinoplasty literature including the geneology tree, I saw though, that the issue of open or closed was not new. Jacques Joseph performed his first rhinoplasties externally before he went on to develop the endonasal approach. And the open approach first described by Rethi of Budapest in 1934 was largely ignored, "buried" by the popularity of the closed approach.

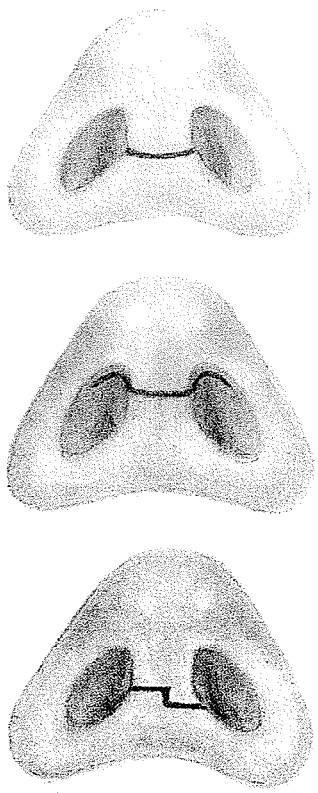
The open approach provides a direct view of the anterior nasal anatomy which may be beneficial to the less experienced surgeon. The trade-off is that the more extensive undermining and shaping of cartilages weakens the structure and can lead to uneven healing. When the skin is replaced, I found there was loss of definition at the tip. I visited C. Johnson to get the details and found that he gets around the problem by thinning the skin and stretching it over a large columella-tip cartilage graft. This seemed like a lot of surgery for the sake of possibly a better view to construct a well defined tip. Now that I've been exposed to endorhinoplasty, I can see it is possible to get the desired result with half the operation. Plastic surgery principles, like anabolic steroids, have given me the confidence to keep the external rhinoplasty in perspective. I prefer the flexibility of endorhinoplasty, which allows individual correction of each nose

to its own aesthetic ideal. I would use the open approach only if the particular case warranted an extensive correction not otherwise accessible.

It's interesting that while a few plastic surgeons are contemplating the open approach, some otolaryngologists who have seen both are going toward the closed. I asked J. Heinrich, a co-resident who split a year in Chicago between M. E. Tardy, who performs mainly endorhinoplasty, and D. Toriumi, whose approach is mainly the open, for his opinion. For most primary noses, he shares my preference for endorhinoplasty."

This is the era of instant gratification, the quick fix and shortcuts to unearned expertise. Still there is nothing wrong with making an operation easier provided the cost of the change is not exorbitant. To open the cap on the columella for more complete exposure of the tip, on the surface, seems to cost only a minor external scar but unfortunately the price of violating the nasal capsule can be far greater. I have seen unacceptable scars, notch contractures, columella trap-door bulge, asymmetrical healing, deep scarring, tip depressions and partial to almost complete loss of the columella.

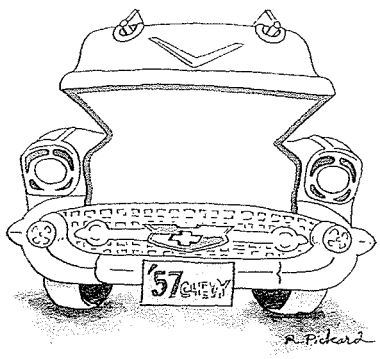
Of course no scar is best but next best is the correct position of the scar which is not so easily determined and may not be the same in each case. If the scar is placed at the base of the columella it fulfills the aesthetic unit rule but it requires a larger transverse scar which may heal poorly. The midtransverse columella scar is shortest but it violates the unit and if it heals poorly or notches it is more noticeable. The scar of the flying bird at the columella join with the tip is more noticeable. Interrupting these scars with a zig-zag, if they heal poorly, can be ugly. Recently on a secondary severe unilateral cleft lip nose due to partial shortness of the columella, I decided to do an open rhinoplasty. My decision was made due to the need for extra length to the columella, the presence of scars in the area already and for the benefit of the residents. Then the

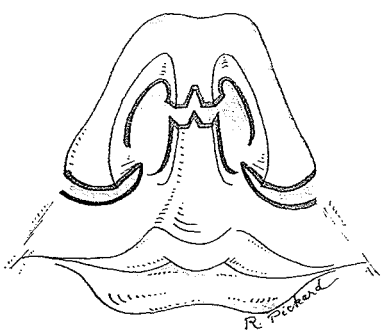


open rhinoplasty incision picked up extra skin from the scarred upper lip which achieved about 0.5 cm columella lengthening. The added exposure, the residents and I confirmed, was not of particular value and the bobbing end of the freed columella was a nuisance.

I would prefer the beginner go to the cadaver lab and carry out a few open rhinoplasties to become familiar with the anatomy, improve the third dimensional sense and practice the corrective surgery at leisure with full exposure. With this preliminary preparation most noses can then be corrected easily without the open approach. Endorhinoplasty as I am describing it provides direct view for more than 95% of the procedure. If the remaining 5% is important to the result then open and lift the columella to fix the problem in the specific case. Do not fall into the trap of making open rhinoplasty a rigid routine.

Fortunately I have had access to the open procedure long before any of the modern surgeons began promotion of this attack. The forked flap, 1958, in bilateral clefts lifts as it lengthens the columella which of course at the same time directly opens exposure to the nasal tip. In the last 10–15 years as the construction of the bilateral cleft deformity has become more extensive even in primary cases the open approach has been useful.

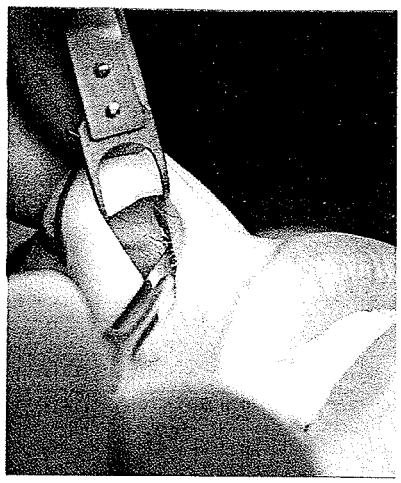




If the surgeon is really determined to operate through an open sky approach R. Picard's '57 Chevy external exposure can be considered. The hood of the '57 Chevy was designed so that when raised there was an unequalled access to the front of the engine and head lights. Picard's external exposure gains access through a horizontal notched incision made across the columella connected intranasally with bilateral intercartilaginous and Weir incisions. In 1990 Picard successfully used his '57 Chevy external approach to give access to the anterior nasal chamber for CO_2 laser ablation of nasal papillomata recurrent despite 18 previous operations.

Whether the surgeon uses the endorhinoplasty approach or opens the nose is *relatively unimportant provided that what is actually done to the nose beneath the skin is in line with what is being described here in detail.*

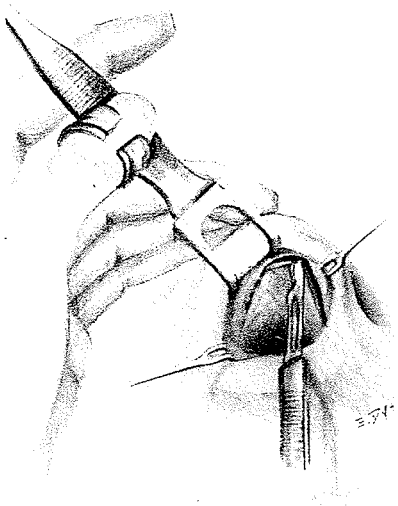
Although the specific procedure described in the text will be accompanied by representative cases, it should be understood that all cases presented, unless otherwise stated, have undergone similar procedures as required by the specific problem. In diagrams recording the extent of surgery cross-hatching indicated the areas and extent of resection. An interrupted line over bone indicates osteotomy.



PREFERRED PERSONAL APPROACH

Membranous Septal Incision

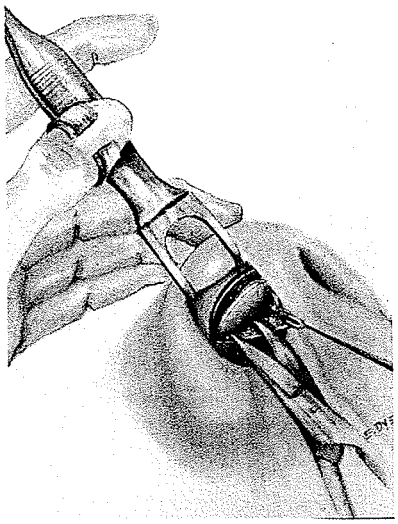
As corrective rhinoplasty is in large part a cosmetic procedure, access incisions are placed within the nasal cavity. I prefer to start with the membranous septal incision which is carried out with a No. 15 Personna-Plus blade passing through and through the membranous septum from the upper tip of the distal septum down to the nasal spine. This exposes the front of the septum and the medial crus of the alar cartilages on the backside of the columella. Remember that what membranous septum is left on the back of the columella can and probably will be retained but what is left on the septum will be removed when the anterior septum is shortened.



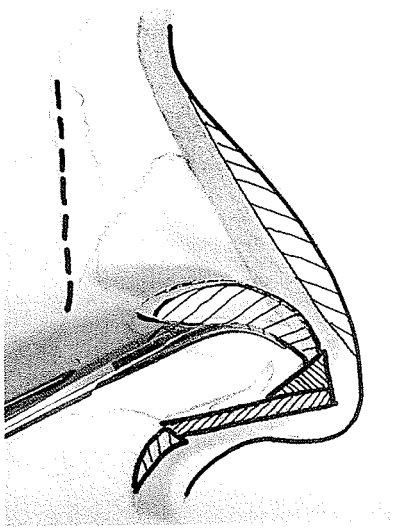
Intracartilaginous Incision

The membranous septum incision is continued laterally on each side in an arch through the vestibular mucosa and splitting the alar cartilage along the line marked preoperatively for tip cartilage reduction. This provides easy and direct exposure to the dissection of the proximal alar cartilage which is designed for resection. This

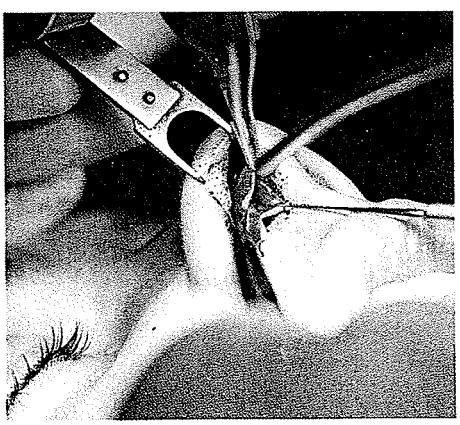
intracartilaginous or cartilage splitting incision is preferred not only for direct access to the offending cartilage but it avoids the intercartilaginous line and the area of the internal valve. Scar contracture in this area can be obstructive.

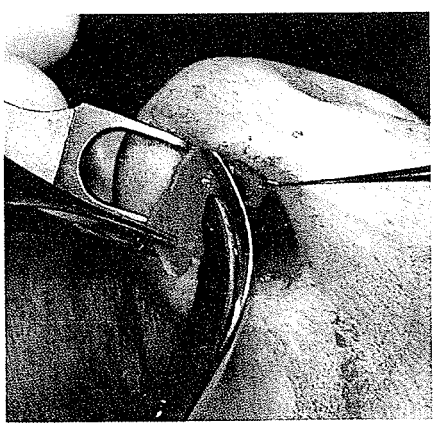


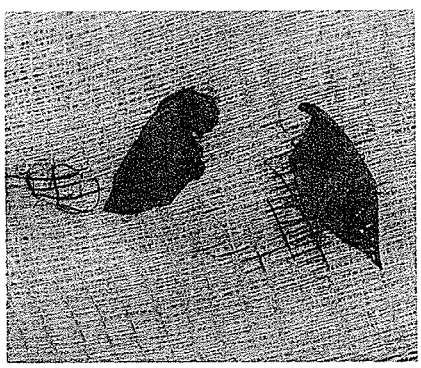
Reduction or reshaping of the lower alar cartilage depends on the alar cartilage. In the majority of nasal reductions I remove the proximal 1/2 to 2/3 of the lower lateral alar cartilage. When the cartilages have bizarre shapes then the reshaping depends on the specific abnormalities and the cartilage is carved to as natural a shape as possible. I do not find scoring of the residual cartilage of great value in most instances but occasionally can be of use.



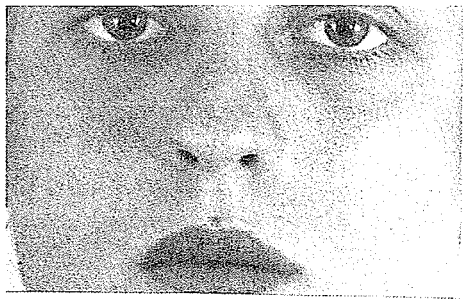
A fine pointed scissors will dissect the perichondrium with the vestibular mucosa off the underside of the alar cartilage and a right angled scissors frees the upper side of the cartilage from the nasal skin. Then this piece of cartilage is excised cleanly with a right angled scissors. When the cartilages are bulbous then the excess portion is marked for excision maintaining an intact distal rim of cartilage at least 3 to 4 mm in width to support the alar rim. The resected portions of alar cartilage should be retained temporarily for comparison to insure symmetry of excision.

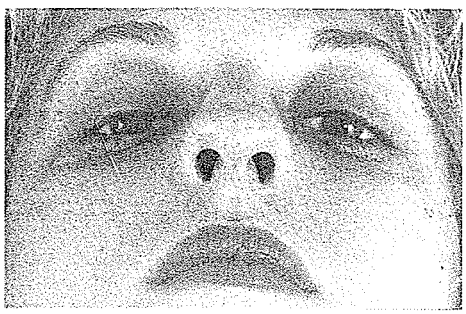


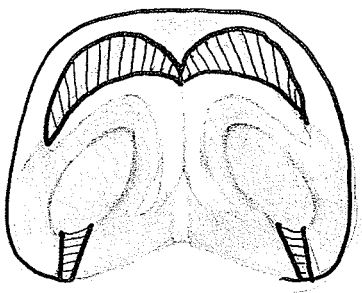


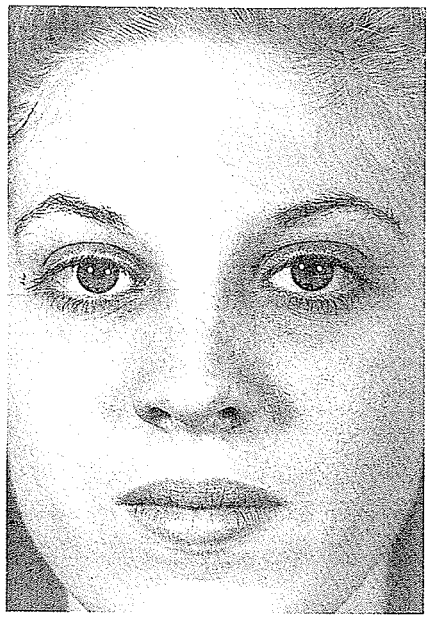


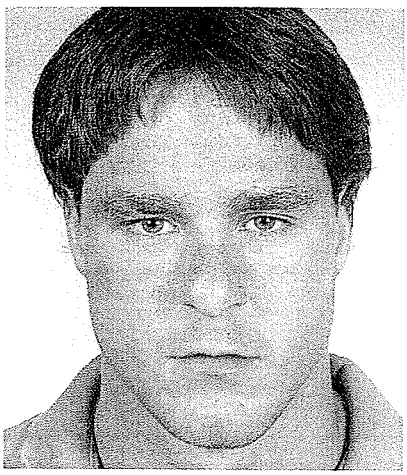
Here are a few examples of the alar cartilage reduction, along with whatever associated procedures were indicated.

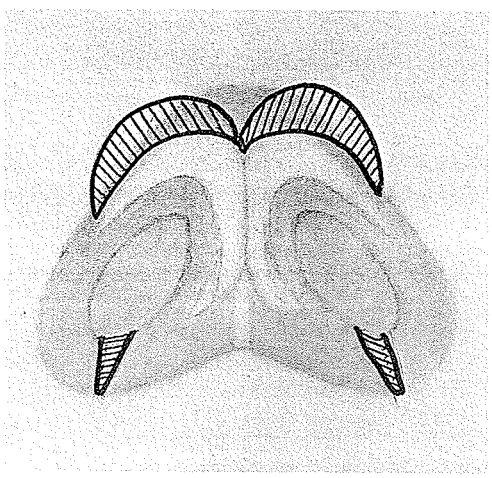


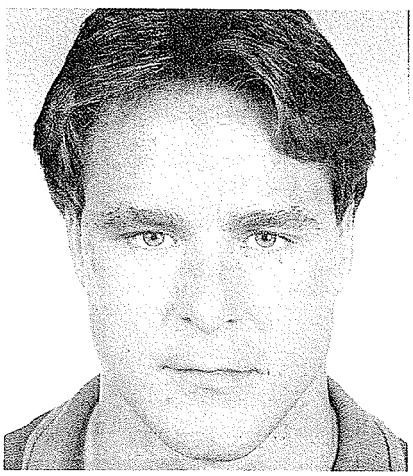


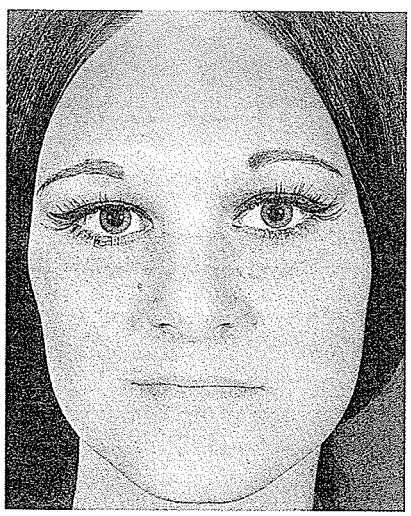


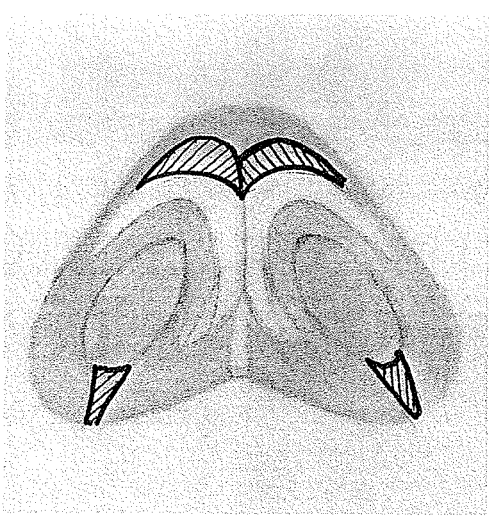


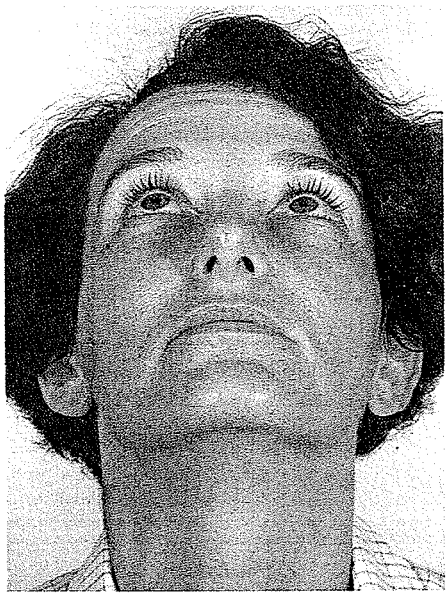


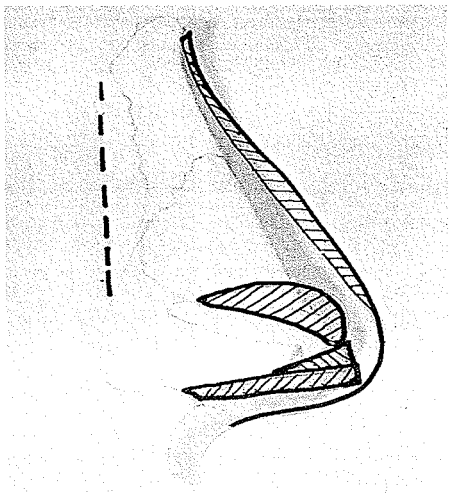
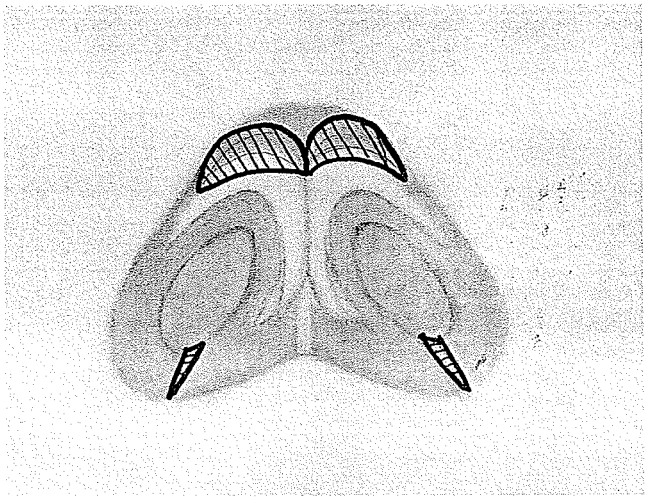


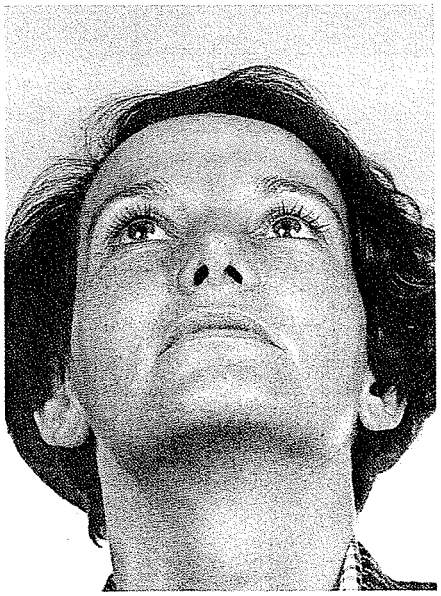
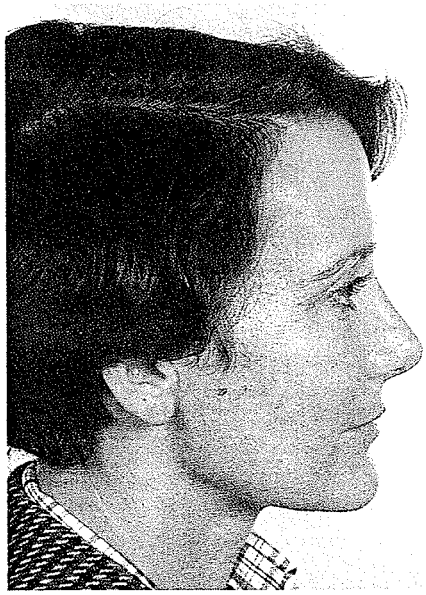


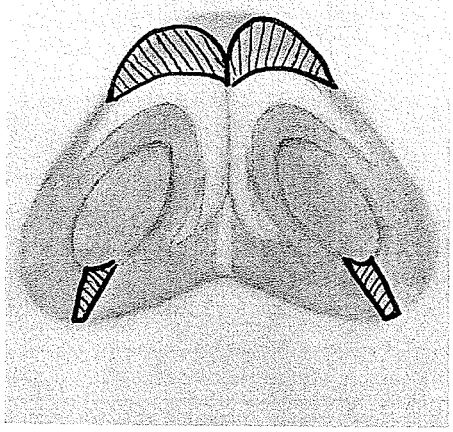


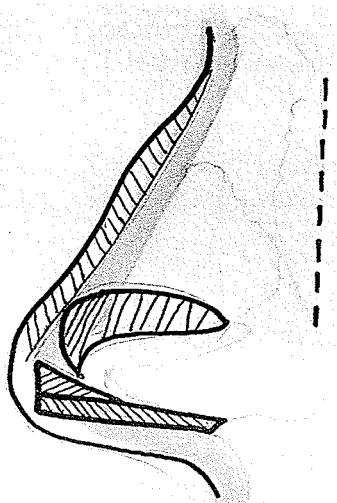


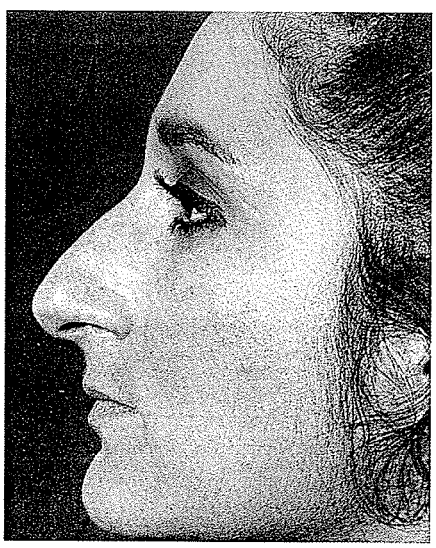



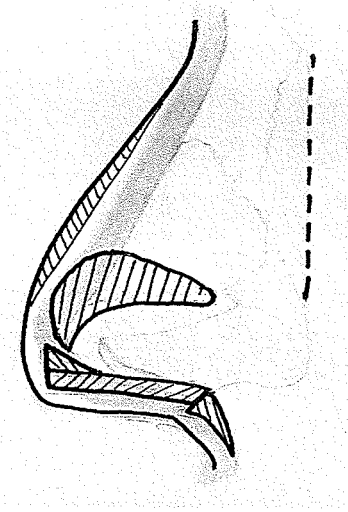



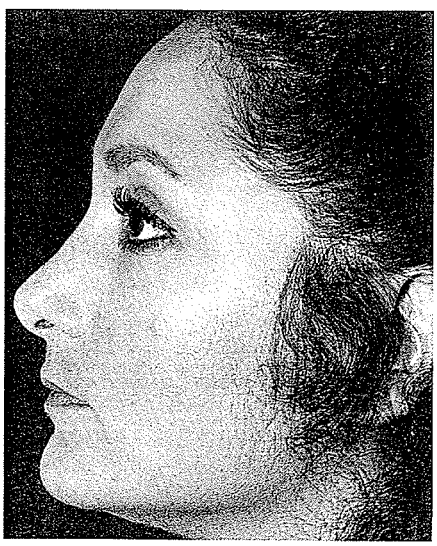



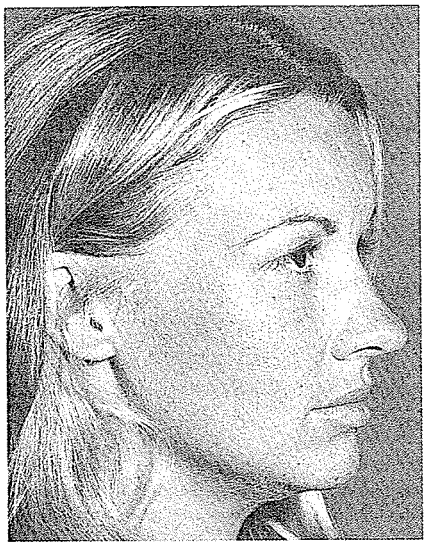


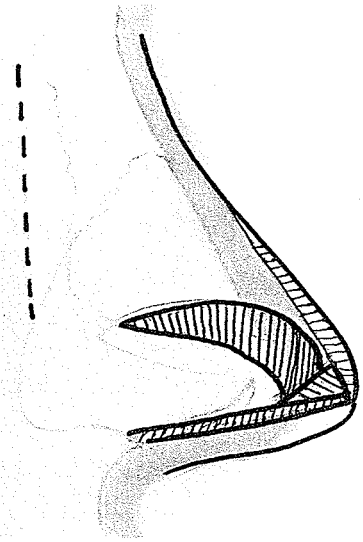


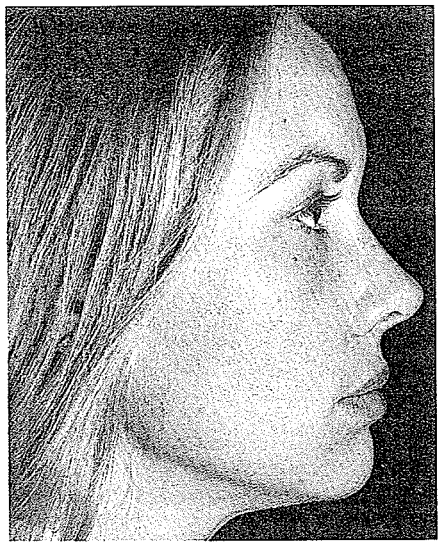




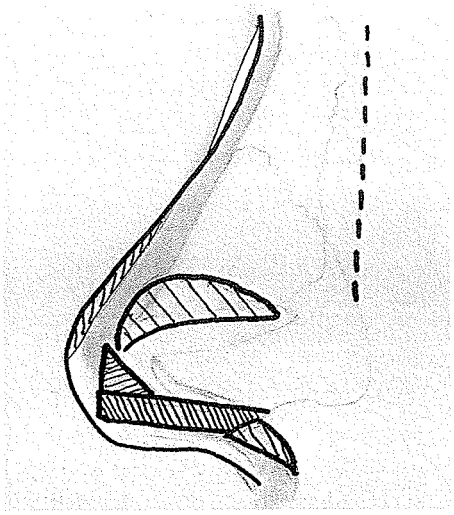


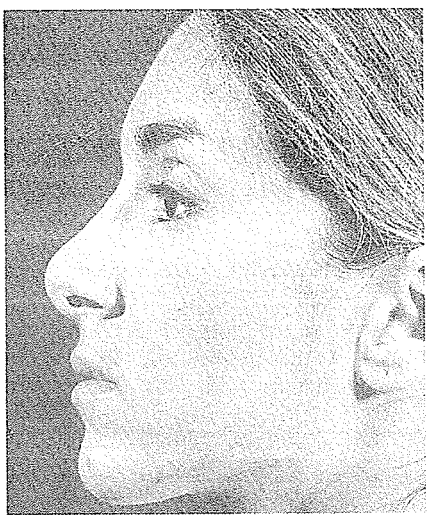


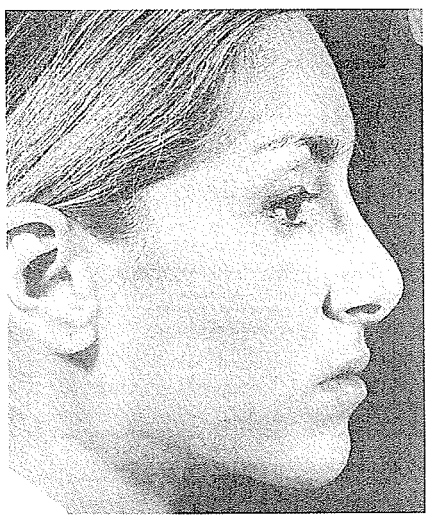


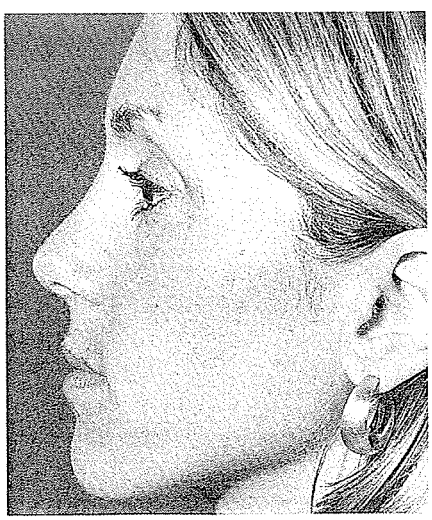


This nose with an unusual shape required bridge, septal, and alar cartilage resection and a septal cartilage onlay graft to the upper root of the nose.



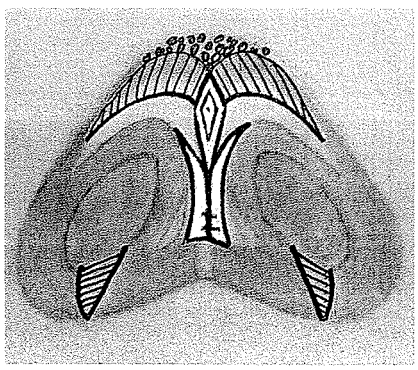


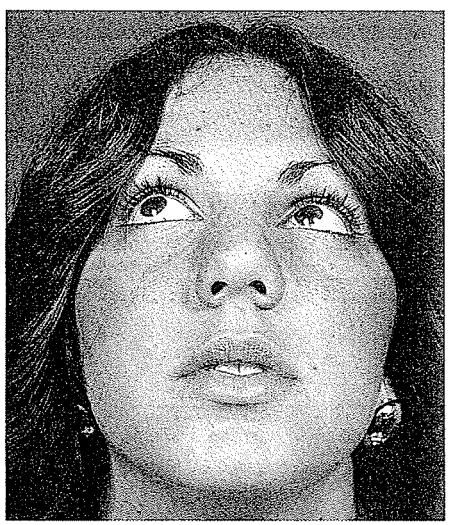


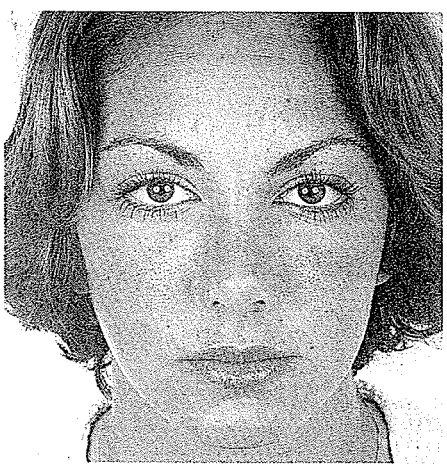


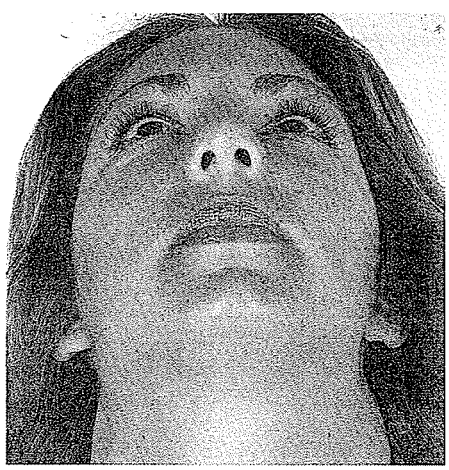
In 1965 I advocated more radical lower lateral cartilage excision leaving in some cases only a 1–2 mm intact rim and in the wide tips excising a pie-wedge of cartilage completely through the remaining thin cartilage arch just at its angle join with the medial crus. Experience has shown that this is too radical. I agree with Peck that the integrity of the alar cartilage rim at least in primary rhinoplasties should be kept *sacrosanct.*

There are some nasal tips that are excessively bulbous and these often have subcutaneous fat in addition to broad alar cartilages. Thus their correction involved alar cartilage reduction but also defatting of the under skin of the tip with right angled scissors. In this specific case, in addition, a two-tier cartilage graft to the tip, reduction and suturing of the medial crura of the alar cartilages and alar base wedge resections added to the refinement of the result.

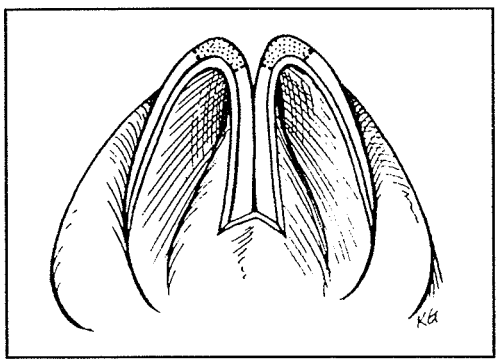


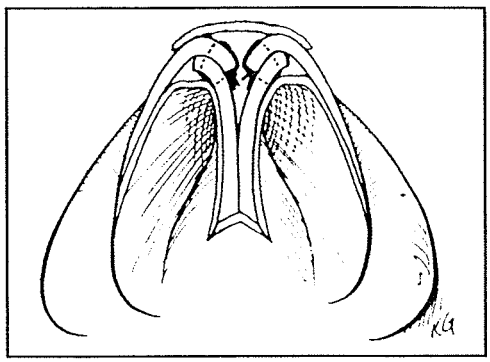


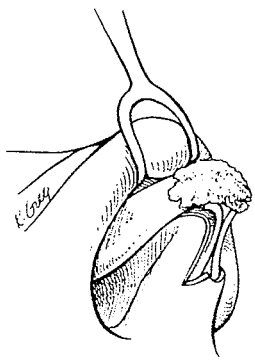




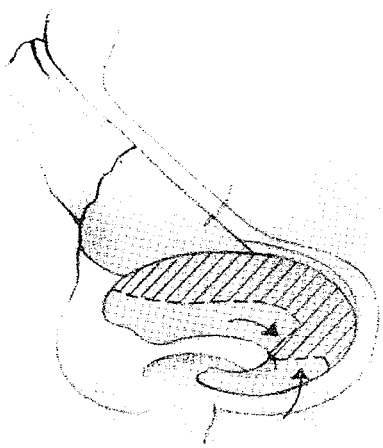
Numerous surgeons have advocated the interruption of the cartilage dome in the nasal tip. I. B. Goldman 1957 divided the cartilage lateral to the dome, and J. Safian 1970 divided the cartilage through the center of the dome. E. M. Lipsett 1959 divided the cartilage medial to the dome, but H. G. Brennan in 1983 not only divided the cartilage medial to the dome but overlapped the lateral over the medial crura. S. Hamra in Plastic and Reconstructive Surgery in 1993 also divided the cartilage medial to the dome and overlapped the lateral over the

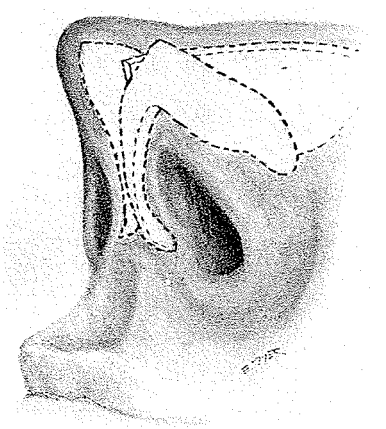






medial crura and fixed them with sutures. To hedge his bet he covered the interrupted cartilage with cartilage mush. E. Muti in Aesthetic Plastic Surgery in 1993 presented a more complex peripheral cartilage reduction with a V wedge taken completely through the center of the arch. Although it is usually possible to obtain an aesthetic result without interrupting the cartilage, under certain circumstances these variations could be considered. Personally I prefer the lateral freeing of the alar cartilage in elongated tips and feel it is one of the most efficient procedures in all of rhinoplasty.

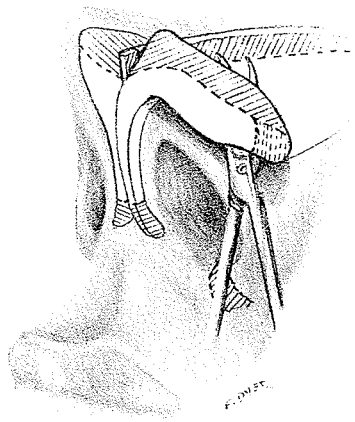


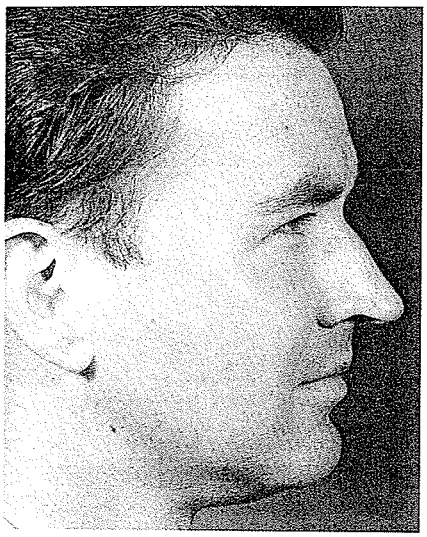


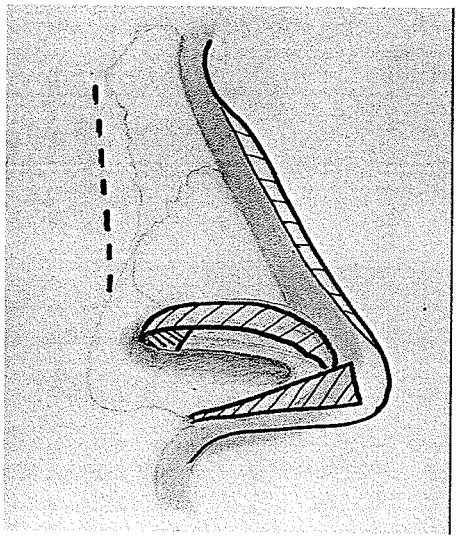
The Elongated Tip

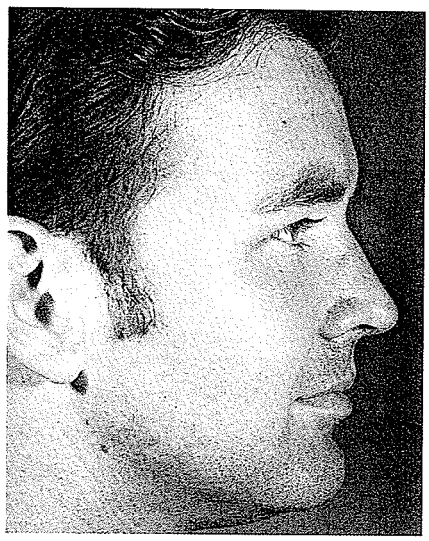
When the alar cartilages have an acute angle forcing an elongated projecting nasal tip then the reduction of the superior portion of the alar cartilage reduces some of the projection and the same 3 to 4 mm width of intact cartilage is maintained. Rather than divide the cartilage arch producing multiple cartilaginous points in the tip I prefer to free the lateral leg of the alar cartilage completely from

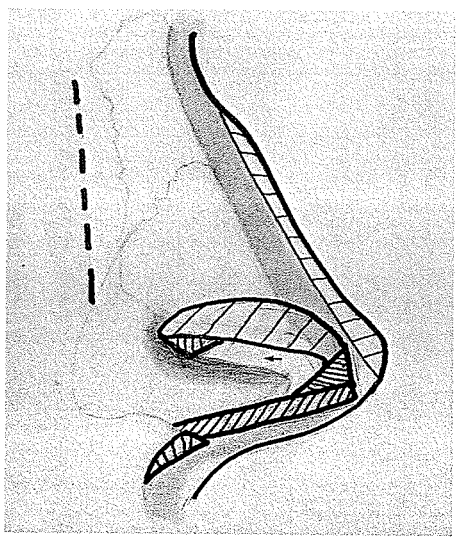
all of its attachments so that it dangles free and then amputate the lateral one-third or whatever is indicated in the specific case. By thus reducing the projection of the lateral leg of the nasal tip tripod, the pointed projection is noticeably shortened and softened. This is also effective on thick tipped noses. I use this approach often and Peck, I believe, also uses a similar procedure. Here are some examples which have also benefitted by other usual rhinoplasty procedures.

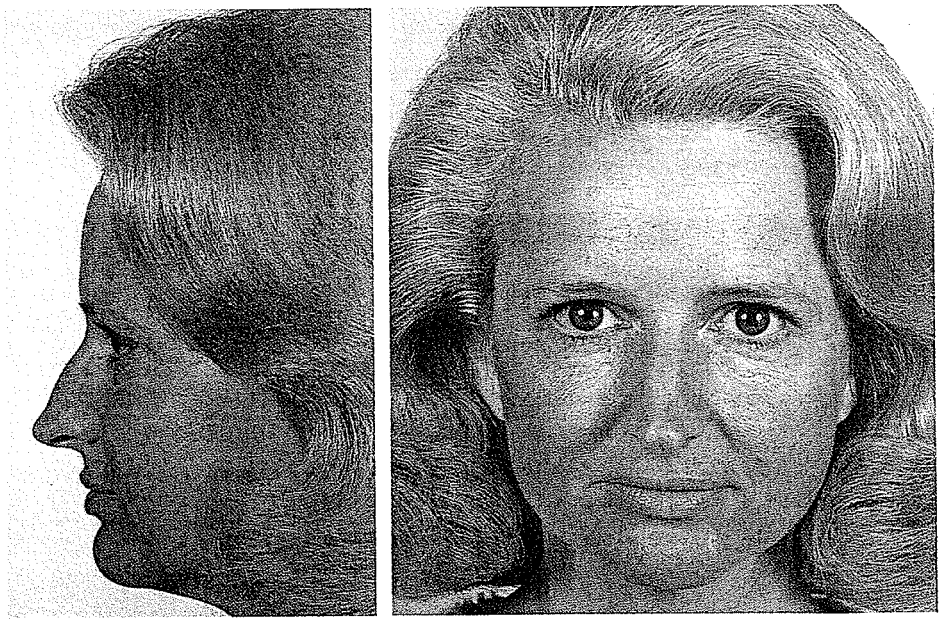


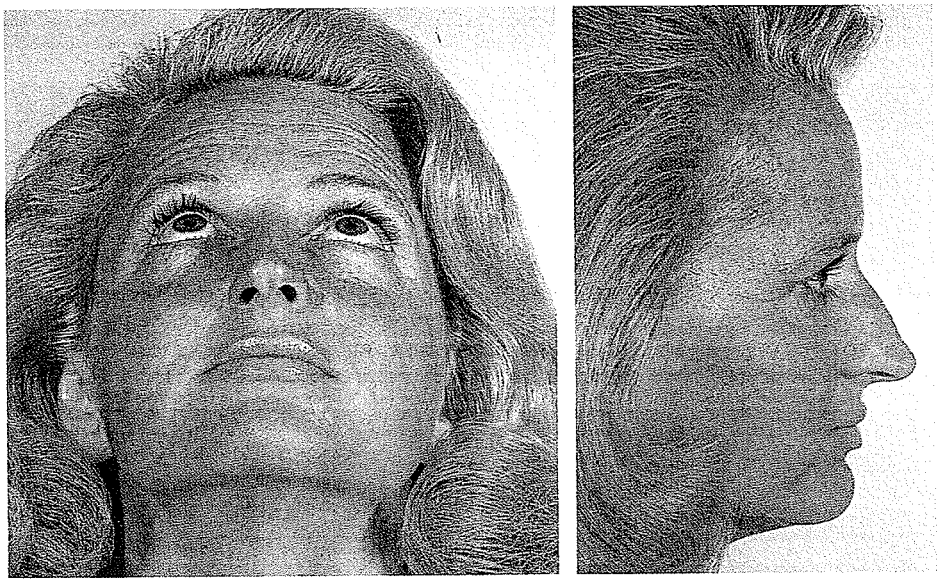


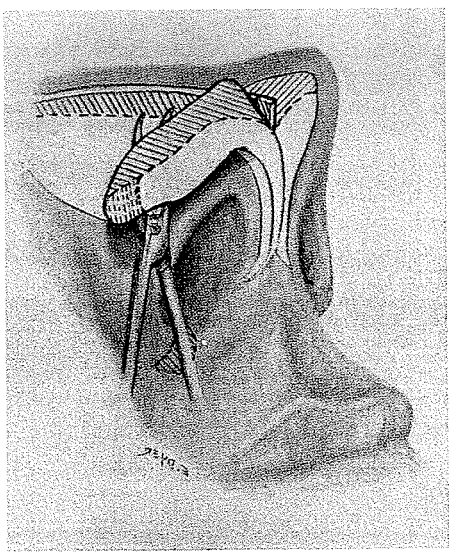


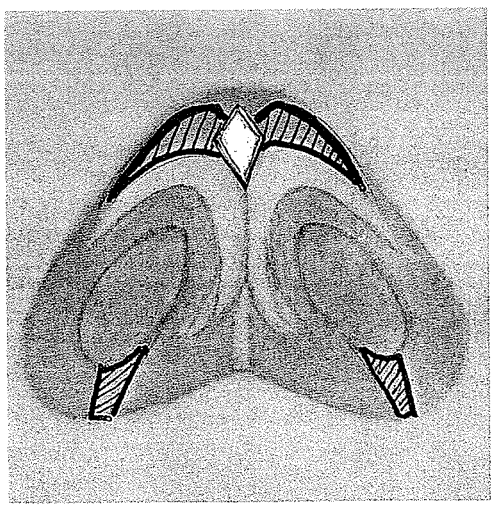


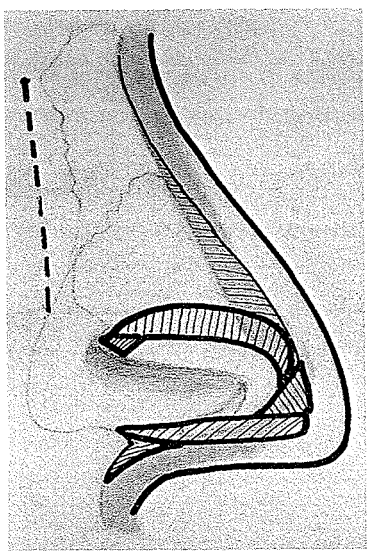


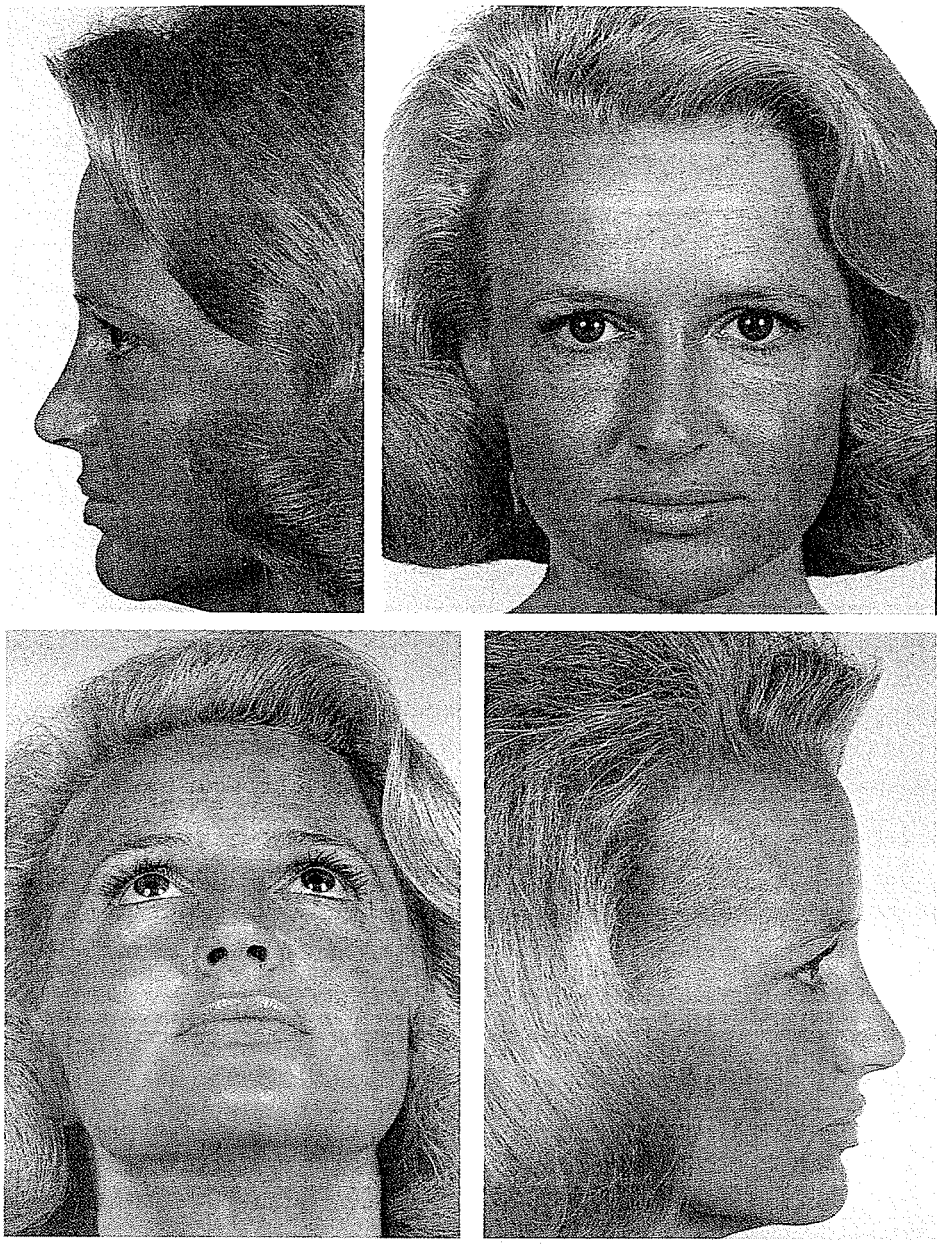


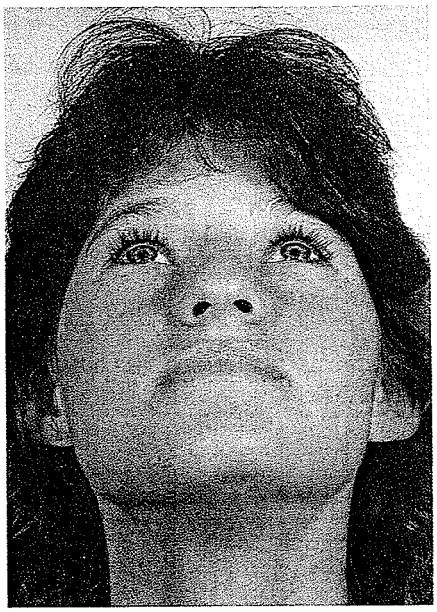


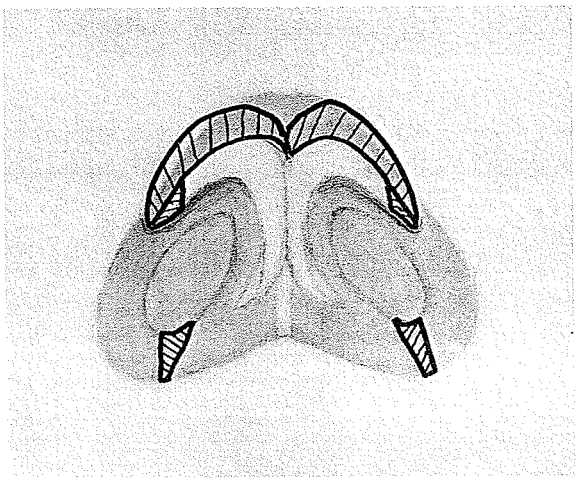
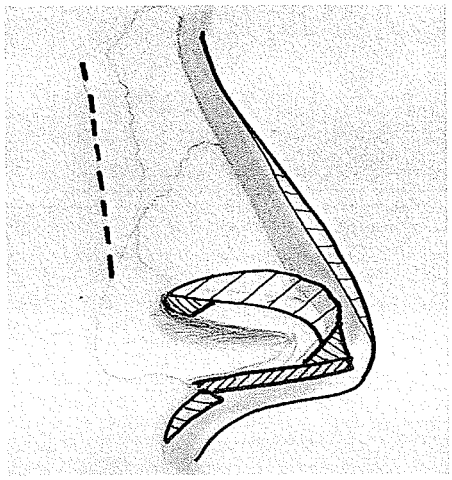


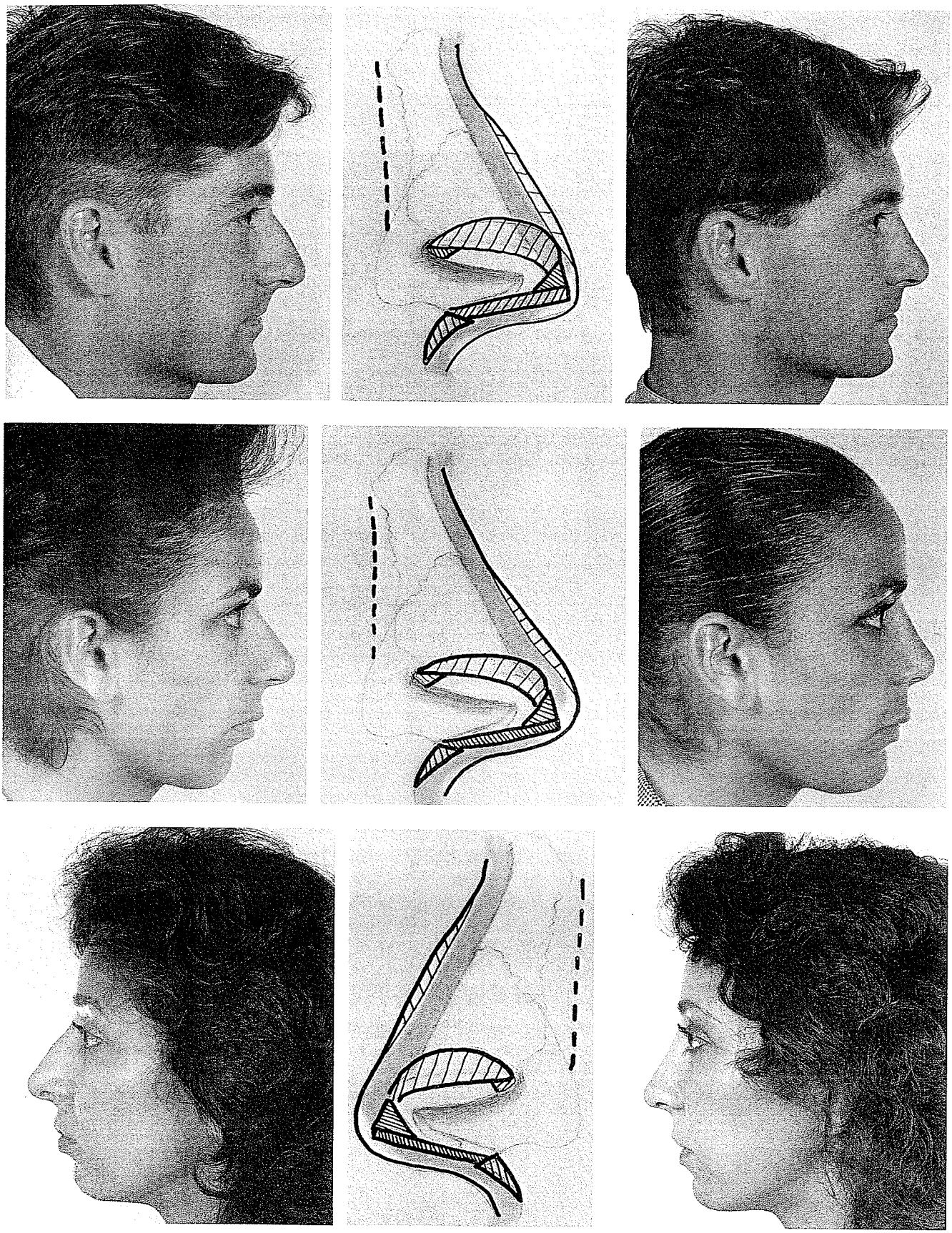


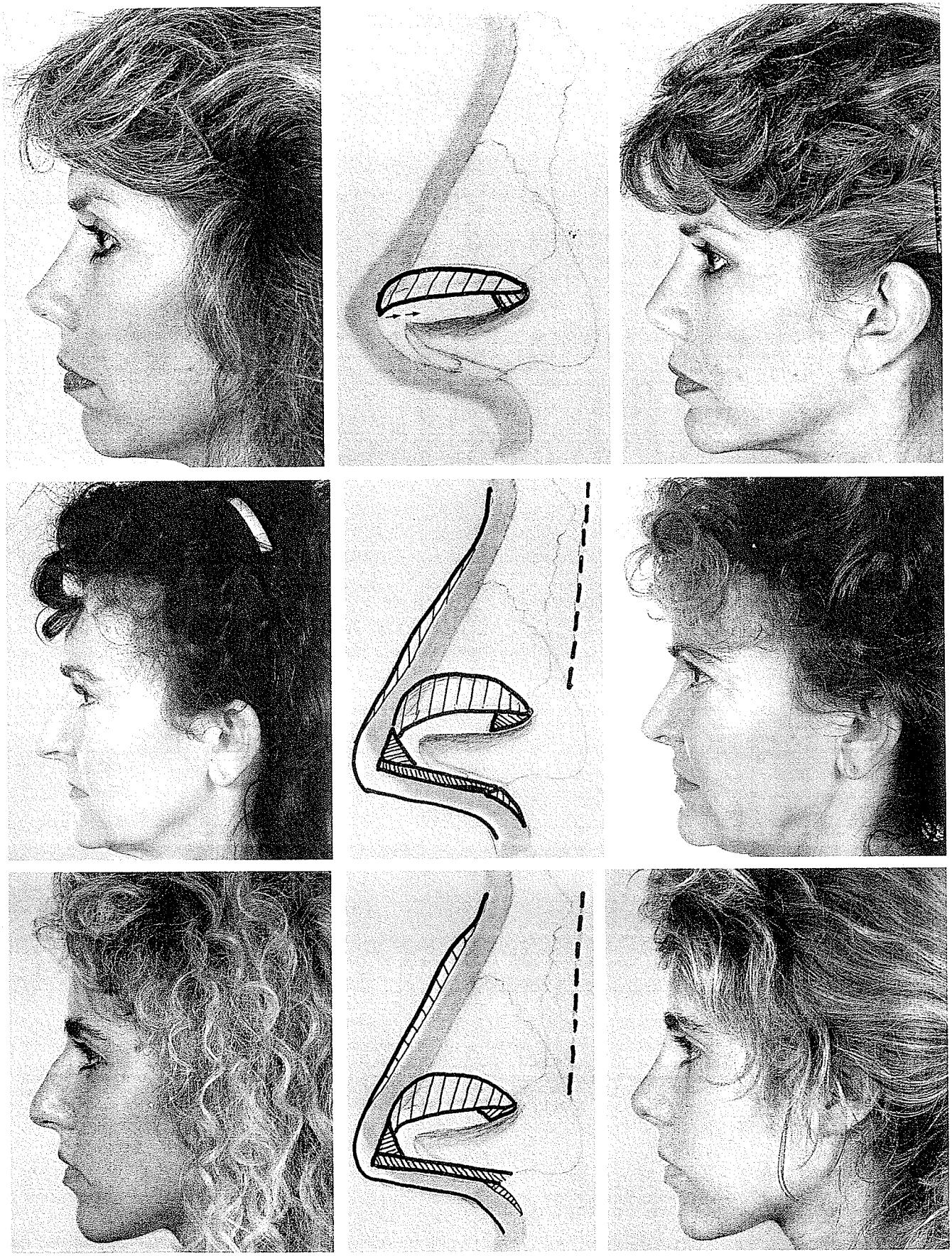


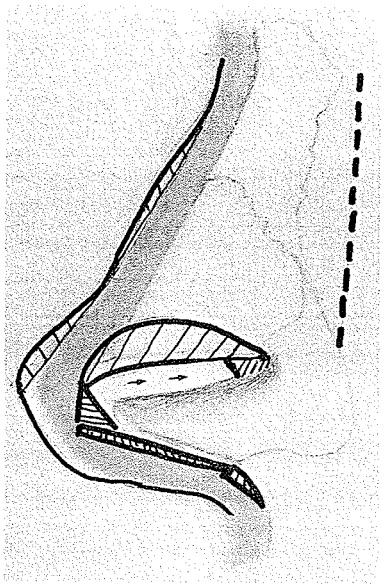


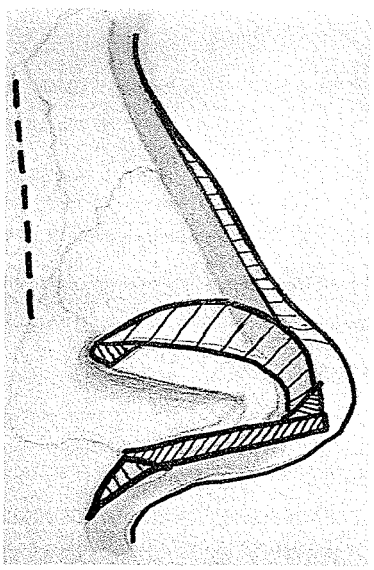



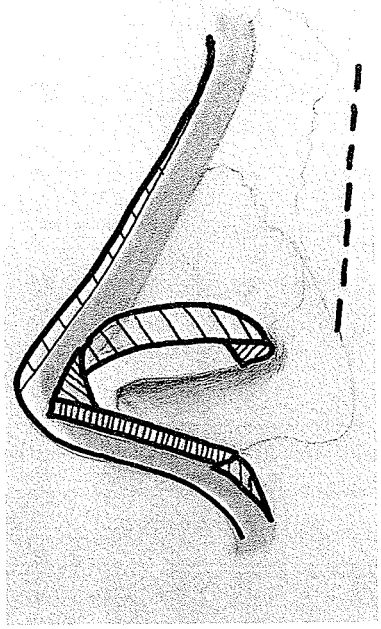



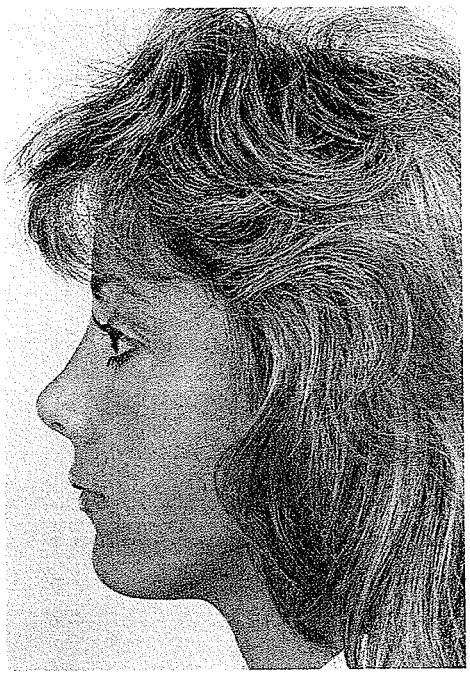







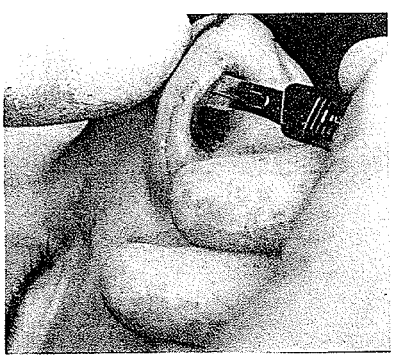






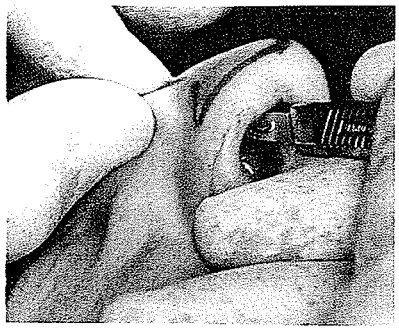
IN REVERSE. When the nasal tip is flat, freeing the lateral wings of the alar cartilages and not amputating them but rather advancing them forward and fixing them with sutures gives more material projection to the tip. Of course, a tip graft could be added.

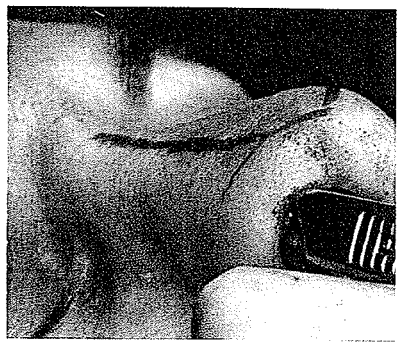
Careful observation and palpation of the tip following alar cartilage reduction will indicate asymmetries and projection contour which can be corrected by inverting the alar rim, freeing the distal residual alar cartilage and trimming the remaining excess. This is all done under direct vision.



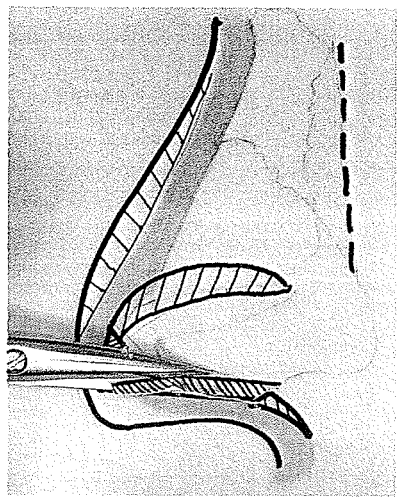
FREEING THE DORSAL NASAL SKIN. Into the bilateral pockets created during alar cartilage reduction a No. 10 P. P. blade is slid for dissection of the skin from the remaining skeletal structures. The skin of the nasal tip area is relatively thick while the skin of the nasal bridge is thinner. Thus the scalpel dissection of the nasal tip skin is aided by fingertip pressure to render the skin as thin as is safe while the thinner skin overlying the bridge is lifted by thumb and finger to assist the scalpel to pass deep under its full thickness skin providing the best possible cushion cover of camouflage for any unnoticed final minor discrepancies of the corrected bridge. The

same maneuvers are advocated with the scissors if the surgeon is more comfortable. Once the skin of both sides of the nose has been freed I use the right angled scissors to sever any remaining minor attachments along the midline. In those cases where osteotomies will be necessary I prefer not to free the skin attachments too generously from the bone laterally. These remaining attachments afford better control of the bones freed by osteotomy avoiding their possible slippage into the nasal cavity. Only when the bridge height is extreme, requiring greater resection, then the lateral nasal skin freeing must be extended laterally to allow lateral repositioning of the excess nasal skin. Once the skin is totally free then a retractor will give easy exposure.



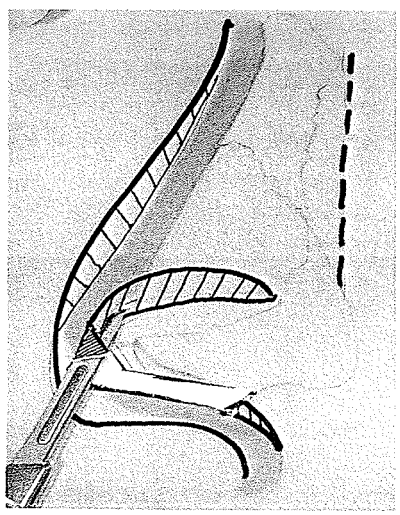


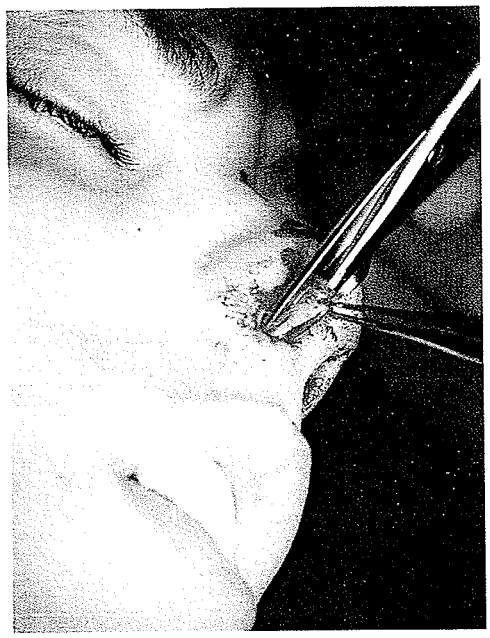
SHORTENING THE NOSE. Once the alar cartilages have been reduced and the nasal skin has been freed, the nasal tip will tilt back, giving the impression that the nose has been shortened. *Do not* be fooled by this illusion. Check the profiles of the preoperative photographs to determine the amount of nasal shortening necessary and be guided by this when approaching the anterior septal resection and shaping of the nasolabial angle.

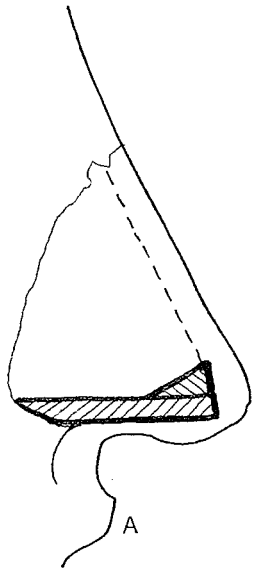


In correction of a long nose there are several aesthetic factors to consider. If the length is too great from the nasion to the nasal spine, overpowering the upper lip but the nasolabial angle is satisfactory, a rectangle (a) is resected from the anterior septum. I usually use a pair of large straight scissors. Once the composite block has been removed the exposed septal cartilage can be further tailored.

Once the anterior septum has been corrected in length and general angle, to obtain an added aesthetics, I almost always resect a small triangle at the distal one-third of the tip to obtain a profile with an angle of golden proportions, 1:1628. This does not turn up the entire nose and expose the nostrils but allows adequate shortening in the nostril area and then tilts only the tip more acutely in a provocative golden angle.



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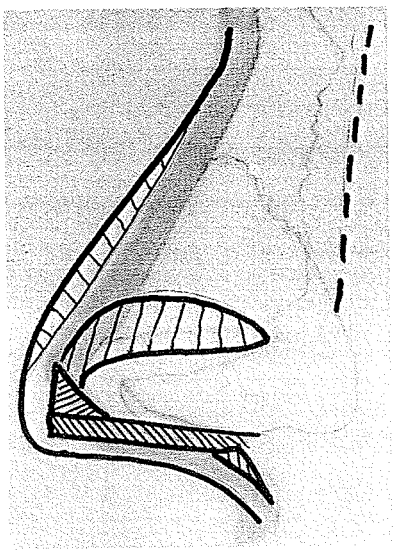
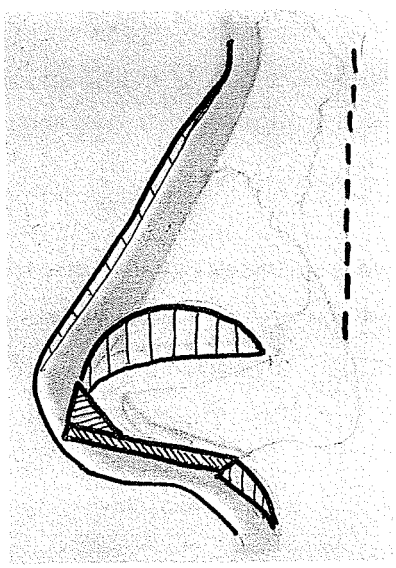
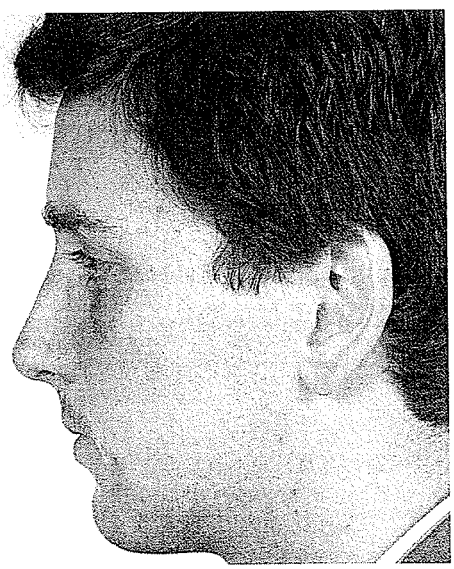
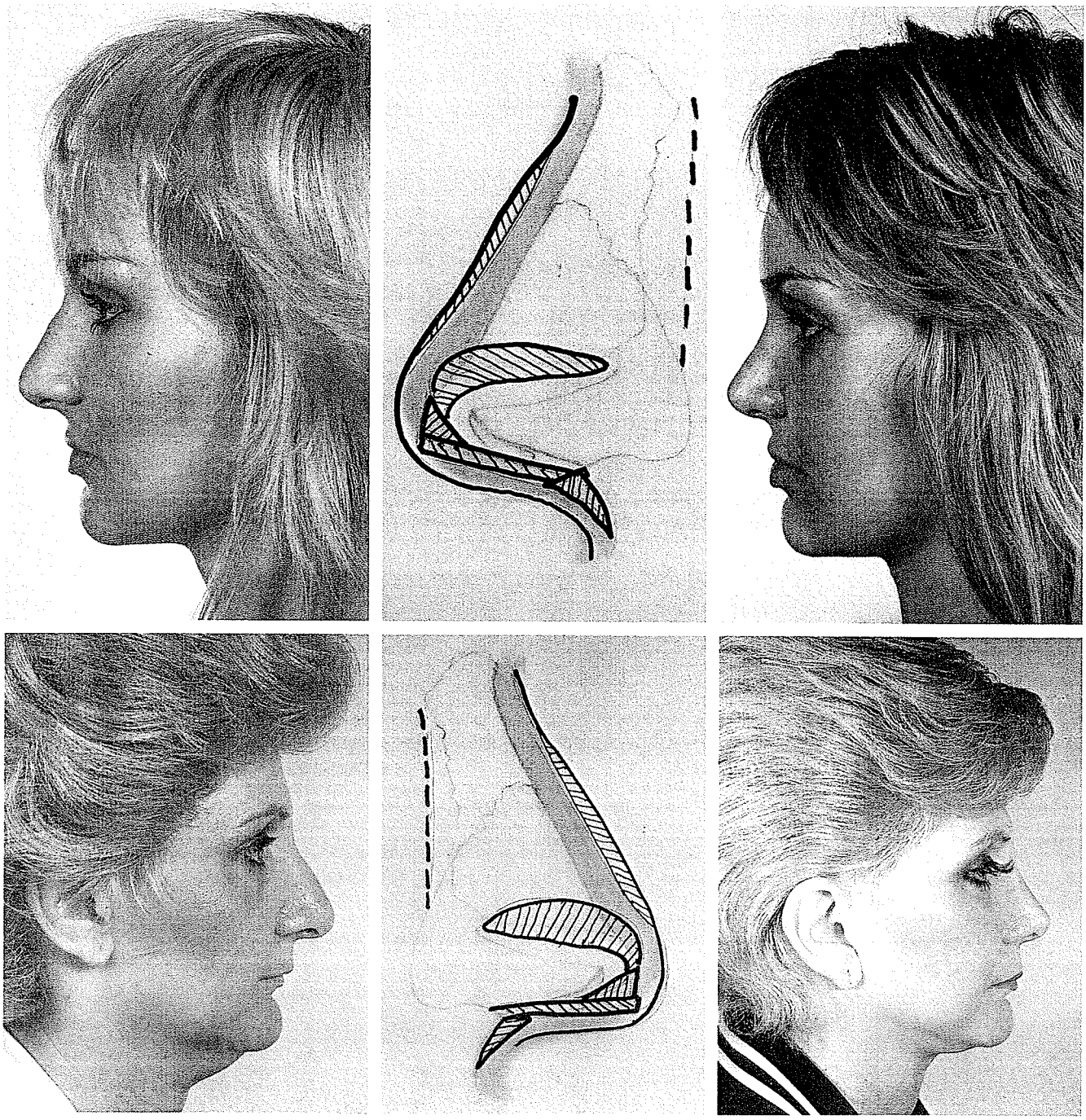
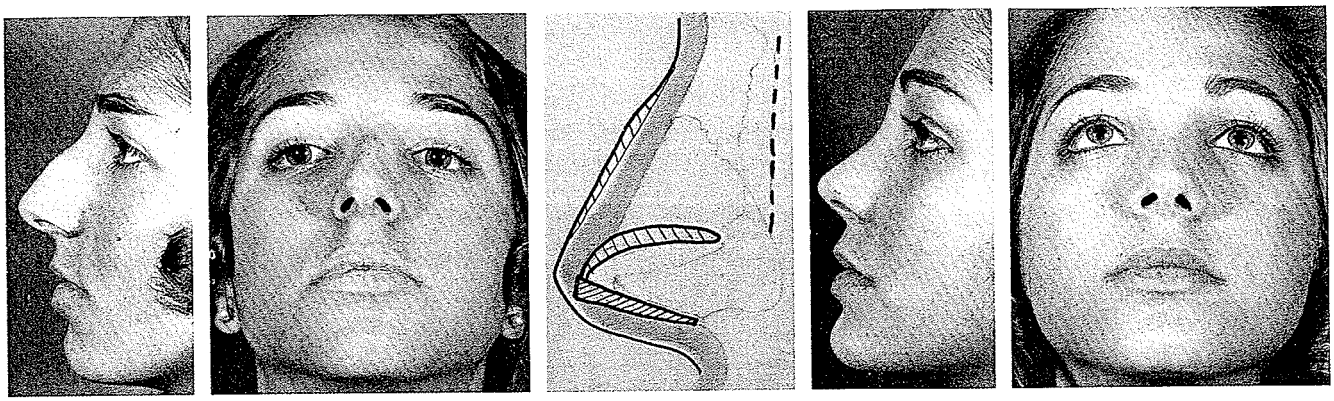


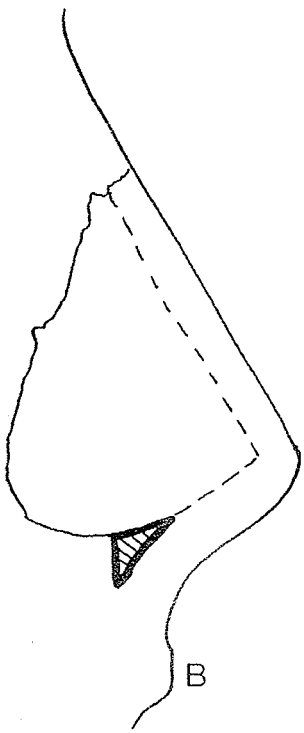




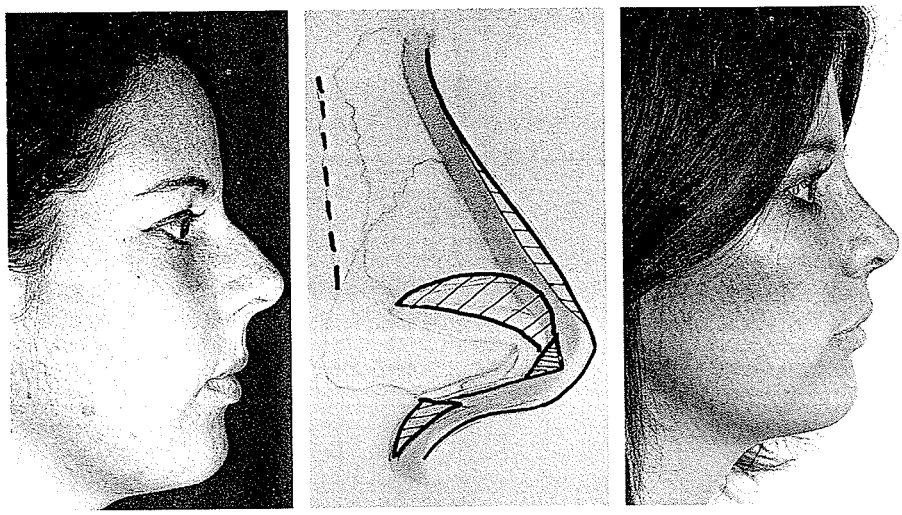


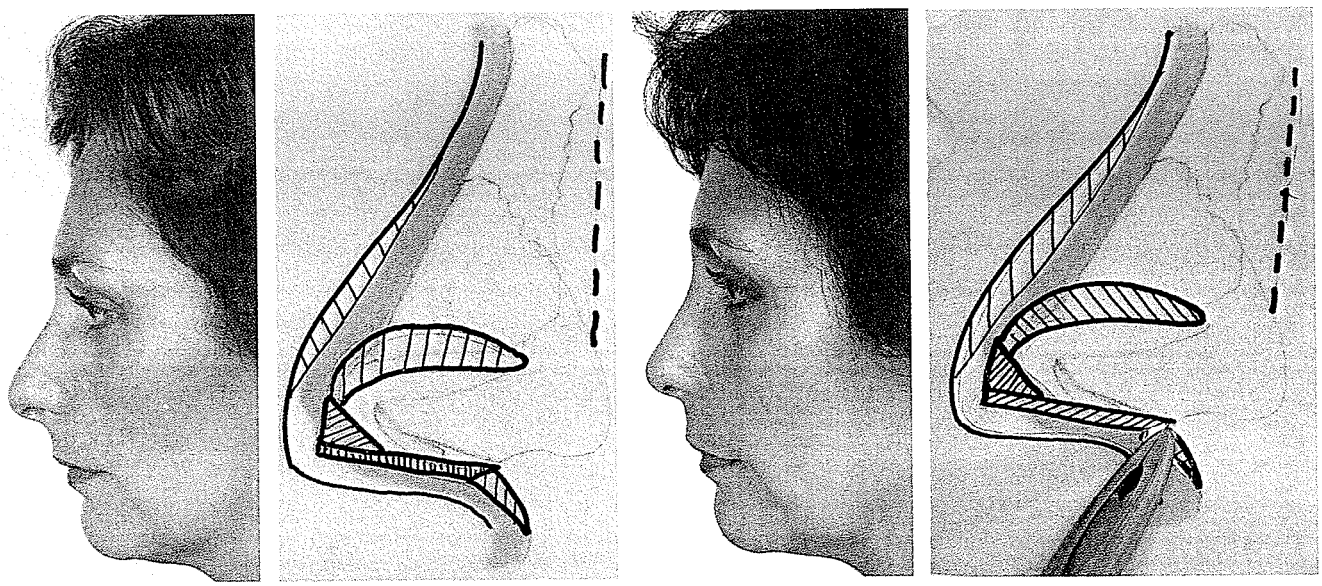
To emphasize the value of the golden angle, observe this case which was operated before I was creating the angle. A gentle triangle was excised from the distal septum which shortened the nose but did not achieve as an aesthetic line.



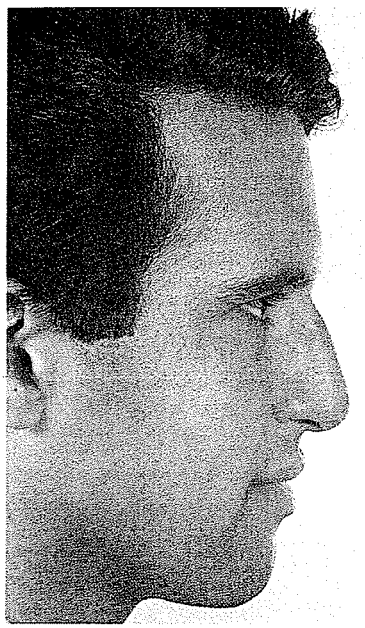


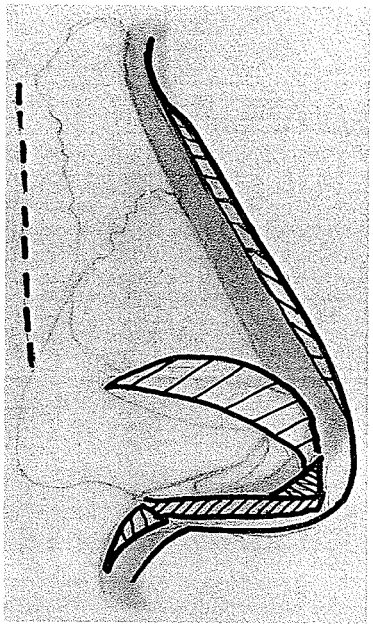
If the nasolabial angle is wide open or the tip too short, the nasal spine (b) may be reduced with a rongeur to improve relations.

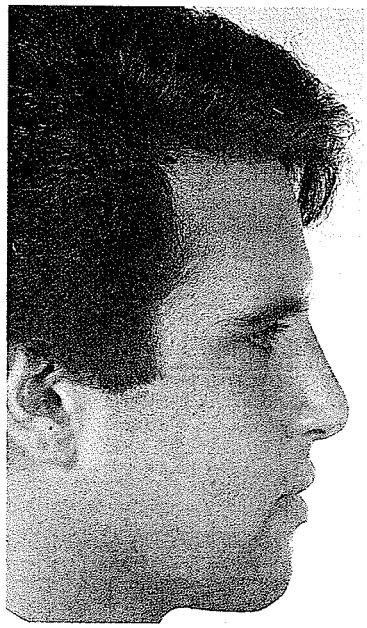


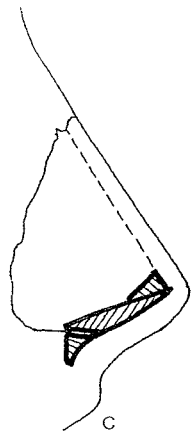


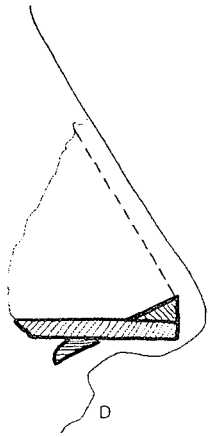
If the nose is too long from nasion to nasal spine but the tip is turned up, resect a narrow triangle with the base at the nasal spine (c). If the tip is too long and the nasal spine prominent a septal rectangle or triangle and spine reduction is indicated (d).



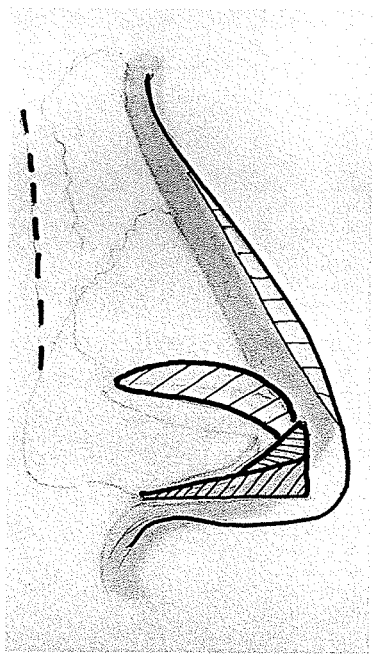


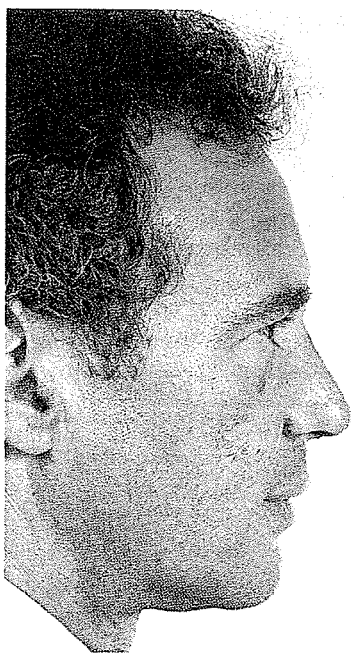


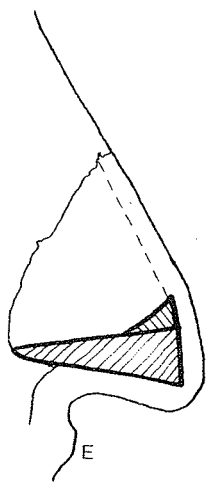




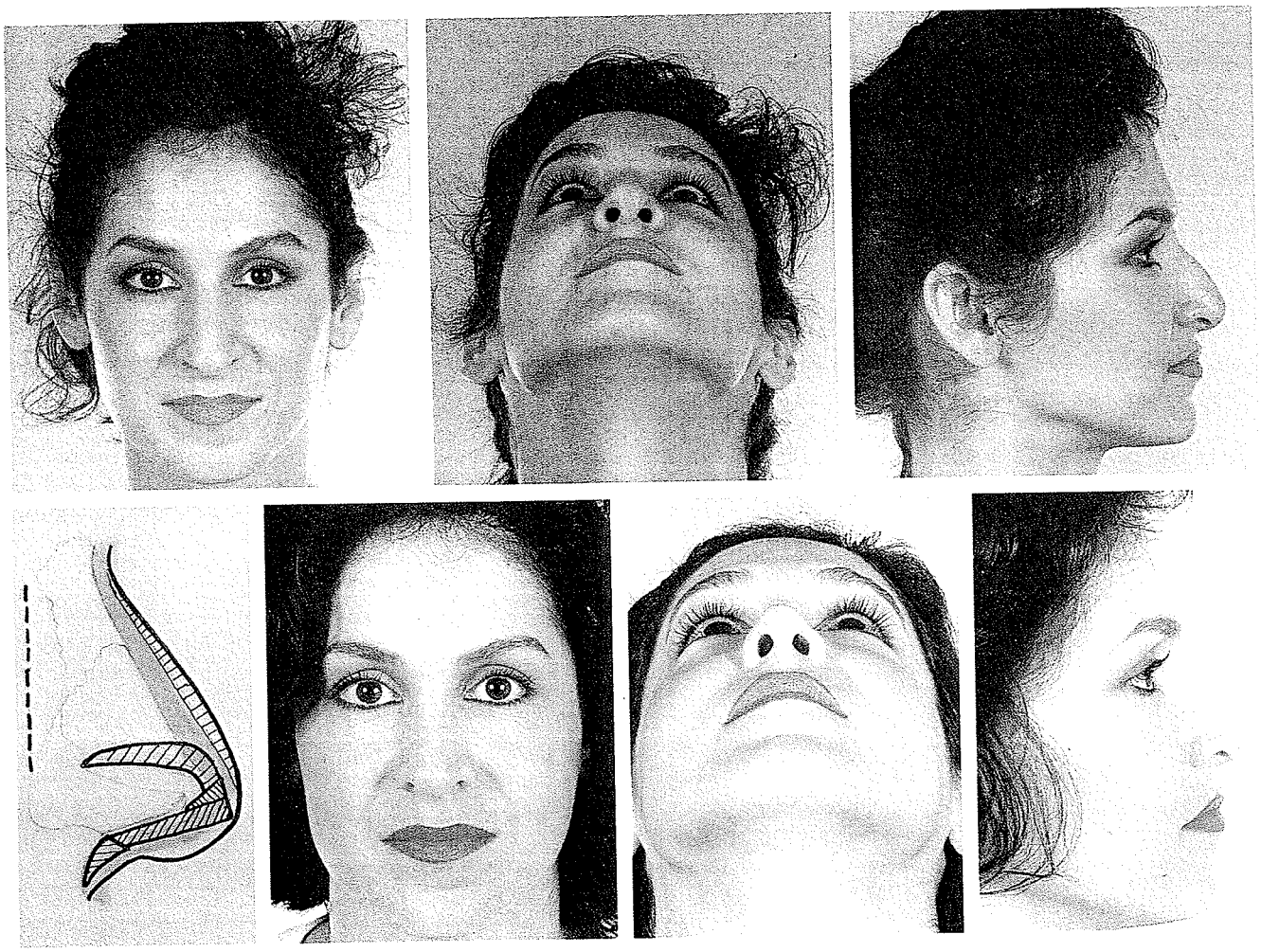
If the nose from the nasion to the nasal spine is the correct length but the tip hooks over, a triangle (e) with the apex above the nasal spine is resected from the anterior septum to lift the tip.







Here is an example where the nasal spine is quite prominent and the septum is long and the tip hooked so that the nasolabial angle is partially obliterated with encroachment on to the upper lip. Correction of this deformity beside lowering the bridge, reducing the alar cartilages and infracture called for reduction of the nasal spine, excision of inferior edge of the septum in a long narrow triangle followed by a small tip triangle for a golden proportion.



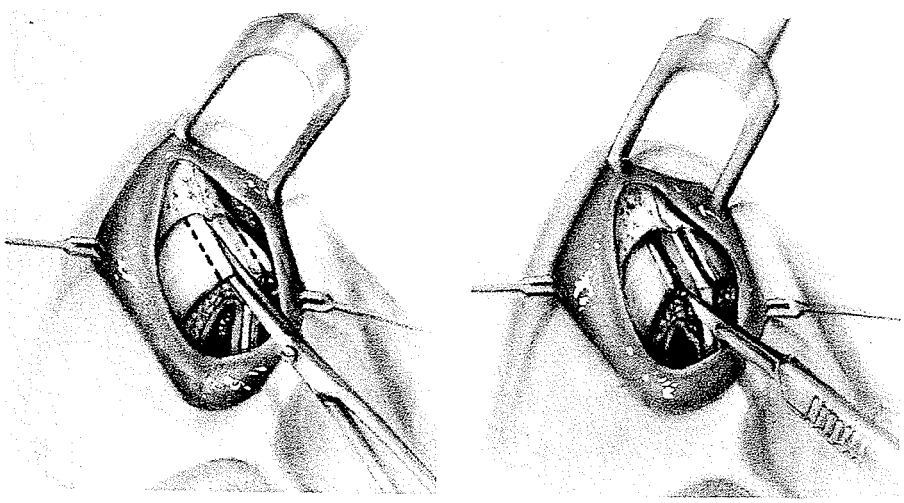
This is an example of a long nose with a strong nasal spine which was inadequately reduced leaving unnatural upper lip projection (arrow).

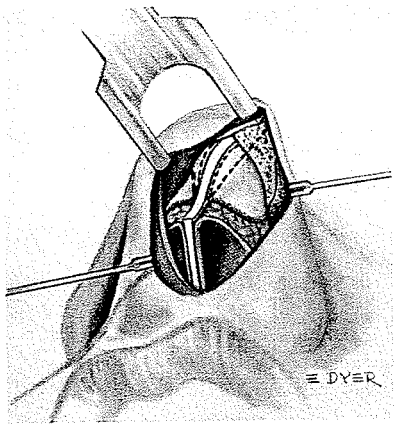
In summary, depending on the specific case, shortening the nose usually involves ± spine reduction, full thickness resection of a rectangle of anterior septum, and resection of a golden triangle at the distal tip.

Correction of the Bridge

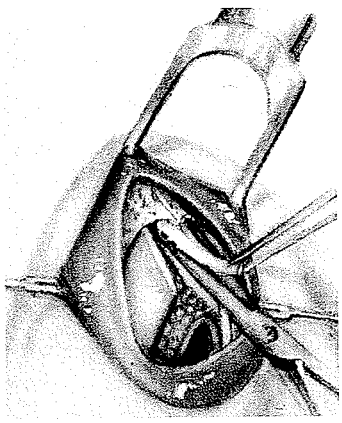
Once the nose has been shortened the next logical step is to adjust the bridge. Originally I was taught to lower the bridge and hump with a nasal saw. It is a safe but crude way to cut off the excess bridge. It can be a taxing experience. I remember J. B. Brown was exhausted after sawing off the hump. For these reasons I have refined my approach to this phase of rhinoplasty.

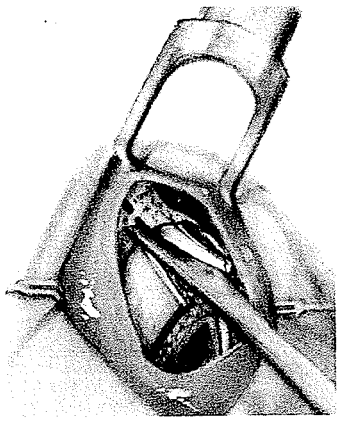
Before lowering the bridge I had also been taught to sever the lateral sidewalls from the septum completely on each side with heavy scissors. This was followed by trimming the sidewalls and the bridge as desired, leaving the three raw edges to approximate at random, and to heal with scarring and subtle contracture. In 1953 E. Eitner and in 1968 J. Anderson described extensive submucous dissection of the septum to expose the cartilaginous and bony bridge for reduction. This intramucosal approach had one great asset: the mucosa of the lateral walls was maintained intact with that of the septum thus reducing the potential contracture of the severed mucosal edges. I have modified this maneuver which has reduced the incidence of residual bridge supratip humping. With a retractor and good lighting, the naked bridge is under direct vision. I prefer to free the mucoperichondrium from the free anterior edge of the shortened septum for several millimeters and then extend this freeing along the entire cartilaginous septal bridge for 1 cm on each side. At the juncture of the upper lateral cartilage to the side of the septum it is necessary to



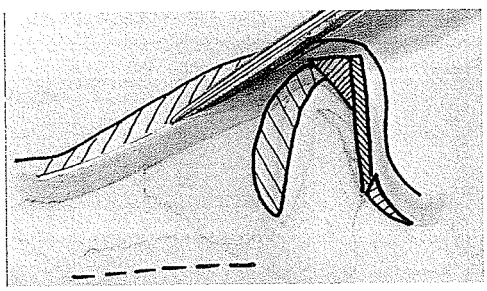


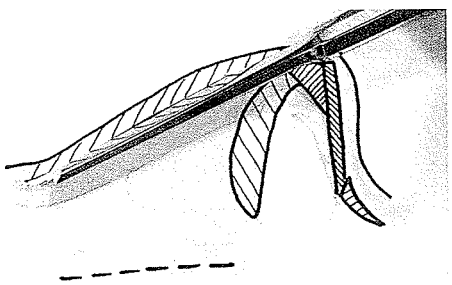
divide this attachment with a straight scissors and then free the mucoperichondrium off the septal cartilage with a scalpel maintaining an intact mucoperichondrial bridge from lateral wall to septum on each side. This insures better healing with less possibility of contracture. It is done under direct vision. The excess cartilaginous bridge is now exposed and can be lowered with a scissor cut from the front which is carried back to the nasal bones. Into the cartilaginous cut a chisel is inserted and driven through the nasal bones on a straight line to remove





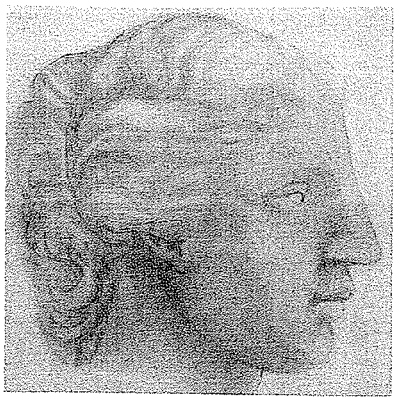
the hump. In a diagrammatic reenactment of bridge lowering, first the scissors, then the chisel.

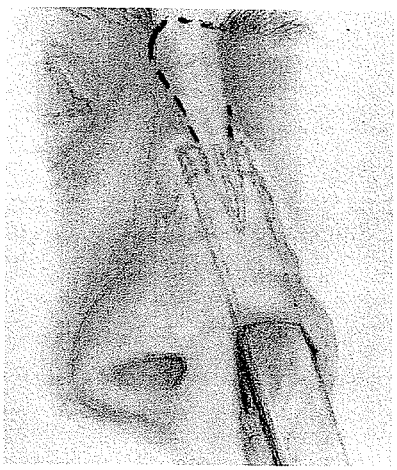


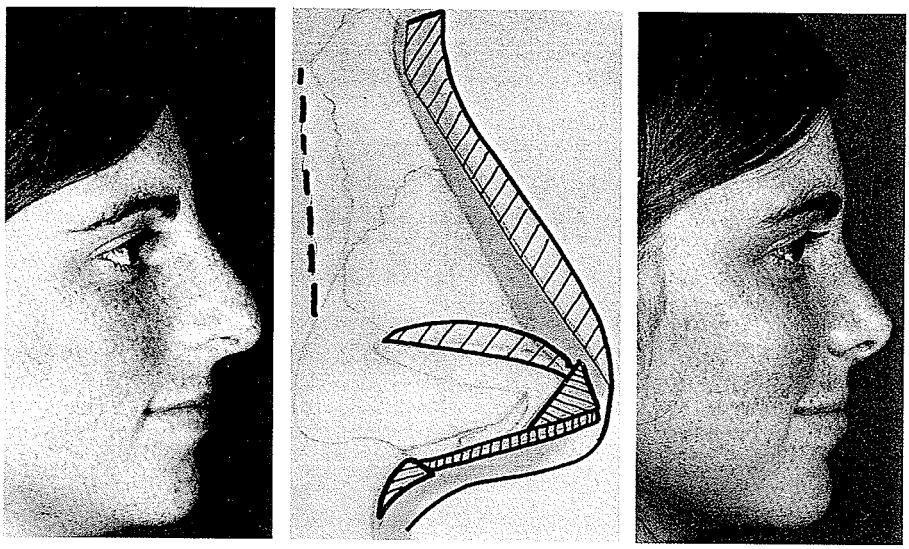


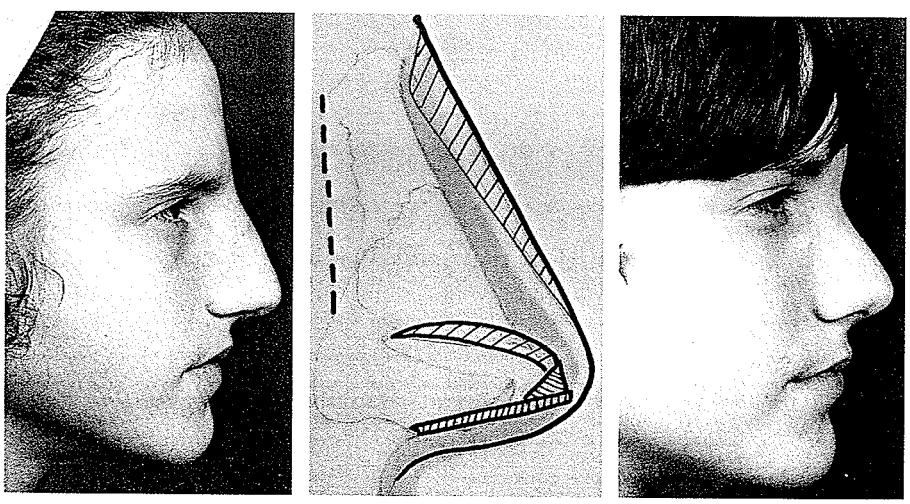
When a sharp chisel is being used to reduce the bony hump, there are two precautions that can and should be taken. First make certain that the skin over the bridge has been well freed from its attachments to the bone. In one case this was inadvertently neglected and the chisel lacerated the dorsal skin requiring sutures. The second safety step is to round off the sharp lateral edges of the chisel so there is less chance of lacerating the under dermis of the dorsal skin. A laceration of the dermis creating a subcutaneous crease sometimes can be more difficult to deal with than complete laceration of the skin.

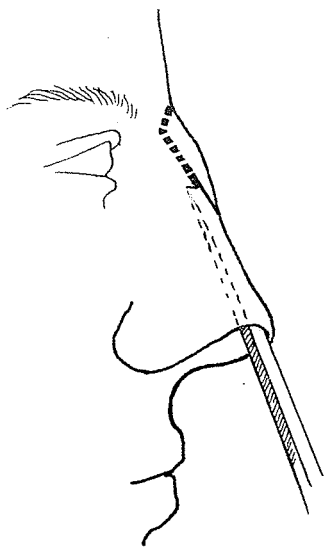
When the nasal profile has no dip at the glabella junction and flows directly into the forehead, an Egyptian and Greco Roman feature once considered beautiful enough for Gods, Goddesses, heroes and heroines, is no longer popular. To correct this the chisel must continue past the hump at the radix to lower the upper bridge of the nose all the way to the frontal bone. A rasp will *not* accomplish this maneuver as well. Here are four examples, three primary and one secondary, corrected with the chisel.





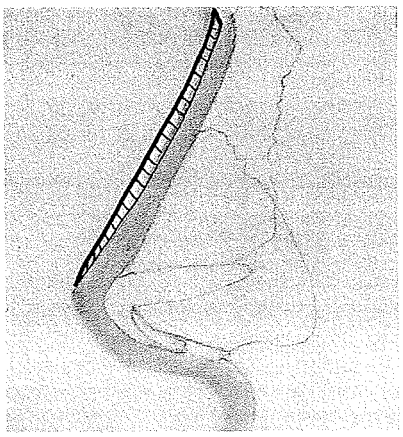






In the same manner during corrective rhinoplasty the chisel was used to shave down the upper bony bridge and a chin implant enhanced the profile.

a secondary correction

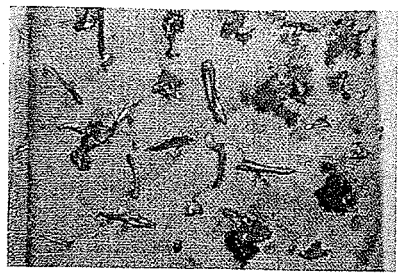


Here is a high bridged nose which was subjected to an amateurish corrective rhinoplasty. Unfortunately the surgeon did not follow these instructions but rather made three common errors in bridge correction. He gauged too much from the midportion, he left too much in the supratip area and probably because he tried to lower the nasion with a rasp instead of a chisel he failed to level the upper bridge aesthetically.

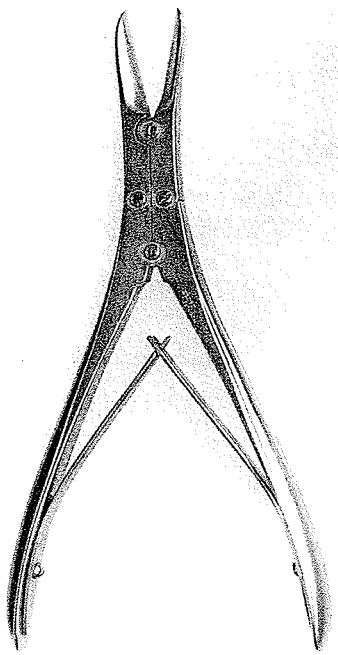
Style of Resection

There are some surgeons who prefer to take the bony hump, septal bridge and portions of the upper lateral cartilages of the sidewalls in one bold piece. I have done this occasionally in the huge hump as shown. A more timid surgeon will pick at the nose taking piece after piece in as many as 40 to 50

pieces as I did through my earlier years. The experienced surgeon will take the hump and bridge in two or three pieces, each of the alar cartilage reductions as a piece each, the anterior septum as a piece or two, pair of mucosal lining trims, and both alar bases when wedges are indicated. This adds up to about a dozen pieces in all.



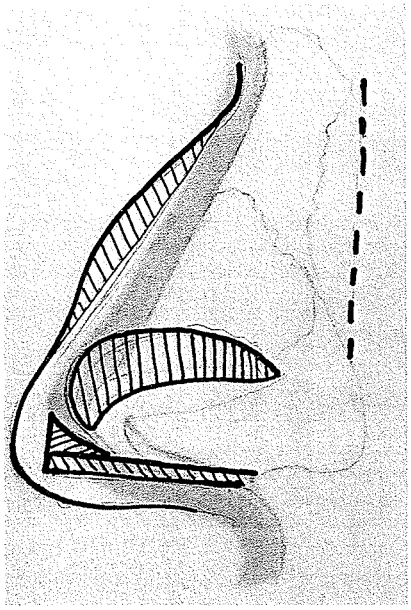
Of course it is ideal when the cartilaginous septum and bony hump can be removed in one piece. Sometimes the septal piece comes free and then the chisel is inserted separately to shave off the excess bony portion of the bridge. When a bony portion of the bridge continues to stand too high as a sharp edge it can be safely lowered with an Echoff bone cutting forceps.

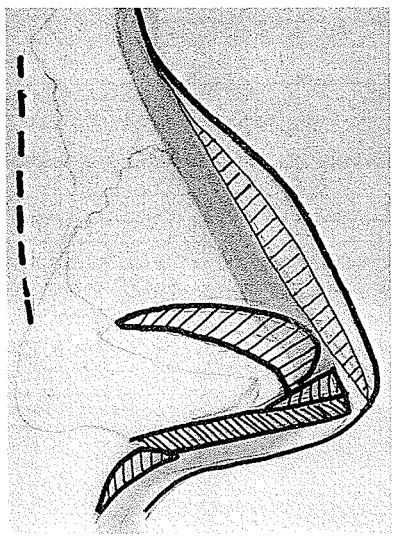
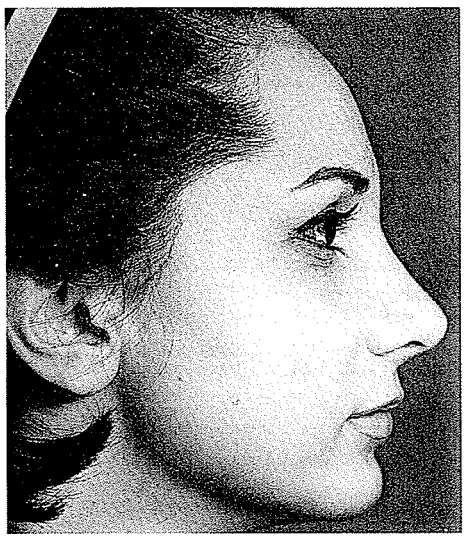


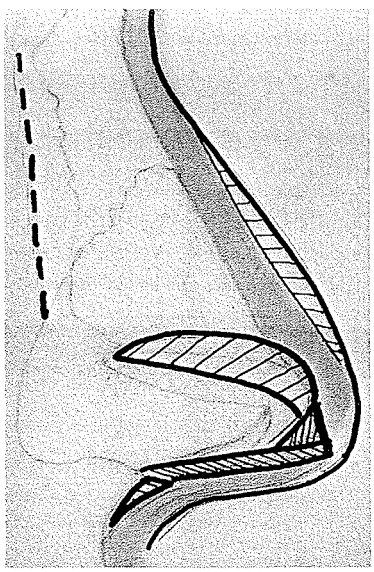
Remember the character of the nose depends on the bridge line and to remove too much can be disastrous. It is far better to resect conservatively until you have obtained your ideal goal. Final meticulous tailoring of the bridge with chisel shaving and rasp smoothing is aided by a small two-prong hook slipped under the skin to locate, by snagging, the area of objection. Then with a retractor for direct vision the excesses and irregularities can be shaved smooth.

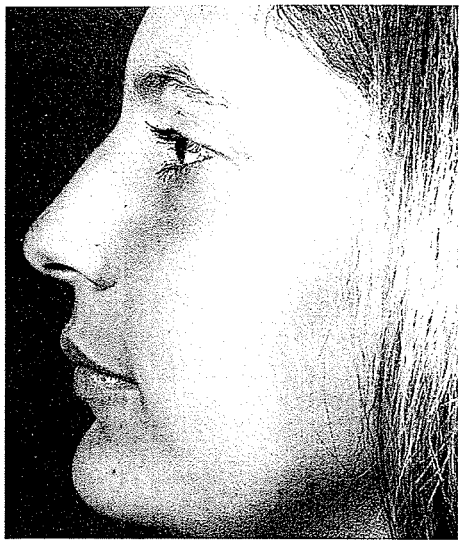
T. Skoog, during a routine rhinoplasty, inadvertently removed a major portion of the bony bridge. Rather than panic he took this opportunity to shape the free piece and then inserted it back into its original position. Skoog even went so far as to advocate this approach for bridge correction. It is not known how many of these grafts, by aseptic necrosis, were in part or totally absorbed but on this basis alone the procedure is not the method of choice. As removal of excess bridge can and has been experienced by surgeons, the possibility of shaping and reinsertion is mentioned only as a lifeboat.

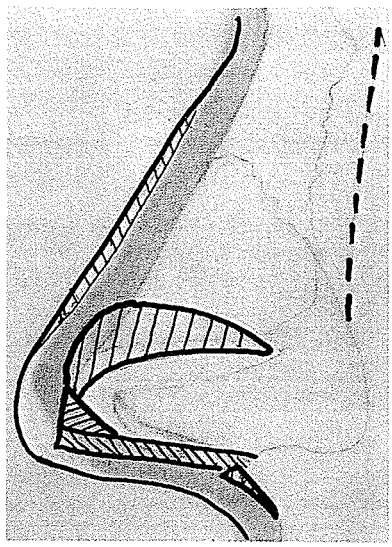
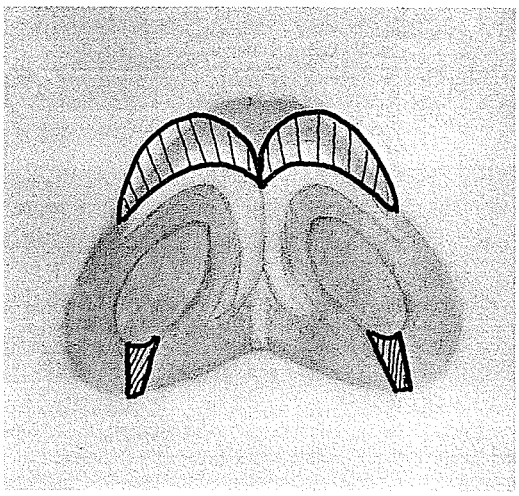
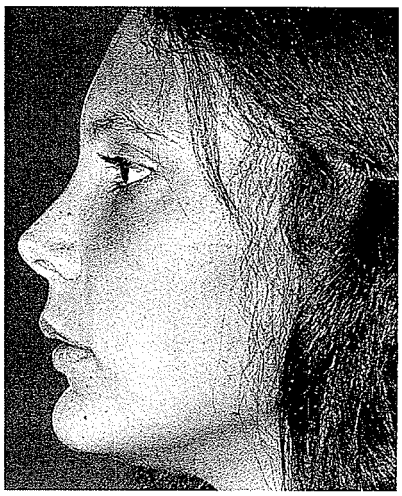
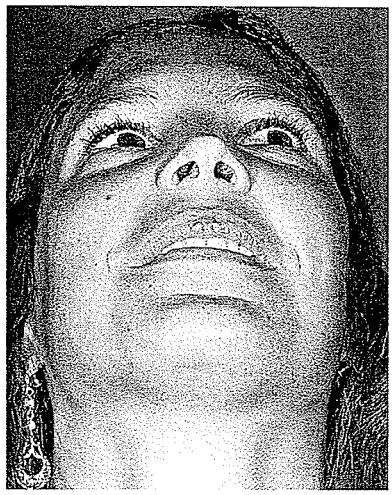
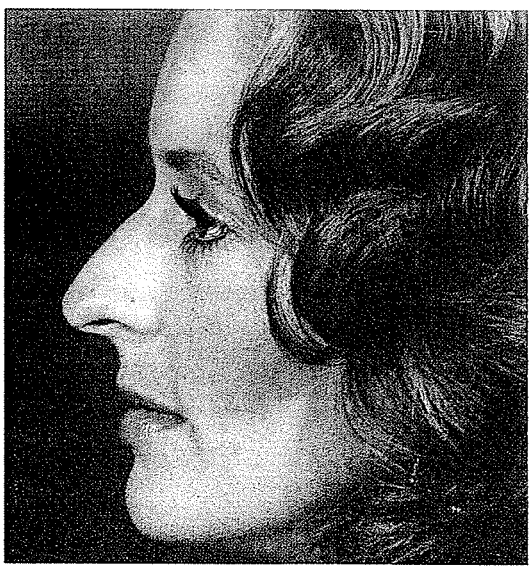
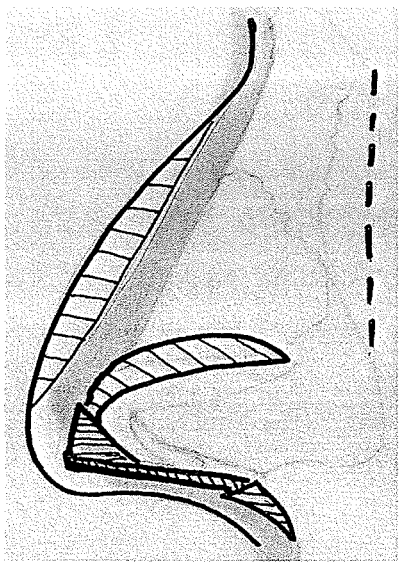
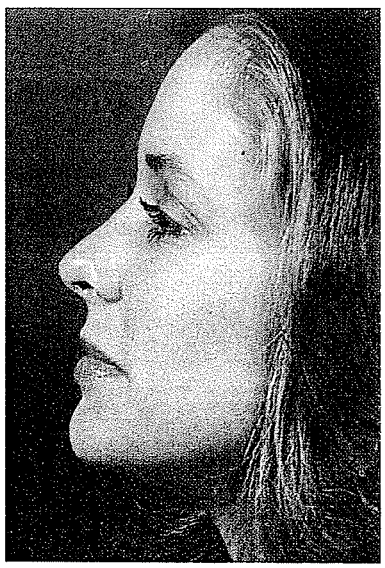
The extent and angle of bridge lowering depends on the patient's nose and expressed desires, which rests in the hands and aesthetic sense of the surgeon. Several examples follow.

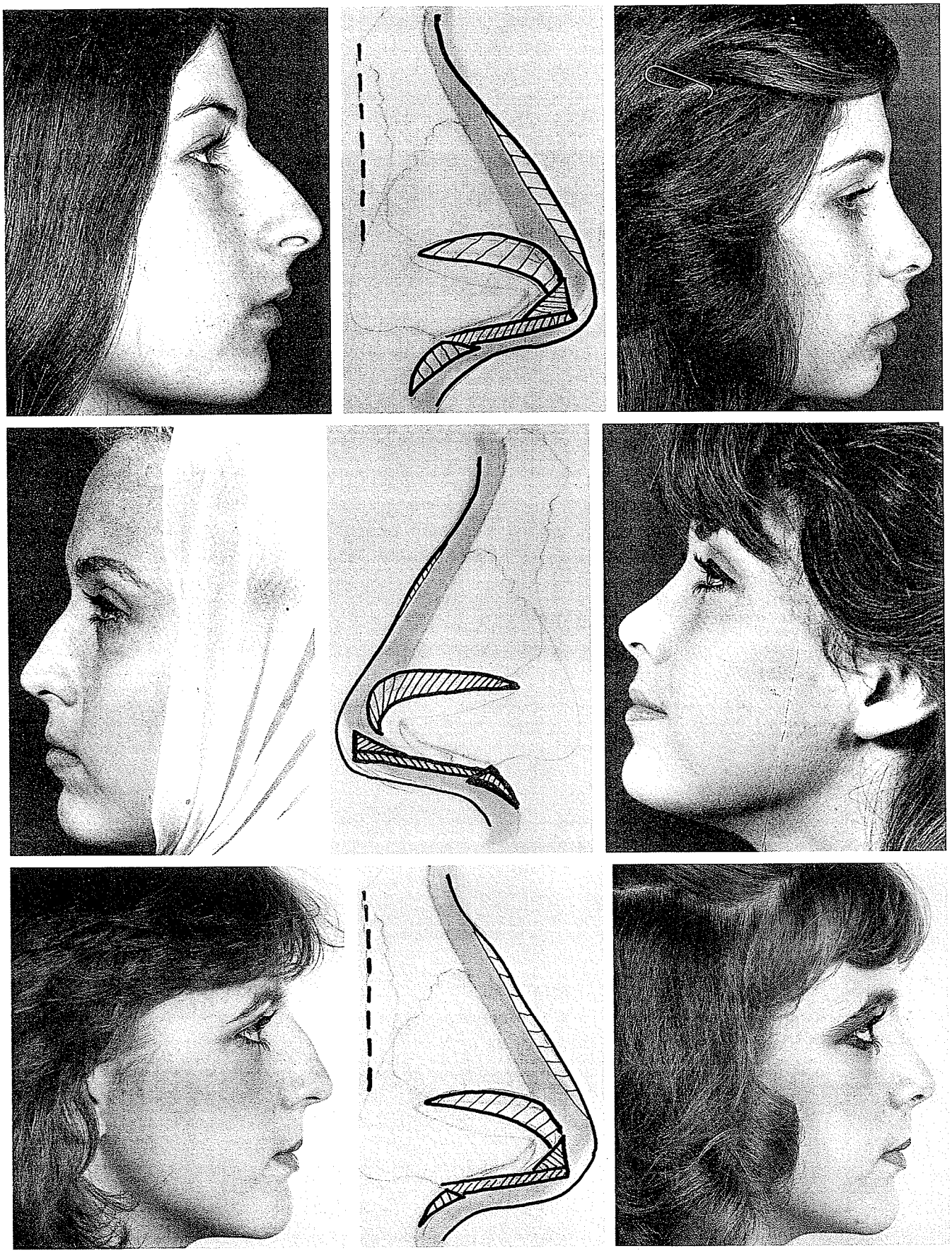



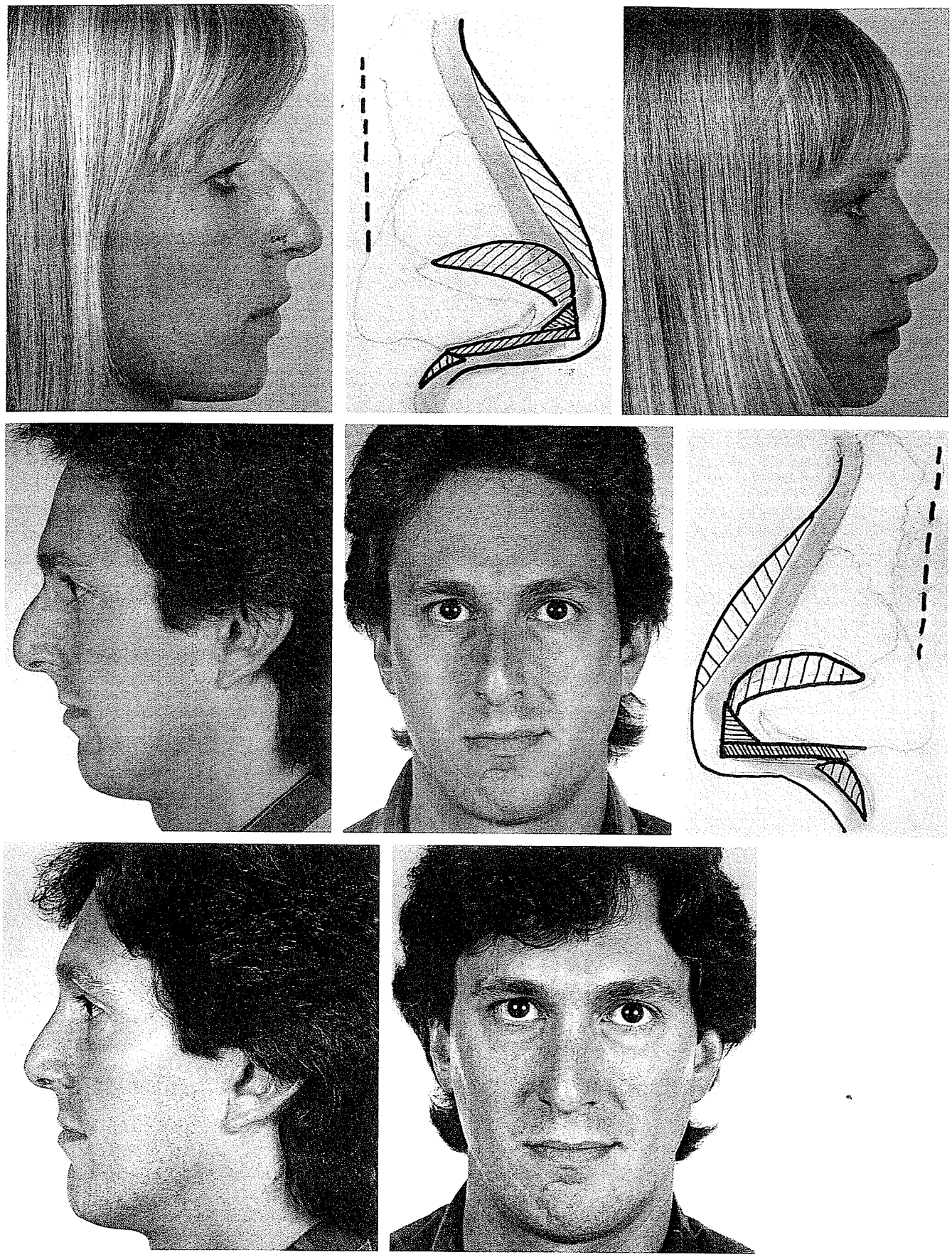




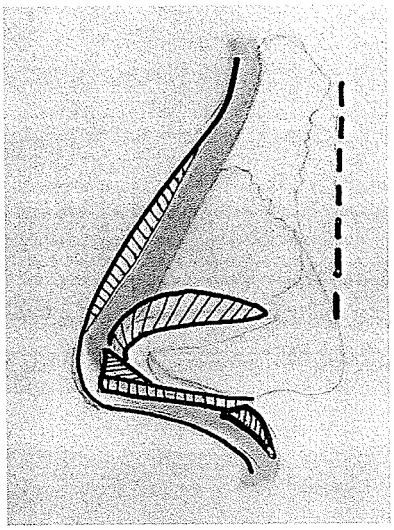


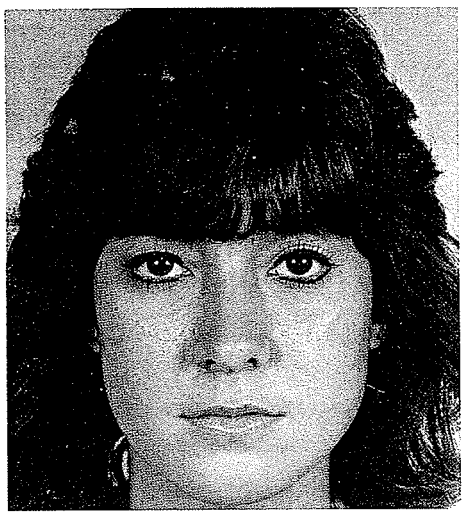



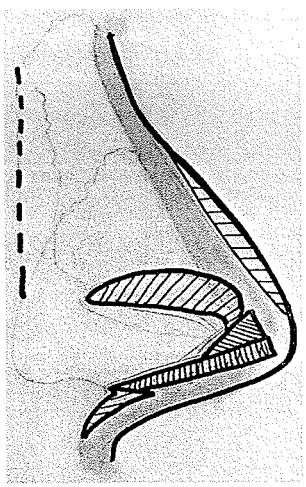








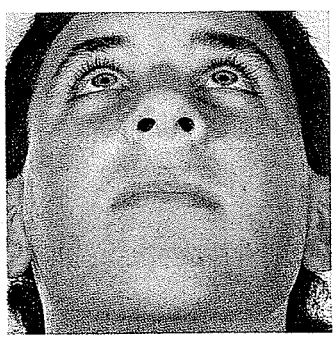


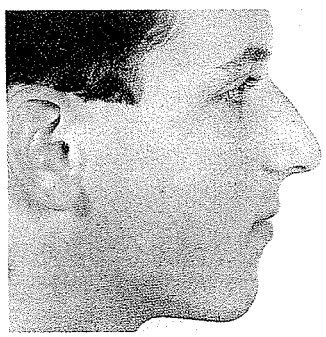


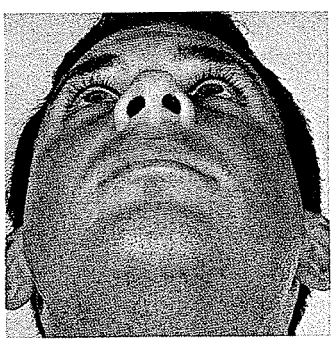


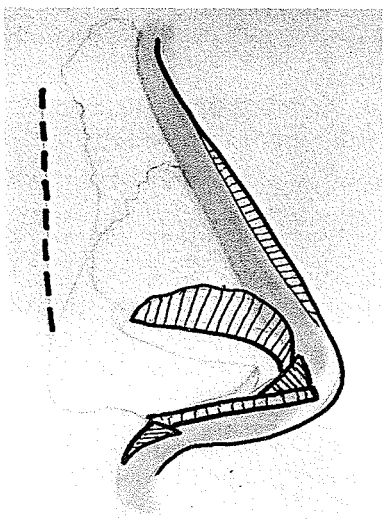


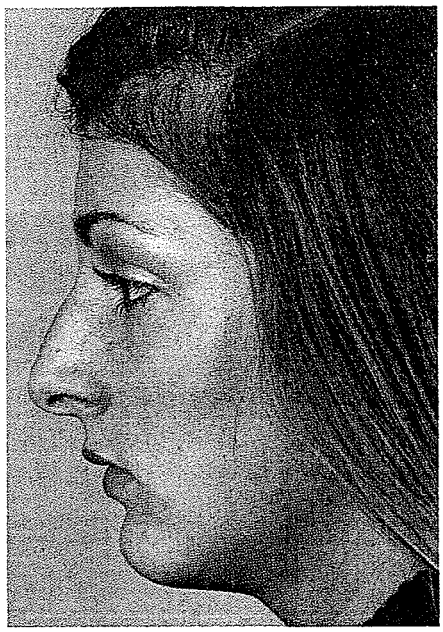


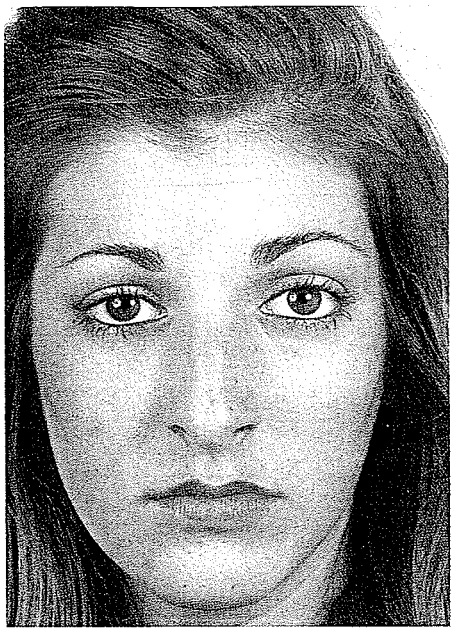


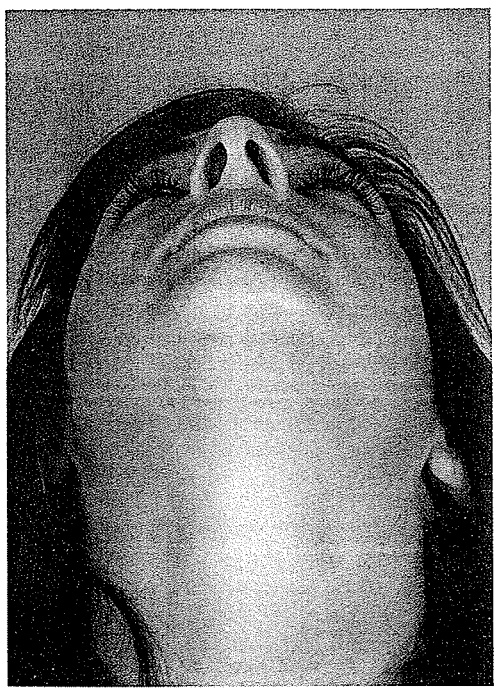


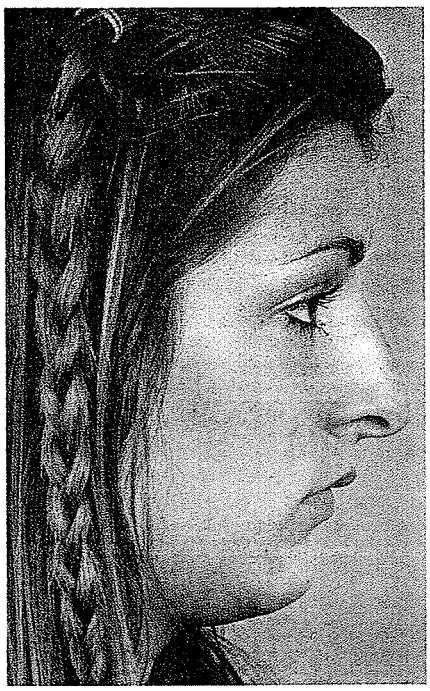


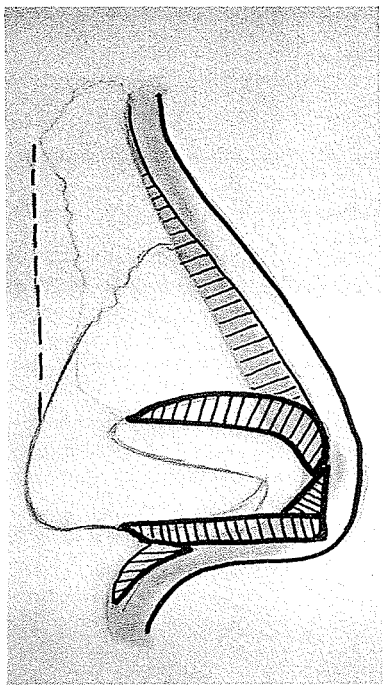


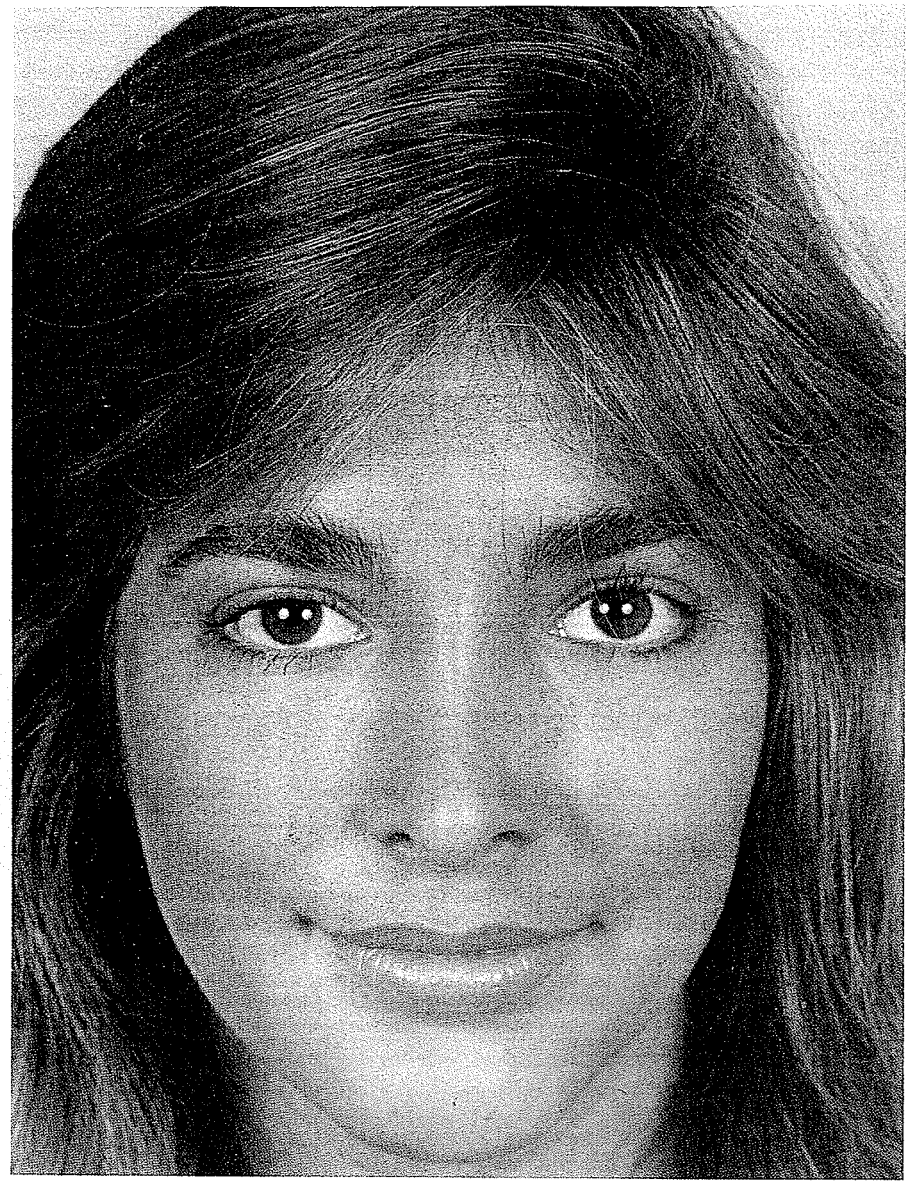


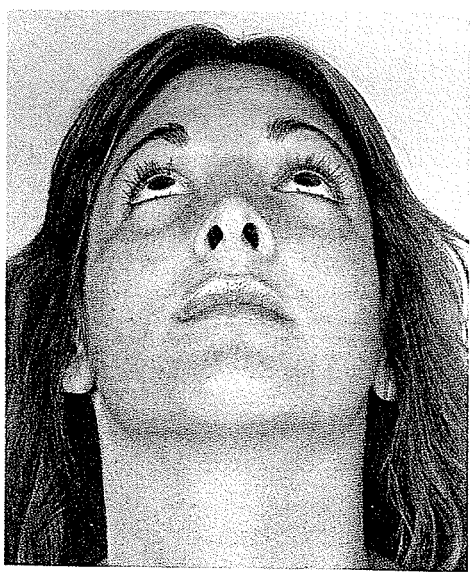


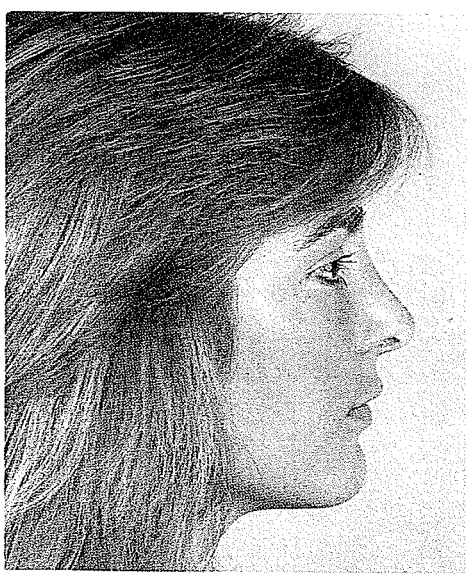


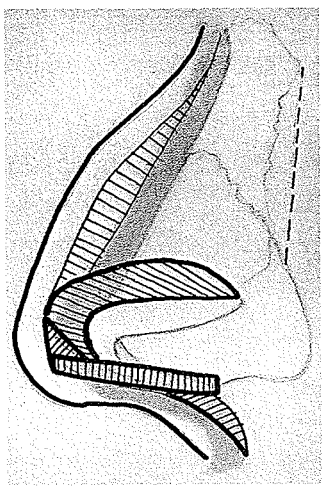


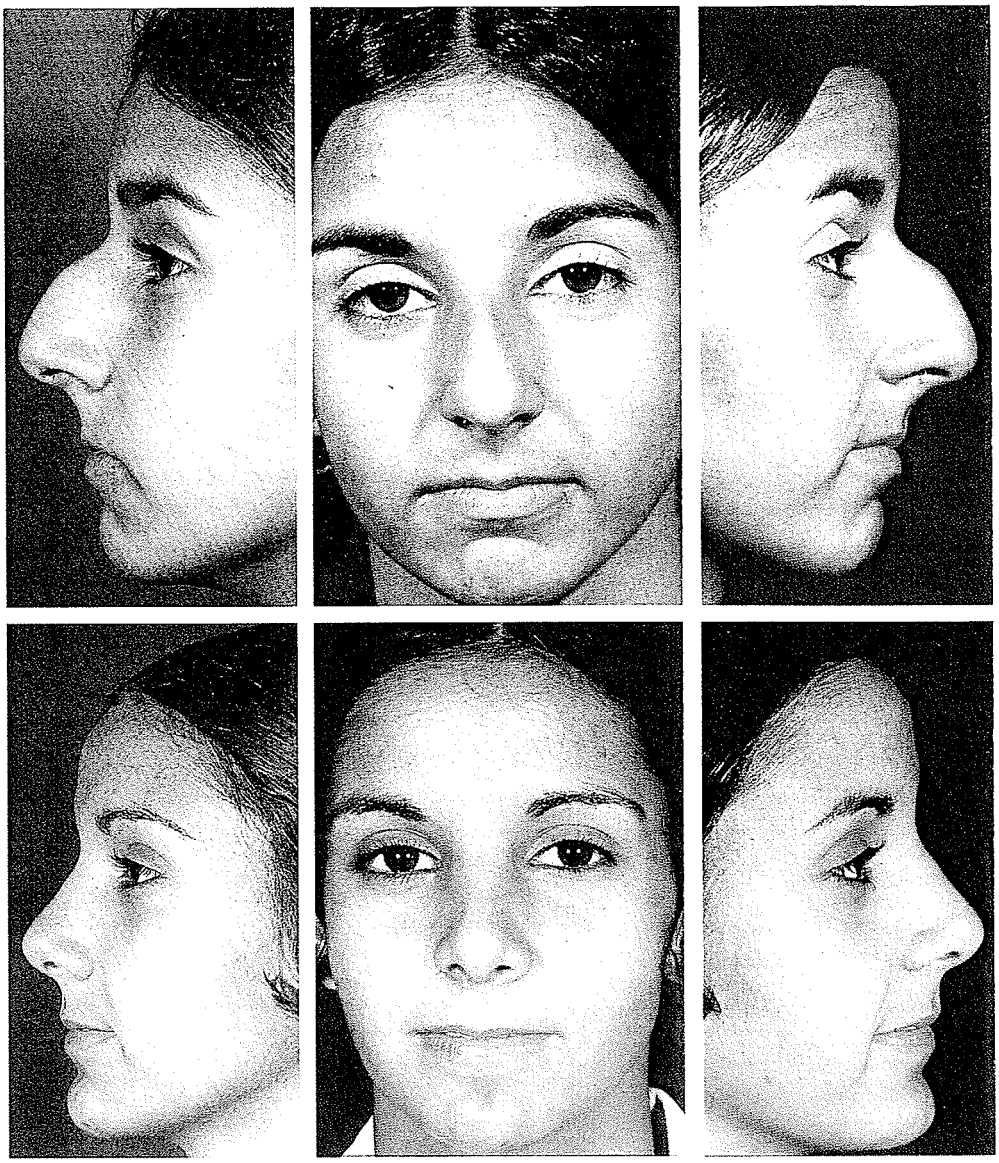








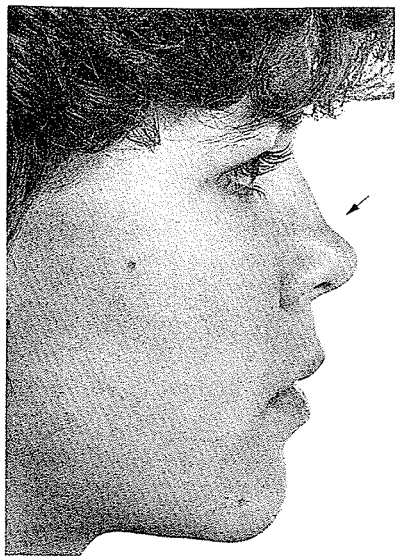


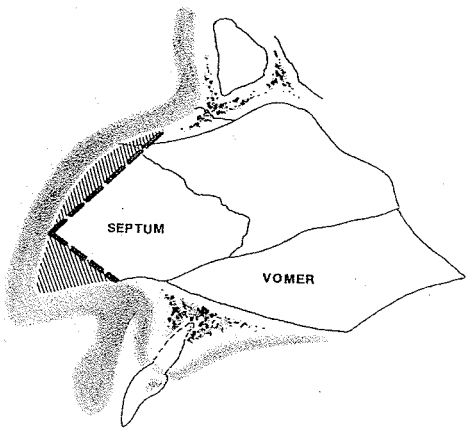


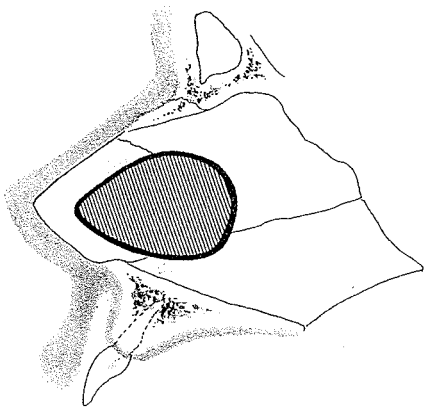
PRIORITIES IN SEPTAL CORRECTION

As noted in 1986 in *Principlization of Plastic Surgery,* when corrective rhinoplasty is combined with submucous septal cartilage resection, the safe order of priorities is important. Some otolaryngologists whose cases I have had to follow with corrective surgery obviously were not cognizant of the order of priority, being evidently more confident and better trained in septal surgery than in aesthetic rhinoplasty. They had gone in first and with expert technical skill removed even the slightest deviation of the septal cartilage, wherever it was, before starting the corrective rhinoplasty. This procedure not

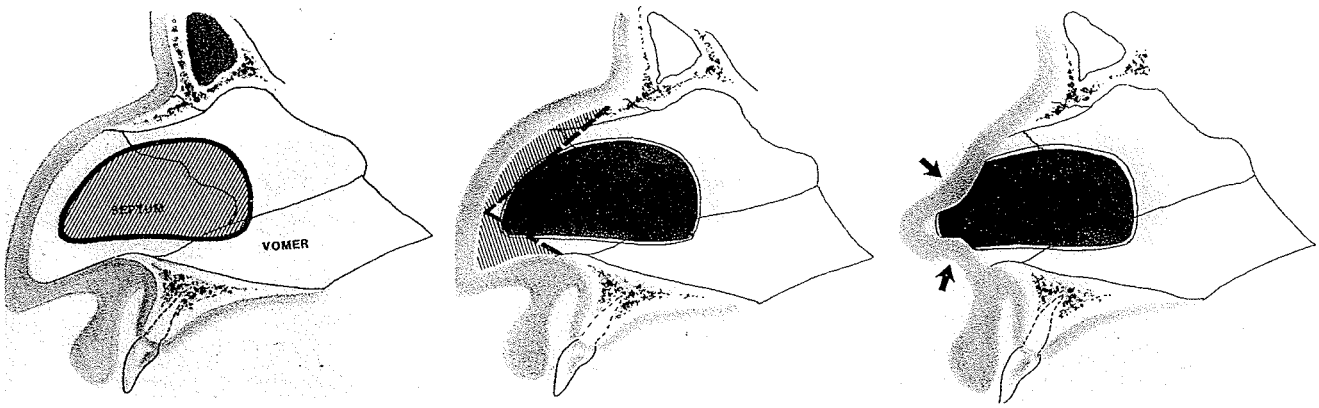
only depletes a valuable bank of cartilage but reflects a dangerous and incorrect order of priorities which may result in varying degrees of bridge deformity. When the septal obstruction deserves correction, the order of surgery is vital. It is essential to leave an adequate L-shaped septal cartilage framework to maintain bridge and columella support. Those steps in correction rhinoplasty such as hump removal to lower and straighten the bridge and anterior septal resection to shorten the nose, should be carried out first. Thus the desirable peripheral borders of the L that must be preserved are established. Then if a submucous cartilage resection (SMR) is carried out, it can be kept safely within these boundaries. If a



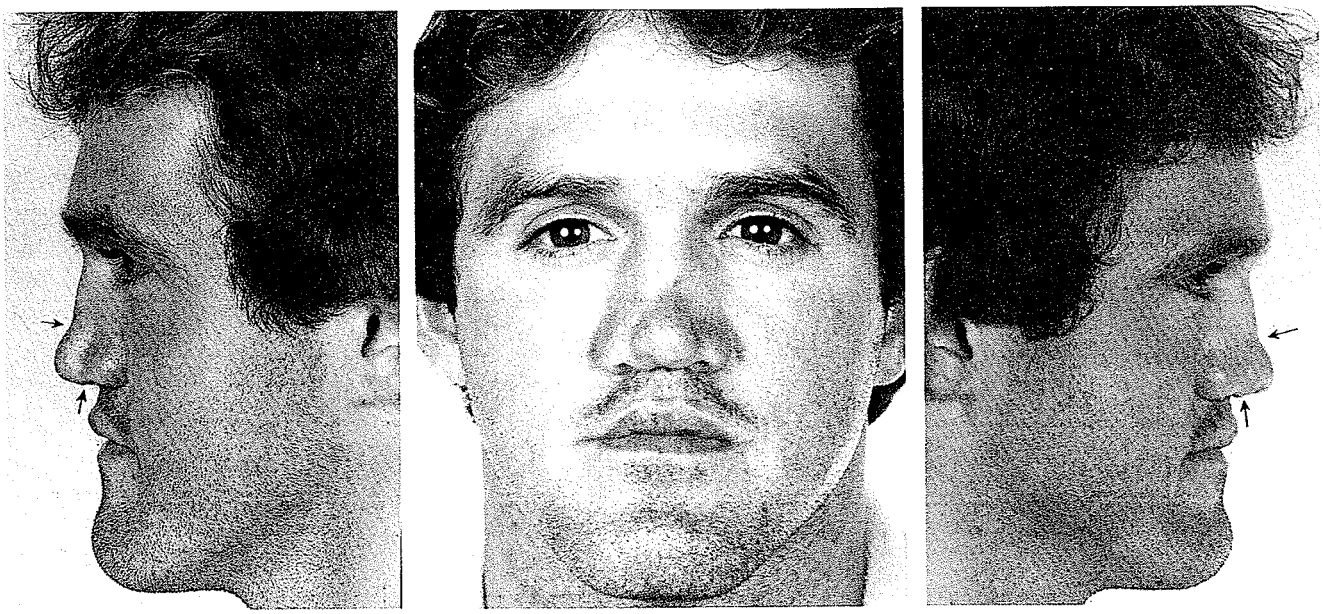




generous SMR is done first, the surgeon, when he takes off the hump, may find to his dismay that he has lost the continuity of the septal cartilage along the bridge. The ultimate result is a saddle nose collapse—a not infrequent complication of rhinoplasty. If the SMR has been carried too far forward, when the anterior septal resection is carried out to shorten the nose there may be no anterior cartilage left.

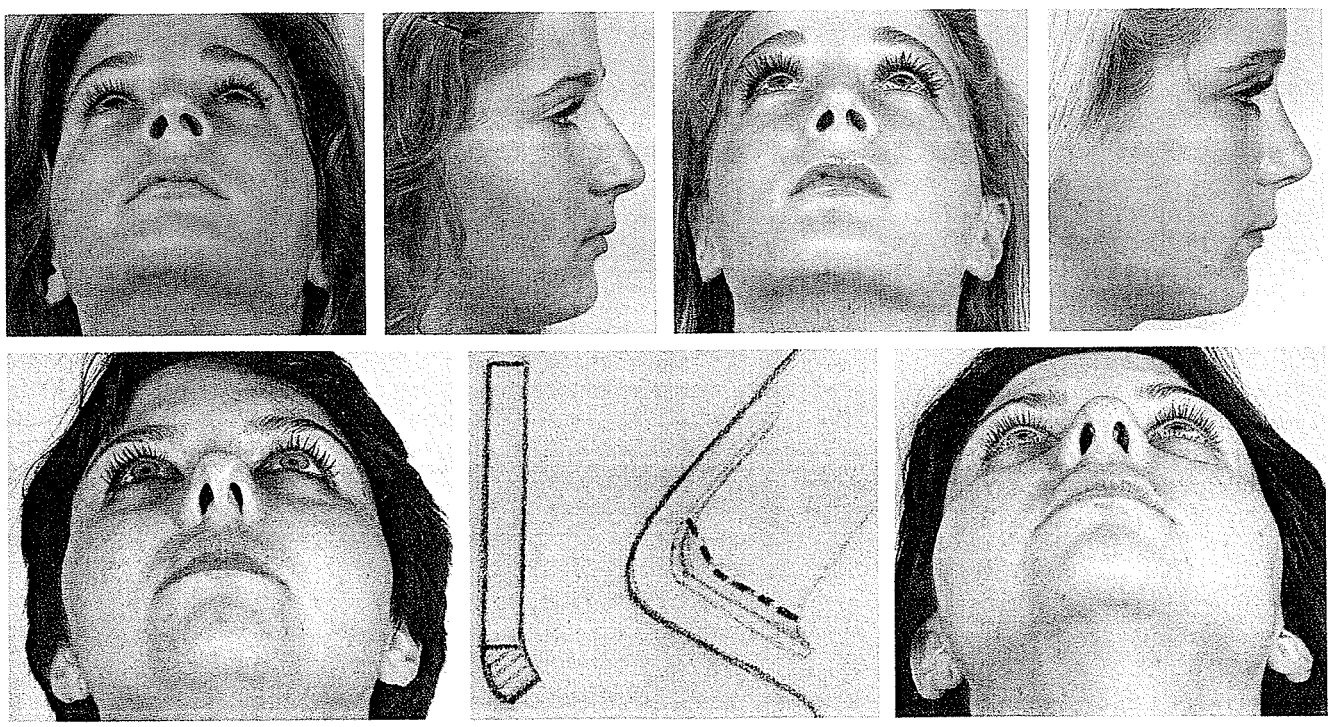


The result will be varying degrees of columella retraction and tip collapse, also not an infrequent complication.

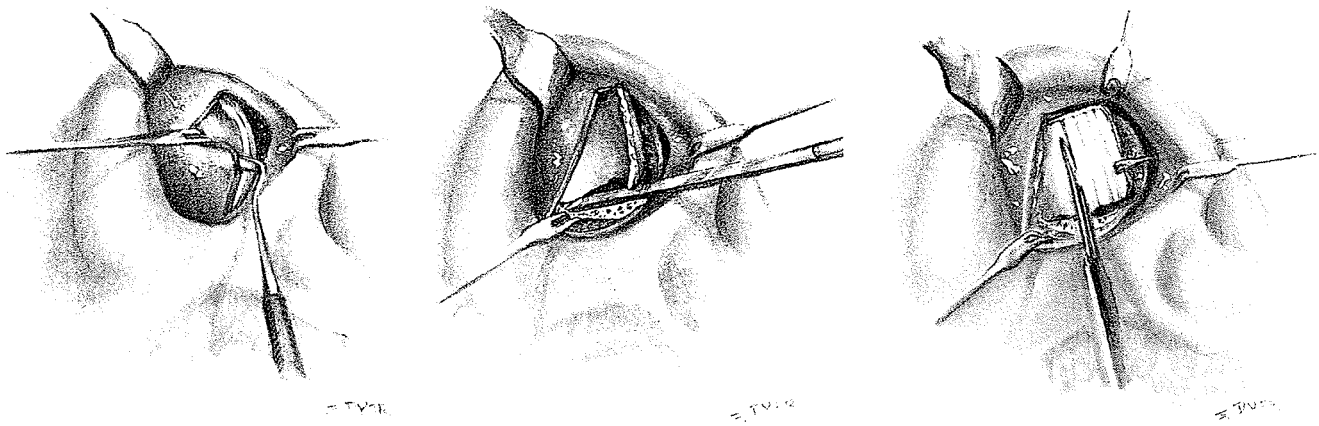


Anterior Septal Deviation

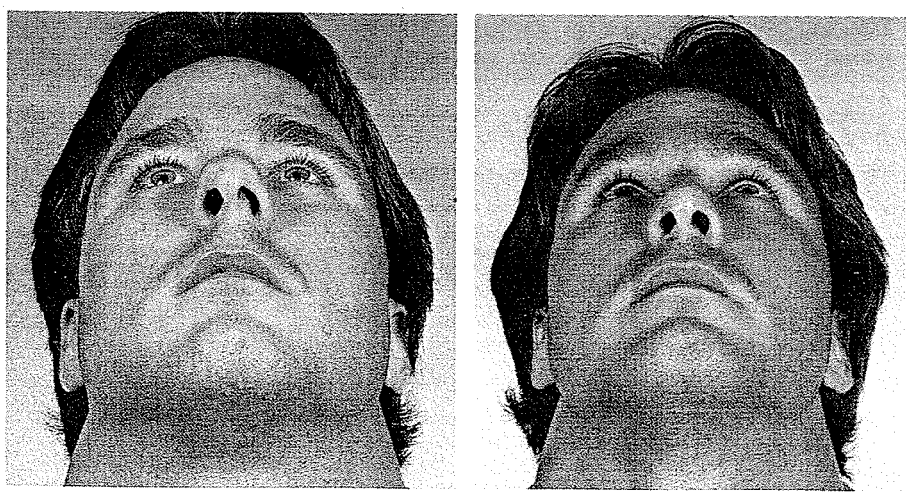
After the membranous septal incision the anterior septum is presenting. When the deviation is anterior then sometimes the amount of anterior septal resection required for nasal shortening may be enough to remove the deviation as seen in these two patients.

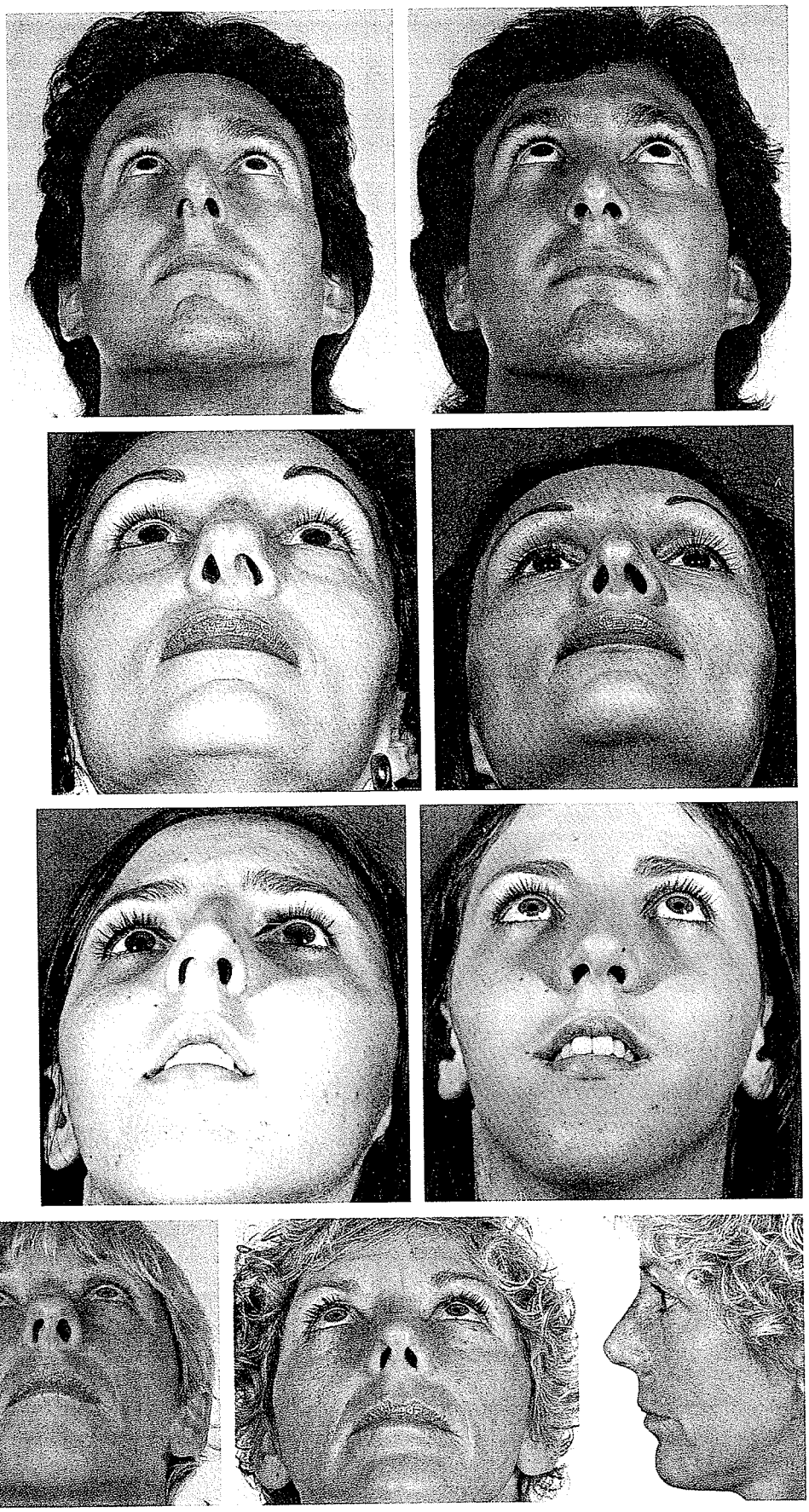


When the deviation involves more of the septum than can be resected the mucoperichondrium on either side of the septal cartilage is peeled off with scalpel and elevator under direct vision presenting the deformed cartilage. I find that in most anterior septal deviations that scoring the concave side of the septum in accordance with Gibson's rule, freeing the septum with a narrow chisel from the nasal spine and along its abnormal attachments in displaced position out of the vomerian groove, the anterior septum can be brought into straight alignment. It is held in corrected position by sutures to reapproximate the anterior septum to the columella but picking up the edge of the septal cartilage on the side toward which the septum is being directed. This should place and maintain the anterior septal cartilage in the midline hidden behind the columella.



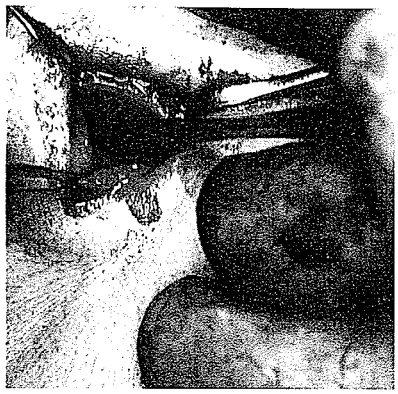
Here are several cases of anterior septal deviation that have been corrected as described.

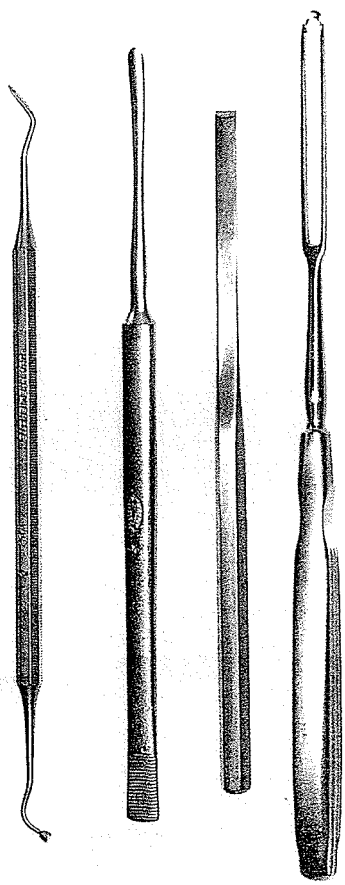




Submucous Septal Resection

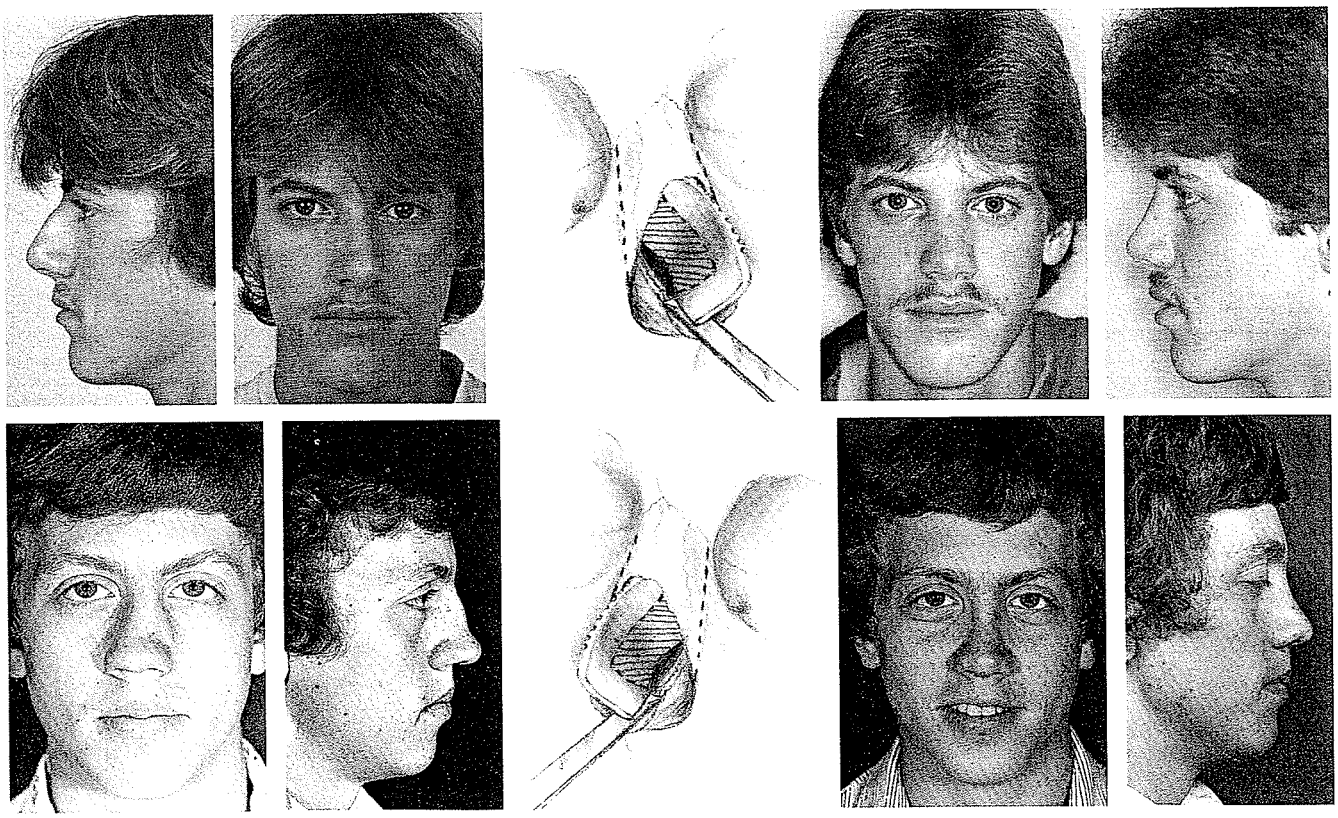
When the septal deformity is extensive and positioned more posteriorly, then the approach changes. An incision parallel to the anterior septal edge and 0.5 cm to 1 cm proximal to the edge is made through the mucoperichondrium enabling dissection of this covering layer of the septal cartilage with scalpel and elevators. In previously unoperated or non-traumatic cases the dissection is swift and easy with a few sweeping strokes. This frees the cartilage on one side. To accomplish the same on the opposite side I pass the scalpel through the septal cartilage parallel with the vertical mucoperichondrial incision leaving the anterior cartilage strut of 0.5 to 1 cm covered with mucoperichondrium. An elevator is eased through the cartilage cut gently dissecting the mucoperichondrial flap on the opposite side easing it from its attachments to that side of the cartilage. When there has been previous trauma in the septal area and there are scar adhesions of the mucosa to the cartilage then dissection is more difficult and mucosal tearing a possibility. As long as the mucosa is torn on only one side there should be no permanent septal perforation. Brad Garber, an ENT specialist who trained in plastic surgery at the University of Miami, taught me how to dissect around an adhesion isolating the area so that the scarred mucosa could be freed by sharp dissection from the cartilage.



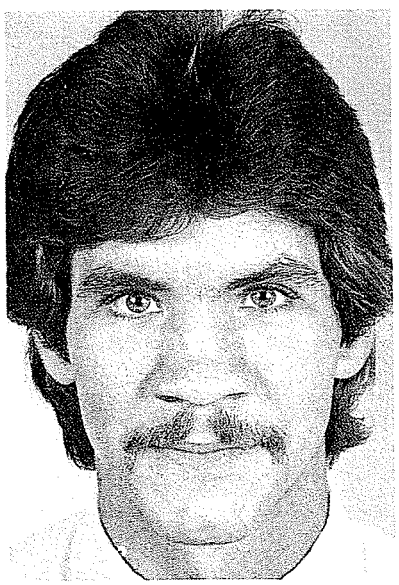


With the mucoperichondrium freed on both sides so that the deformed septal cartilage and bone is standing naked, the deformed parts can be resected. This is usually achieved by freeing the septum from its vomerian groove with a narrow chisel. Then defining the upper edge of the cartilage resection with a scissor cut parallel to the straightened bridge leaving at least 1 cm in bridge support. Then with a swivel knife passed through the scissor cut sweeping back, down and finally forward to join the chisel cut below allows removal of as large a piece of cartilage as desired. Excess bone obstructing the airway can be removed with chisel and rongeur. If the remaining L of cartilage still presents a deviation the cartilage

can be scored on the concave side to allow release and straightening. Here are a pair of deviated septums that have been corrected as described.



This septal resection approach is used in the normal septum when cartilage is being harvested for grafting the tip, bridge, ala or columella.



In a 1993 symposium in Miami J. Juri boldly dismissed the importance of septal cartilage advocating its entire removal without concern. He explained that the nasal bones and cartilages would hold a nose up without the cartilaginous septum. This scene is analagous to a kid on a bicycle soon after he has learned a few tricks crying out, "Look, no hands!" . . . Crash! Nature put the cartilage there for a good reason and principle demands we respect it. As the pride of the nose stands with the septum it is better for us mere mortals to preserve the L and correct the cartilage rather than discard it. I have had to correct too many noses that have suffered removal of too much septal cartilage. Often the deformities do not become apparent immediately but in time they shrink, regressing in the direc-

tion of the missing cartilage. To emphasize this point here is an example of a childhood injury followed by septal chondritis which destroyed the nasal septum. The flat result shows nasal growth without septal support. Its correction will be presented in secondary surgery.

Trimming the Lining

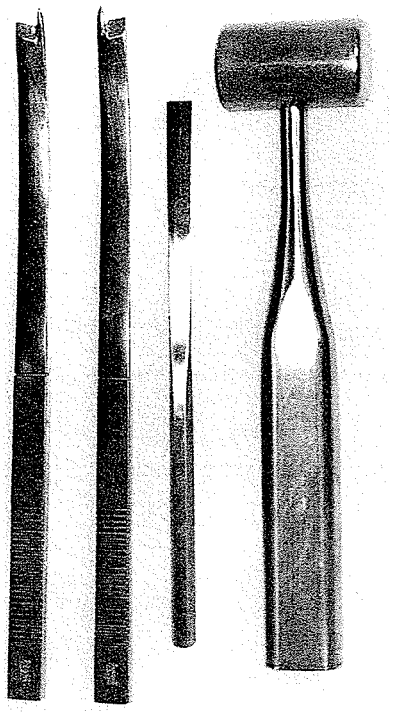
At this point the vestibular lining is tailored conservatively with right angled scissors. The amount removed should be definitely less than the amount of anterior septal resection. Freed vestibular mucosa will contract. When too much lining is excised and the mucosa sutured there may be obvious retraction of the ala with notching in severe cases but even when the pull is subtle it will be progressive and irreversible lifting the ala skirt off the columella knee presenting a skeletal look. Examples of these retracted alae can be seen everywhere including the section on secondary rhinoplasty. This is one of the telltale signs of rhinoplasty and may need release with skin grafts or chondromucosal flaps. Thus it is important to be conservative in the reduction of your vestibular mucosal lining and suture with great care to avoid tip distortion, vestibular webbing and alar rim retraction and notching.

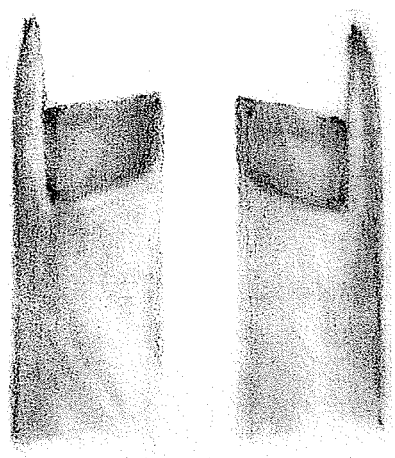
The next and final step in corrective rhinoplasty will be bilateral osteotomies. However, just before this step I prefer to carry out two adjuncts which may or may not be indicated in each case. One is insertion of a cartilage graft for nasal tip definition and the other is the marking and resection of excess alar base. Incidentally closure of these alar base resections are postponed to provide better access for the osteotomies. Rather than interrupt the order of the steps in rhinoplasty, the order of the execution of these adjuncts only are noted but will be discussed in detail subsequently.

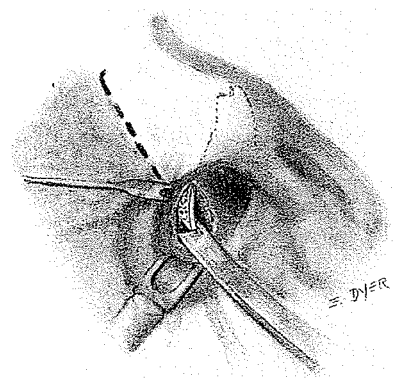
BILATERAL OSTEOTOMIES

Subcutaneous hemorrhage after fracture of the nasal bony pyramid is greatly responsible for the excess ecchymosis and

swelling of the eyelids following rhinoplasty. To minimize this reaction the osteotomies are postponed until the end so as to reduce the time lag between the fractures and the application of the nasal splint and eyelid pressure dressings. Under this regime "black eyes" are almost a rarity.





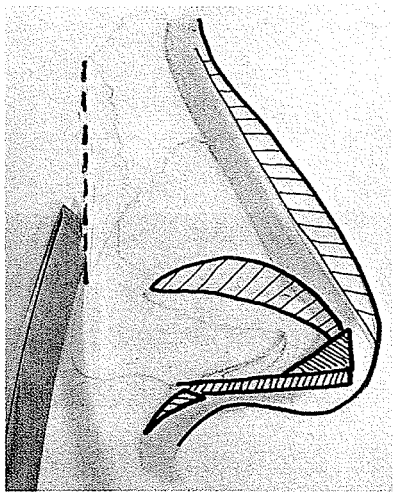


Method of Osteotomy

Although I was taught to cut the osteotomies through a vestibular stab incision and periosteal tunnel along the lateral side of the frontal process of the maxilla with a saw, this approach is mechanically difficult. Any amateur carpenter knows for efficient sawing the saw needs an edge into which to engage its teeth. No such edge is available as the saw works back and forth on the flat side of the frontal process of the maxilla. After hundreds of sawed osteotomies I changed to a chisel and then designed a chisel specially for this procedure. Previous chisels had a rounded projection on its lateral side which could be palpated through the skin and used to guide the chisel away from the eye area. A better chisel was designed with the round knob on the medial side next to the angled blade. Through a 1.5 cm stab in the lateral vestibule just anterior to the nasal bony pyramid the special chisel is inserted into the stab and then sunk into contact with the bone of the frontal process of the maxilla flush with the maxilla. The round knob is hooked around the medial edge of the bone to guide the chisel and prevent it from sliding laterally into the eyelid area.

As noted by R. S. Flowers and R. Anderson in 1968 the lacrimal sac is vulnerable during osteotomy. Although disruption of the sac was demonstrated, postoperative obstruction of the lacrimal system was observed to be functional, of short duration and without sequelae. It is, however, better technique to avoid this injury when possible. Thus the chisel, with its knob hooked around the inside of the bone, is guided safely along the maxilla toward but medial to the

inner canthus dividing the frontal process of the maxilla off the maxilla. Care is taken not to tear or divide the lining mucosa with the chisel. The nasal bones attached to the frontal processes are left intact as a combined unit. At the completion of the chisel cut I usually pry the freed bone and twist to greenstick fracture the remaining attachments to the maxilla. A 3/4 cm chisel may be used to release any resisting attachments. There are certain circumstances where the vestibular approach may be difficult and access to the bones can be achieved by an incision in the upper buccal sulcus. Use of a 3 mm chisel passed through the skin is used by some to free the bone in the upper portion. I find this seldom necessary.

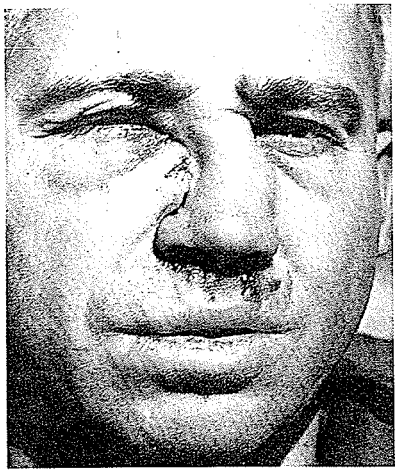


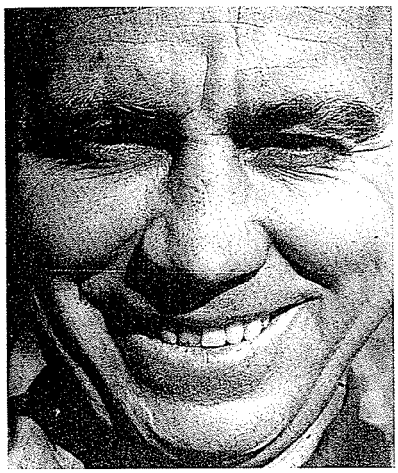
Once the bony components are free on each side then they are moved inward with thumb and finger pressure as a bilateral in-fracture.

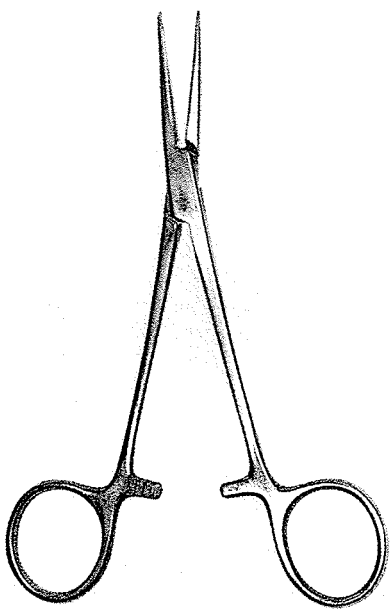
In-fracture Out-fracture Controversy

Some surgeons, rather than depend on simple in-fracture, prefer to get even more mobility by doing an out-fracture and then an in-fracture to position the bony elements after bilateral osteotomies. This controversy was started by two aesthetic plastic surgeons, Joseph Safian and Gustave Aufricht, in the middle of the twentieth century. Both trained with Jacques Joseph in Berlin and then came to New York City and each, it is estimated, completed at least 15,000 rhinoplasties. Safian advocated simple in-fracture after osteotomy, whereas Aufricht advocated out-fracture and in-fracture for more mobilization of the bone. They argued this controversy often as seen at a symposium organized at the University of Miami in 1974. Safian is standing and Aufricht is seated to the right with P. Natvig, Joseph's historian, just beyond Aufricht.

It is true Aufricht's noses were often more elegant but on the point of osteotomy I agree with Safian. Obvious clues to the advantage of simple in-fracture are seen in most nasal







fractures following fist fights where the right cross or left hook has in-fractured one nasal bony component.

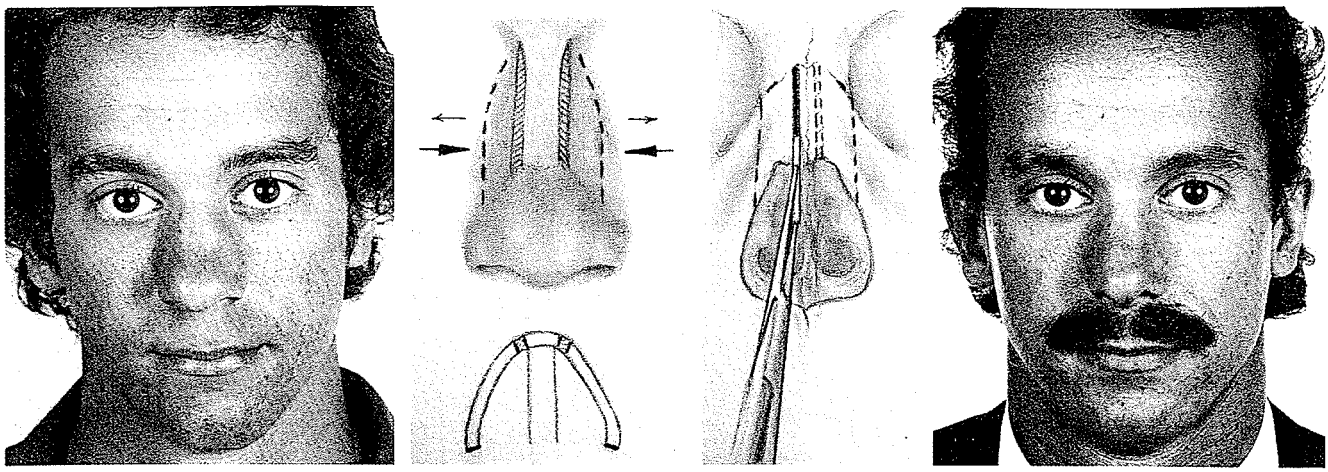
When seen after impact the in-fracture is so fixed in in-fracture position that it requires vigorous out-fracture maneuvering to reposition it normally. Here is an example of the in-fracture of a left hook which required out-fracture to align the nasal bones. As in-fracture can be so effective with less tendency to shift, out-fracture is not usually necessary.

Aufricht devoted much of his ingenuity to improving nasal splints with graduated pressure to keep his radically mobilized bones from spreading postoperatively. Safian was able to control his in-fractures with a simple splint as we do today. The splint is maintained one week.

There are rare occasions when it is not possible to obtain a good enough narrowing of the bony pyramid with simple in-fracture. In these cases a regular chisel can be passed along the side of the septum and driven between the septum and the nasal bone on each side to allow prying to obtain an out-fracture.

The bony bridge arching between the septum and the nasal bone on each side can be broken off with a straight clamp as advocated by Aufricht. Removal of this osseous chink allows the nasal bones to approximate the septum more snugly during the in-fracture. The out-fracture requires more prolonged nasal splinting for 10 days to 2 weeks.

In my experience I have not found it necessary to remove the bilateral bony bridge between the nasal bones and the septum or to out-fracture the osteotomies. Yet here is a case where I found both were necessary! This wide bridged nose was benefitted by removal of the high bony bridging chink between the nasal bones and the septum. This thin piece of bone was cracked off on each side with a straight clamp then bilateral osteotomies followed by both out and in-fractures achieved the correction desired. The splint was maintained for two weeks which is twice as long as usual.

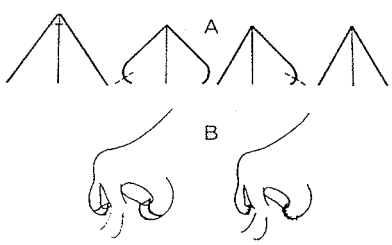


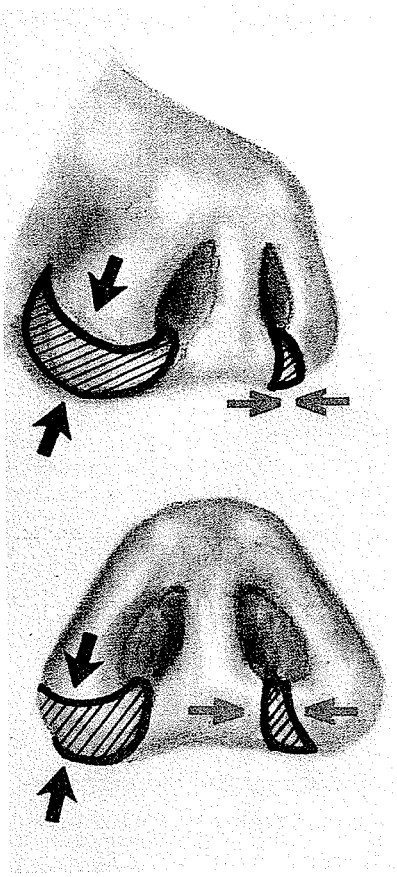
Sir Archibald McIndoe once said to me "You cannot do a proper rhinoplasty without doing osteotomies". He meant that unless you altered all aspects of the nose the correction would not be complete. It is true that when a large hump is leveled the bridge tends to present a flat top or even show the three ridges of the nasal bones with the septum running down the center. When lesser humps are removed the remaining base can sometimes be tailored by shaving the bony sides.

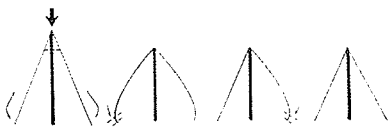
In my corrective rhinoplasty cases I would estimate doing osteotomies in 90%. Except in special cases the results of osteotomy and in-fracture will not be showcased except that almost all results of corrective rhinoplasty shown in this book reflect the effect of osteotomies and in-fracture.

ALAR WEDGE RESECTION

During routine reduction rhinoplasty the mere lowering of the bony pyramid and septal height results in flaring of the nasal sidewalls. It is like lowering the center pole of a tent and observing the inevitable sag and flare of the sidewalls. Preoperative nostrils which seem within normal limits or are gracefully long and slender suddenly become open, flared and even vulgar (A). This effect is exaggerated when the nose has been shortened and tilted giving the nostrils greater antero-posterior exposure. Correction of this flare with a bilateral tuck is achieved by a wedge resection of each alar base as it





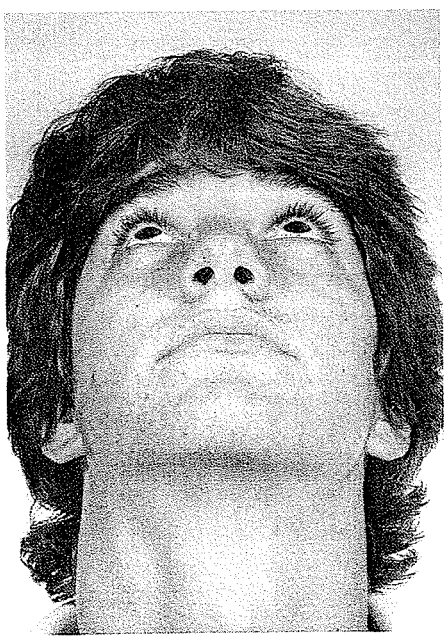


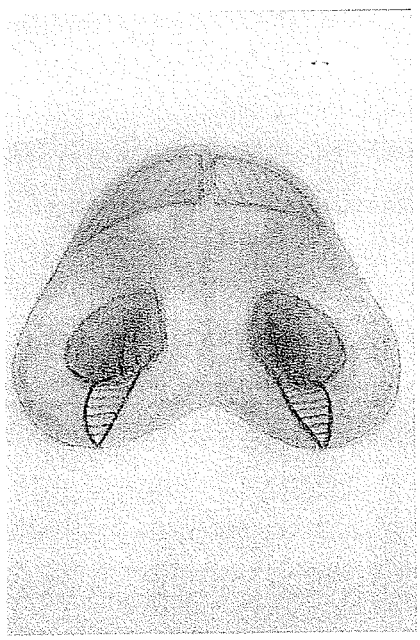
swings into the nostril sill (B). Alar base resection to correct alar flare was described by Joseph in 1931 and elaborated by Aufricht in 1943 but seldom used. In all my training I never saw any surgeon excise alar bases. In 1960 I noted that 65% of rhinoplasties deserved alar wedge resection and by 1975 my percentage had risen to 98%. Today I estimate that I use alar base resection in about 92% of reduction rhinoplasties and so has been used in over 90% of cases shown in corrective rhinoplasty.

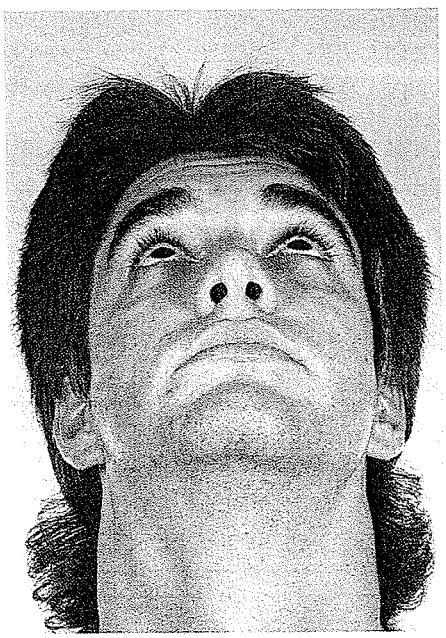
The position of the alar base resection depends on the case. It is important not to confuse this resection to that of Weir, 1892, which involves full thickness of the alae as it joins the cheek. This causes shortening of the entire alar sidewall rather than reduction of alar flare and, although of value in rare cases, is seldom indicated.

I postpone the alar base resections until the very end of the operation, for only after the supporting structures have been altered and the lining trimmed and sutured does the nose repose in its prospective shape. A glance under the nostrils will determine if wedge resections are indicated.

When the flaring alar base runs into a too long nostril sill the wedge resection is taken mainly out of the sill at its junction with the alar base. When the alar base runs directly into

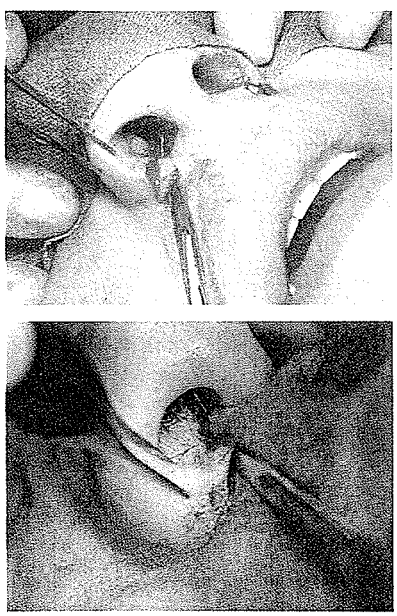






the cheek with minimal nostril sill the wedge resection is made at the medial junction of the alar base with what sill is present. In the flaring nose the wedge resection is taken from the wide nostril sill immediately adjacent to the alar base.

The scars hidden in this join are nearly invisible. I do not agree with Sheen that the resection should be made through the substance of the ala above its join with the sill. This violates an aesthetic unit and the scars in this area are more noticeable being seen as a nicking interruption of the flow of the ala.



The excess alar base to be resected is marked and one side of the wedge is stabbed through with a No. 11 P. P. blade leaving only an epithelial thread intact to maintain fixation while the opposite side is severed cleanly. The thread is then divided, its wedge removed and the wound eventually closed with one 5–0 chromic catgut suture inside the vestibule and 6–0 silk to the skin. During the execution of this aspect of rhinoplasty invariably I express to the resident that the most difficult part of this procedure is the achievement of absolute symmetry. Not only is it important to keep the nostrils equal but in many cases the wedge resections must be calibrated to adjust an original asymmetry in the nostrils.

It is good to note that lowering the bridge does not always cause unattractive sag and flare of the alae. In those noses with nostrils that are too narrow, the bridge lowering can flare the sidewalls just enough for aesthetic and functional improvement.

LONGITUDINAL TIP-COLUMELLA CARTILAGE GRAFTS

The adjunct of cartilage grafts to the tip has become popular, too popular in fact. It seems that almost every rhinoplasty surgeon feels free to insert cartilage into the tip of all his noses. Often this is not indicated and can occasionally lead to ill effects. There are many cases where the graft can be an asset but each case should be evaluated individually.

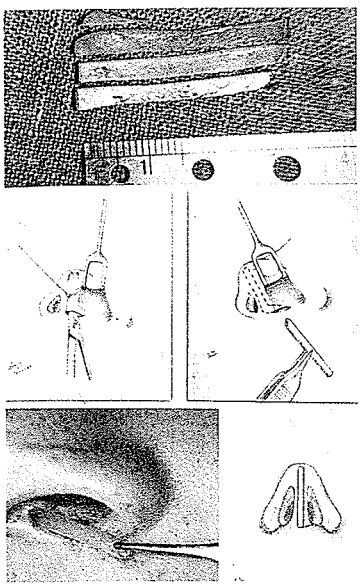
Although rarely acknowledged by the modern tip grafters I started this adjunct with a presentation in 1964 and published in 1965 in Plastic and Reconstructive Surgery when I wrote:

> Routine reduction rhinoplasty is limited in its potential for in principle it is all take and no give. Occasionally, the mere removal of tissue may produce an improvement but still fall short of ideal. A subtle addition in the right place along with the reduction can tip this gain into a full-fledged success.
>
> Autogenous septal cartilage taken by the usual submucous resection is by far the material of choice for the adjunct of columella strut. It is close at hand, usually available in sufficient amount, thin enough to avoid bulk but of a structure and strength suitable to render support as well as contour. In principle, the septal cartilage graft should be inserted into an intact compartment simultaneously with but independent of the regular rhinoplastic action. The actual incision should be as small as possible and placed out of the line of stress so that the cartilage thrust within the pocket at no time is exerted against the healing suture line. A stab with a #11 P. P. blade is made at the base of the columella on one side and within the vestibule. This allows the dissection with fine scissors of a pocket at a right angle just under the skin of the columella and then turned up progressing anterior to the medial crus of the alar cartilages.

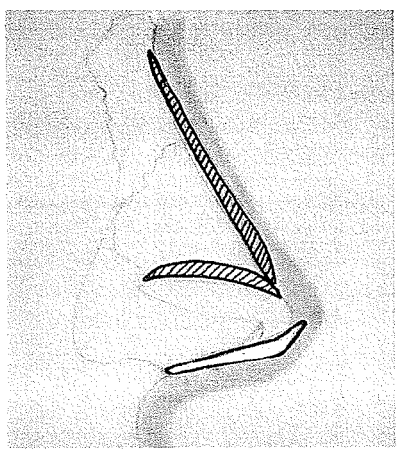
Among the uses of this anterior columella strut, besides correction of mild columella retraction, was improvement in the broad, flat-tipped nose that had no potential stand-up quality.

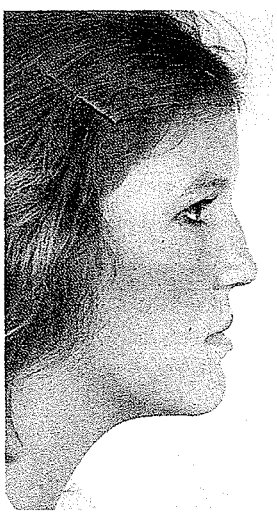
Even after these flat tips are tailored by the usual rhinoplastic procedures, they still possess no tip definition. Here a strong septal cartilage strut thrust from a firm foundation at

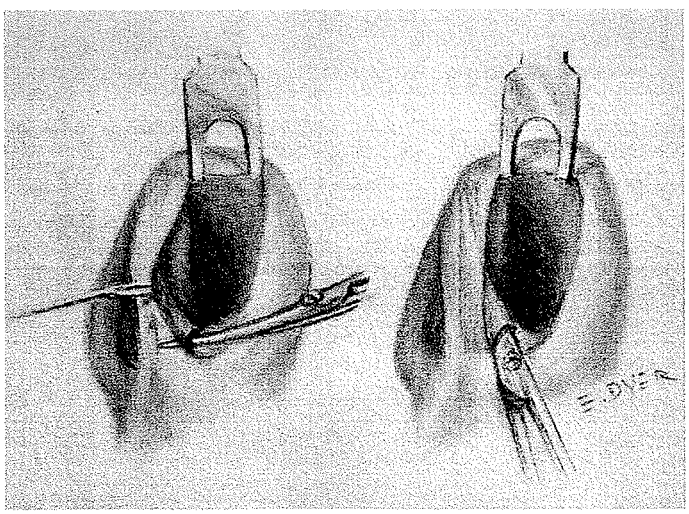
the columella base well into the tip can give an exciting point to a potentially dull nose. Such is seen in this 1963 result of a regular reduction rhinoplasty and chin implant embellished with this septal cartilage strut.

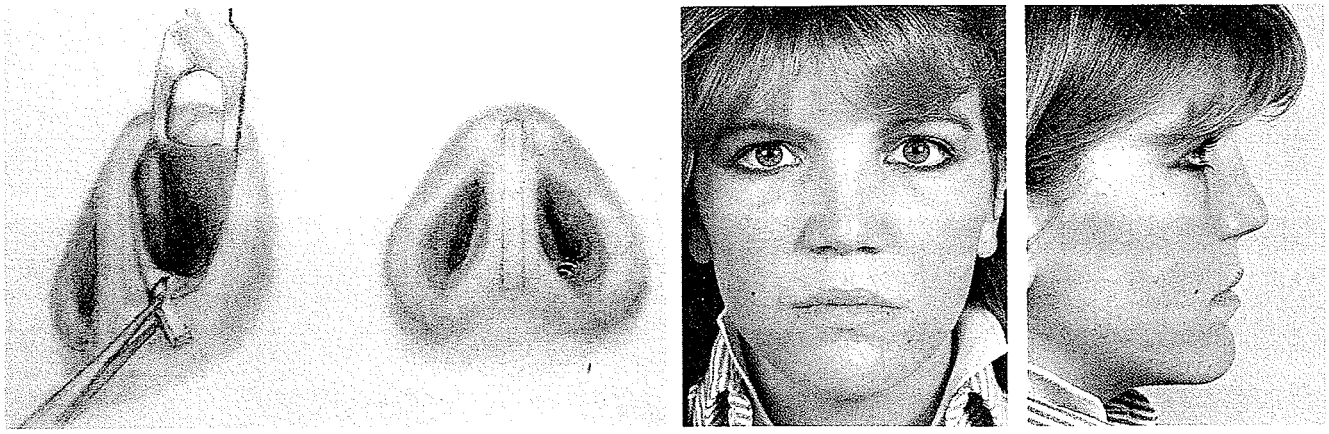


Then there are the flat-tipped noses in which the bridge height challenges the tip height. The bridge was lowered and the alar cartilages reduced. Then a long cartilage strut introduced at the base of the columella into a tunnel in front of the septum all the way to the nasal tip enhanced the profile with natural elevation of the tip. It is the same septal cartilage strut, 1963, that surgeons today find a necessity after open rhinoplasty to keep their dismantled noses from scarring down.



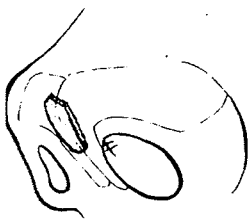


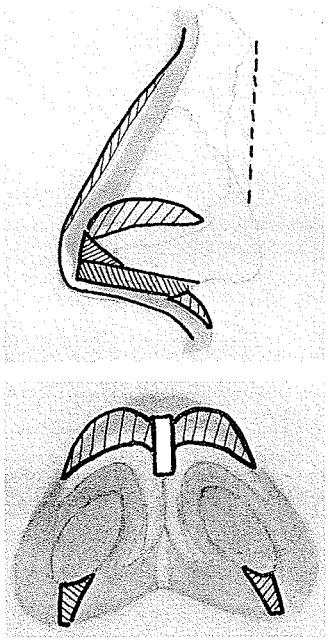


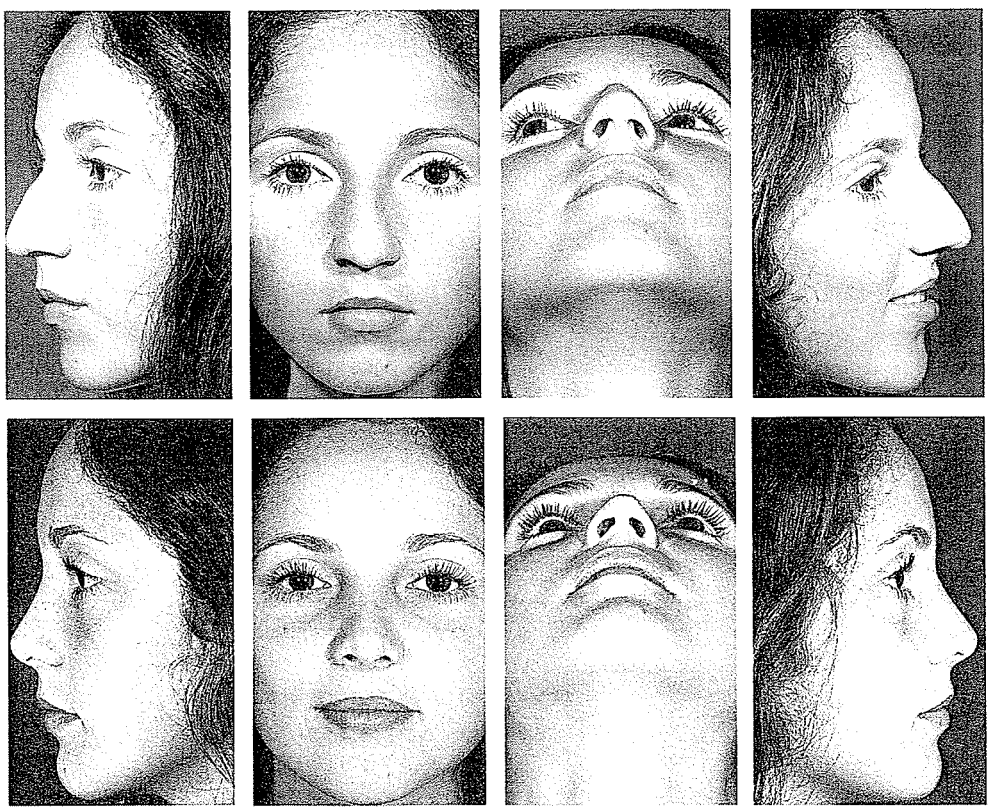


TIP GRAFTS

Use of these long columella grafts were confined to columellas with retraction. In 1968 in Plastic Surgery by Grabb and Smith I described fashioning smaller grafts for nasal tip definition. This is the approach that is popular today. A stab at the side of the upper columella just inside the vestibule provided access for dissecting the pocket in the anterior nasal tip. This facilitated insertion of small cartilage struts for tip definition. At this time they were shaped as rectangles.

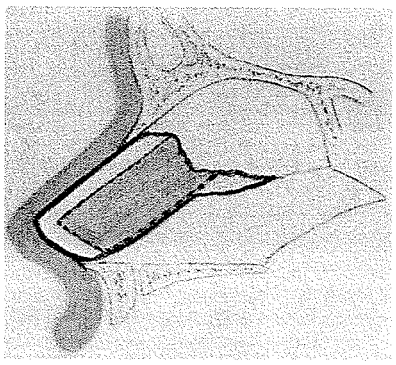






This was over 25 years ago. In his 1978 book Sheen described altering his tip grafts to rectangular shape as I had previously advocated and in his 1993 up-to-date conclusion he noted: "most commonly a combination of multiple grafts with different consistencies is used. Solid grafts are usually rectangular, without posterior notching. The bruised and crushed cartilage grafts are also rectangular although shape is less important than volume".

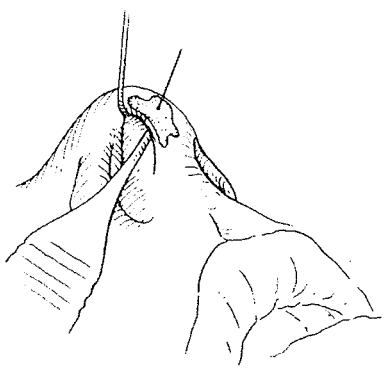
Over the years I have been altering the shape slightly using more often a diamond shape to elicit an attractive highlight. Insertion of this cartilage graft not only provides definition and tip projection but also helps accent the golden angle. It was first used in primary corrective rhinoplasty, then corrective rhinoplasty in the Oriental and Black race and finally it became an important adjunct in secondary rhinoplasty.



There are always a few pieces of septal cartilage lying around at the end of anterior septal shortening and bridge adjustment. If not, then a piece is easily harvested through a submucous septal resection. Whatever piece is chosen can be shaped appropriately and inserted after the nasal tip has been sculptured but before the osteotomies.

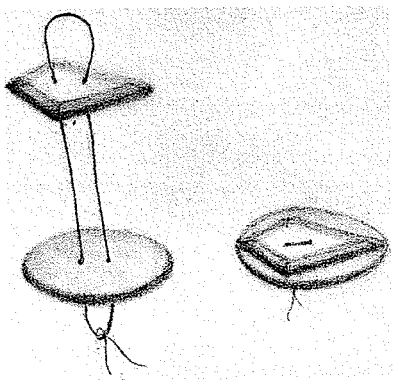
BONE GRAFTS

In 1975 J. Sheen advocated the use of small autogenous bone grafts from the vomer or perpendicular plate of the ethmoid be placed at the columella-lobule junction with a 35-degree angle. His grafts were shaped with two prongs on the upper edge and a notched lower edge. Anyone familiar with bone grafts could predict the unpredictability of survival of small vomer grafts in soft tissue. Sheen soon acknowledged mass loss of a good percentage of the bone grafts and so he converted to cartilage grafts. After 20 years experience Sheen estimated 95% survival of cartilage grafts in the nasal tip and I concur with this estimate after 30 years experience.



TIERED GRAFTS

Tiered grafts should be limited to two layers. When cartilage is stacked three tiers high sufficient nourishment can get to one side of the outer two layers but is probably blocked from nourishing the middle layer. Thus the center piece may gradually undergo partial necrosis which not only defeats the purpose of extra projection but also may make the transition from asepsis to chronic infection.



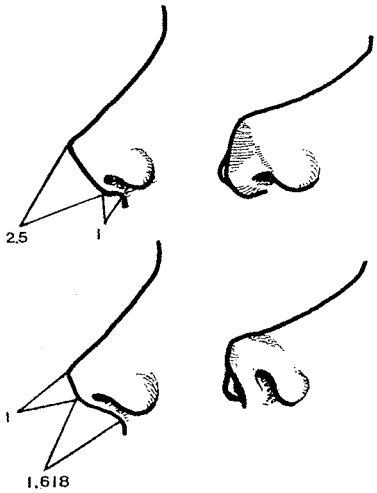
When anterior tip flatness requires slightly more projection than the thickness of septal cartilage I have used a two-tiered graft. This is constructed by shaping an alar cartilage as an oval and then suturing a septal cartilage lop-sided diamond on to this oval platform with one suture of 4–0 Prolene with the knot tied on the side of the alar cartilage. When the two-tiered graft is inserted into the tip area, with the diamond forward and the knot beneath, the flat graft holds the position and the diamond creates definition picking up a highlight.

As noted over 30 years ago mere reduction rhinoplasty presents aesthetic limitations but the addition of cartilage grafts to the tip can make the aesthetic difference. In 1993 Sheen noted "I now prefer to spare as much skeletal framework as possible in every patient, adding framework as necessary to improve contour." I tend to differ with Sheen here since reduction and reshaping by rhinoplasty should be basic and a better proportioned nose is achieved. When reduction is avoided in preference to tip and bridge augmentation the nose often tends to be omnipresent or just too big. I have had several patients who have undergone the routine of no reduction but excessive onlay of cartilage. The shape is reasonable but they complain of the size!

TOO MUCH

M. D. Constantian in 1984 expressed his preference for four nasal planes: one dorsal, two lateral, and one basal. Yet in his enthusiasm to lift the tip he exaggerated this area beyond aesthetic proportions. His more recent results seem improved. It

is true that planes and light reflexes are the illusional essence of beauty of face and body form but proportions and harmony such as height, length, and width of features and the angle or angles of planes are also important. When too much extra cartilage is introduced into the nasal tip to gain definition or force a rise in tip over bridge, be sure the distance from the height of the alar arch to the tip is not too long! Too much projection, especially associated with a long nose, can be comical, as Pinocchio sadly discovered. It is also well to remember that in the basal plane, which is the line running from lip to tip, the beautiful normal is not a straight line or even one angled 1 to 1; the ideal is a line sectioned at the golden proportion of 1.618 to 1.0. Too much auricular cartilage, in a valiant attempt to refine the tip, is seen in Constantian's figures where the basal plane angle is 1.0 to 2.5, with the height of the alar arch to tip too long.

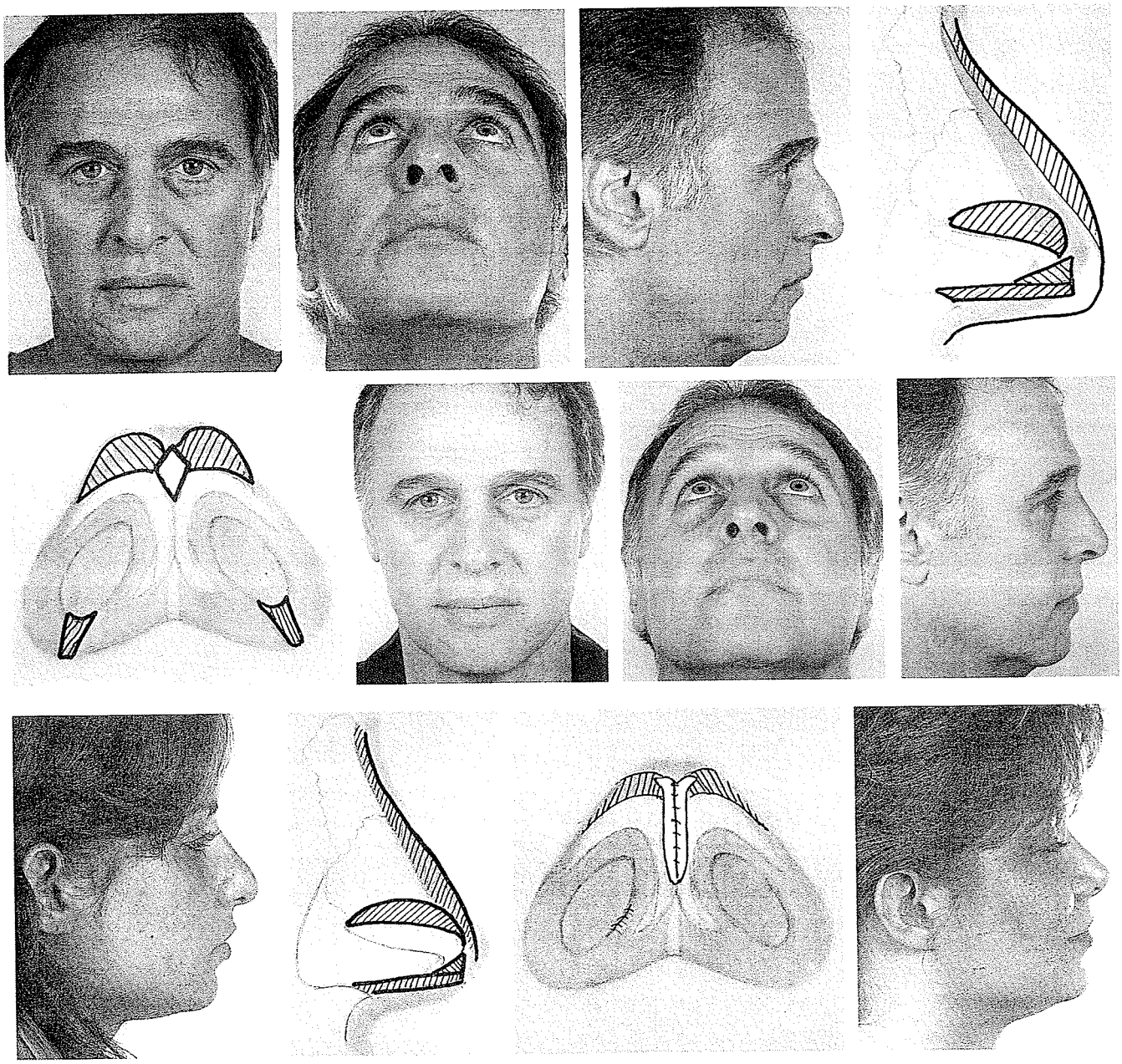


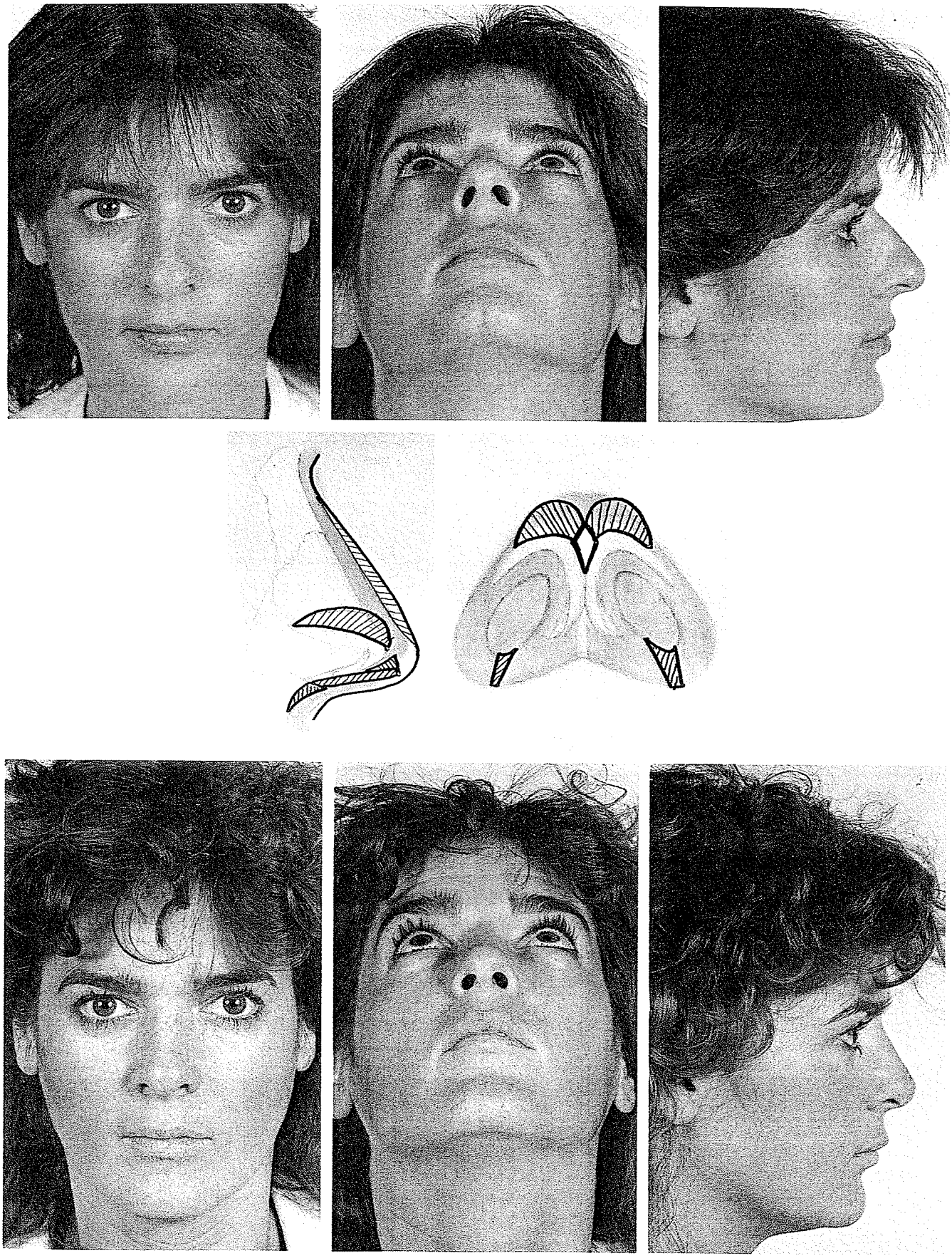
Method of Insertion

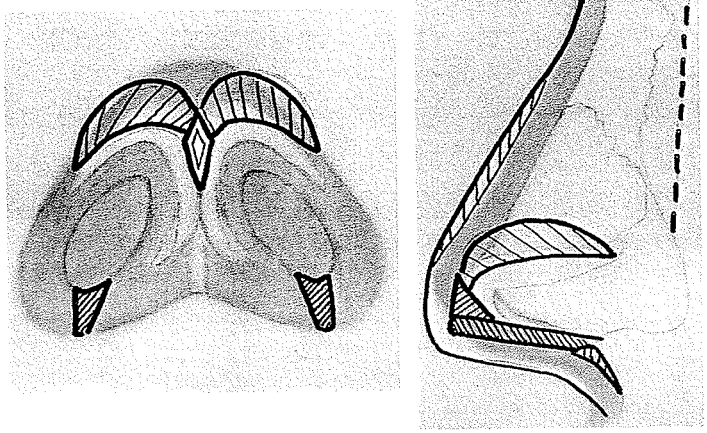
It is important that the tip graft remain where it is placed. First the area of the tip that deserves the graft should be marked. Then the pocket to be dissected must be designed to enable insertion of the graft without allowing opportunity for shifting. Thus the small entrance incision is made 1/2 cm inside the columella at the exact height of the inferior extent of the planned pocket. This prevents downward slippage of the graft and avoids need for fancy but ineffectual notches on the inferior extremity of the graft. From the inferior stab incision a sharp pointed scissor is inserted horizontally into the stab to the center of the upper columella and then turned 90 degrees and advanced toward the tip spreading a pocket well under the tip skin just over the alar cartilages. This pocket must be tailored custom-made no larger than required. It must not enter the dissected areas created above during reduction of the alar cartilages. When the pocket is fashioned in this manner there is little chance of the cartilage slipping out of position. If for some reason the pocket has been created too large then a 4–0 catgut suture to the tip of the cartilage graft can be

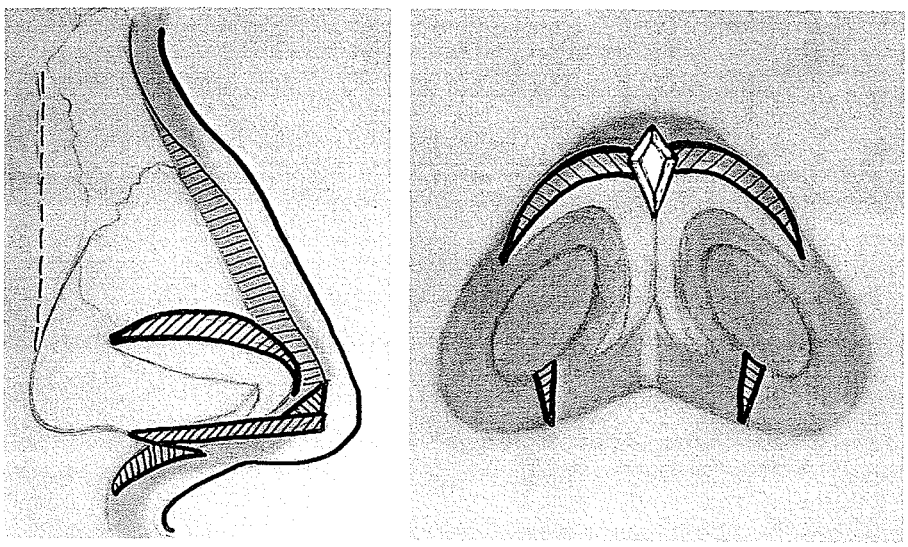
passed into the pocket and out through the appropriate area of the skin of the tip so that fixation of the graft can be controlled for a day or two until the pocket has contracted and sealed off the graft. Once the cartilage has been set in position the tiny entrance wound at the side of the columella is closed with a single suture of 6–0 silk which ties off the inferior pocket preventing cartilage slippage and exposure.

Over the years I have used the tip cartilage graft in probably 65 to 75% of corrective rhinoplasty cases. Here are a few examples but of course a high percentage of all cases receive the graft.







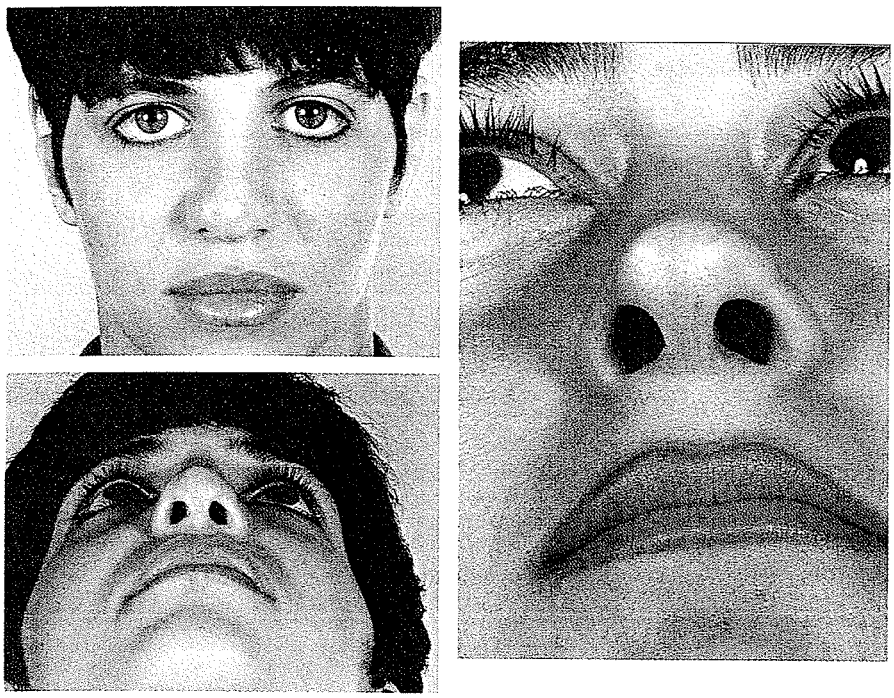


Complications

If slippage is avoided the only other danger is infection. Sheen, in his honest evaluation of his series of cartilage-to-tip technique, discussed infection in his early experience, suffering occurrence of three to five percent acute infection and 15 to 18 percent chronic infection. He blames it on technique

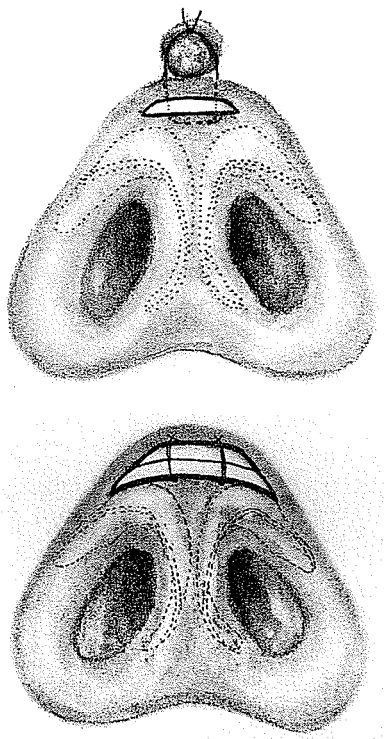
and by dipping his grafts in antibiotic solution and not allowing exposure of the graft at the entrance site he cut his incidence to ten percent. I have always placed these patients on systemic antibiotics postoperatively for three to five days and in 30 years cannot recall more than one or two infections in this area.

Sheen has devoted a lot of his career and time to tip grafting. He has contributed artistic talent, concentration and hard work toward perfecting this little but important adjunct of rhinoplasty. He is indeed adept with this graft but what works in his artistic and experienced hands is not working for all surgeons. Unfortunately, he and his disciples have been so enthusiastic in their papers and books that they have mesmerized enchanted followers so that small and not so small septal, auricular and costal cartilage grafts are being shoved into the tip of thousands of noses, many of which actually do not need them. In fact, one of the most infuriating tasks I face in secondary rhinoplasties is removing ill placed cartilage grafts in the tip stuck to the under surface of the dermis in asymmetric position. There can be the exaggerated tip lift, the bulbous hump, the three cornered tip, the off-center projection and variation of all of these.



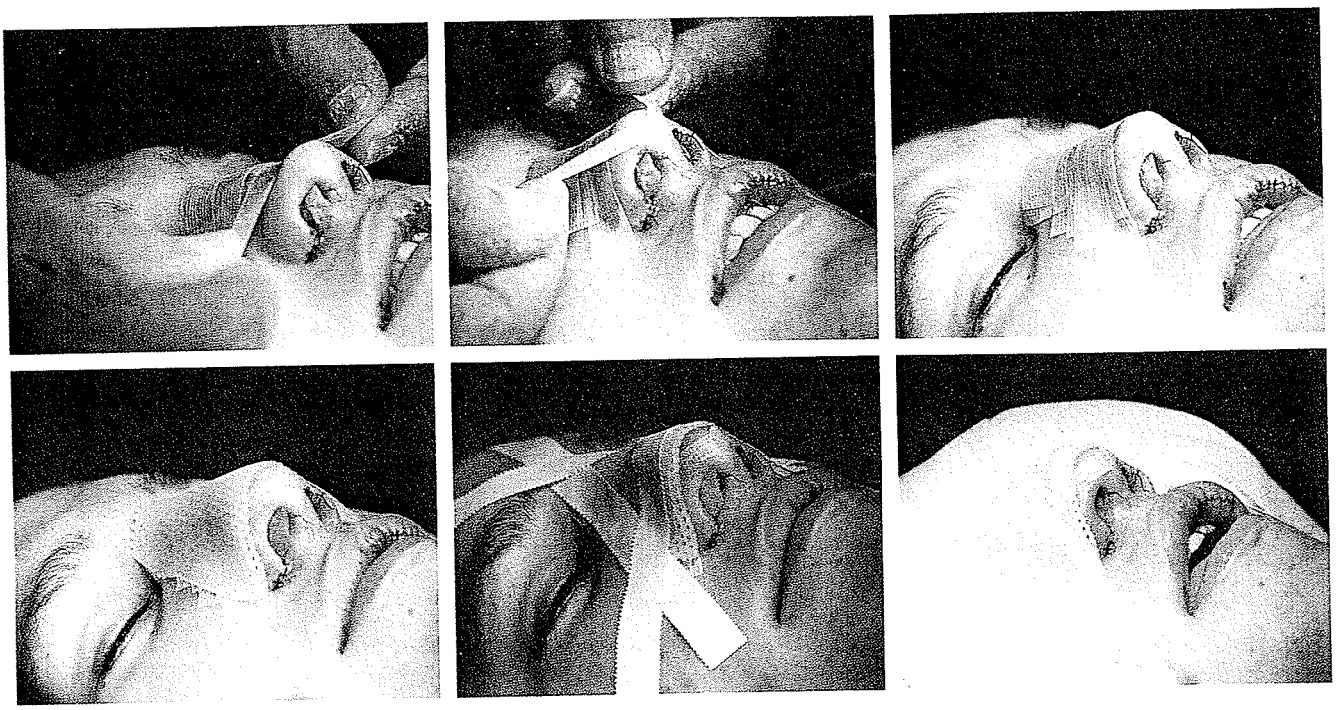
Grafts to the Dorsum of the Tip

I. B. Goldman in 1953 described a round cartilage graft onlay for the dorsum of the tip. As an improvement G. C. Peck in 1983 proposed primary and secondary use of a horizontal onlay cartilage graft which he inserts through a rim incision into a pocket over the alar cartilage dome in the tip. He prefers a conchal cartilage graft from the ear measuring about 4 × 9 mm with its convexity placed outward to imitate gentle curvature of the nasal tip. If double onlay grafts are needed, then two tiers are sutured together prior to insertion. If septal cartilage is used, it is scored on the outer surface. I do not find a great need for this type of projection in the primary rhinoplasty but if needed would use it. There are two potential hazards. First there is a tendency for horizontal onlay grafts to shift askew and if placed superficially they become too noticeable.



POSTOPERATIVE RHINOPLASTY DRESSING. The mucosal lining should be sutured carefully. Then Vaseline gauze packs are inserted snugly into each nostril to press the freed tissues gently back together again but not enough to spread the in-fractured

bones! Usually these packs are left for 6 to 12 hours. The skin of the nose is taped down with horizontal strips exerting gentle pressure especially in the supratip area where the excess skin has memory of the previous bulges of the alar cartilage. A narrow half split sling wraps around the tip.



An Aquaplast splint holds the bones together for one week. When osteotomies have been carried out, eye pads and a gentle pressure dressing over the head reduces the post-operative eyelid ecchymosis. This pressure dressing is left on a couple of hours. Sutures of the alar bases are removed in four days. The splint comes off in 1 week.

HEALING TIME. It takes at least six months for a nose to settle after surgery. Some surgeons claim that it may take as much as two years. Certainly long follow-up is ideal, and if the nose has not been done correctly this will become evident in time, as seen in the section on secondary rhinoplasty. Here is a special example where a corrective rhinoplasty with reduction of the alar cartilages, bridge trimming, septal shortening with the golden triangle, osteotomies with in-fracture and a double septal cartilage strut up the columella into the tip promised a good early result.

After 22 years the patient claimed her nose had improved and she sent the photgraphs to prove it!

SURGICAL ADJUNCTS IN PRIMARY CORRECTIVE RHINOPLASTY

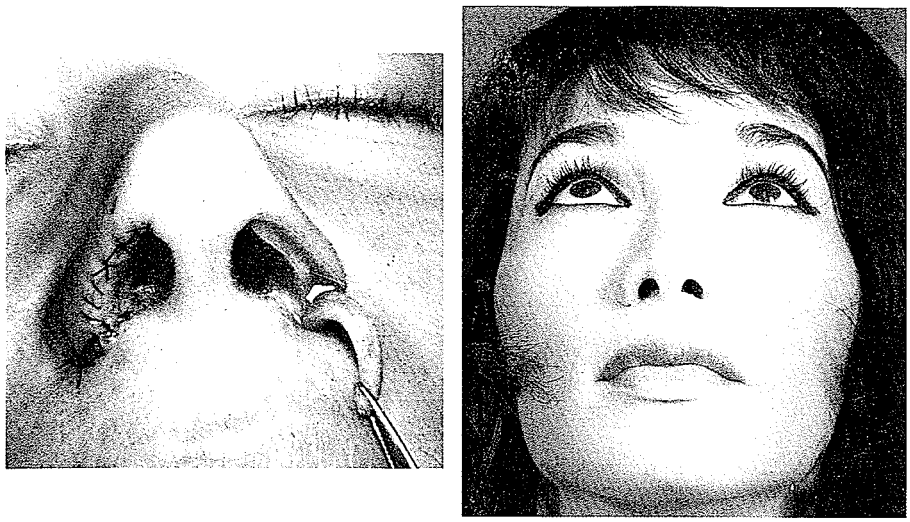
There are noses that are within normal limits but in which mere routine primary corrective rhinoplasty procedures will not produce the improvements deserved. In those incidences there are certain adjuncts that can be added to increase the aesthetic potential. Several of these adjuncts such as alar base resection and cartilage tip grafts are so commonly incorporated into the standard rhinoplasty that they have already been inserted and described.

ALAR MARGIN SCULPTURING

It is becoming more and more apparent that direct sculpturing of the alar margins can be of inestimable value in primary and secondary reduction rhinoplasty. This maneuver empowers artistic shaping and thinning of the alar rim beyond the reach of the standard approach. In certain cases the need for alar margin excision does not become evident until the postoperative phase of the primary rhinoplasty. In some incidences its need is obvious at first sight. Then, too, it can be repeated merely removing the previous scar.

Joseph in 1931 diagrammed an alar margin excision. In 1960 in the *British Journal of Plastic Surgery,* I described a modification of the marginal excision as a secondary procedure to trim and thin overhanging nasal sidewalls.

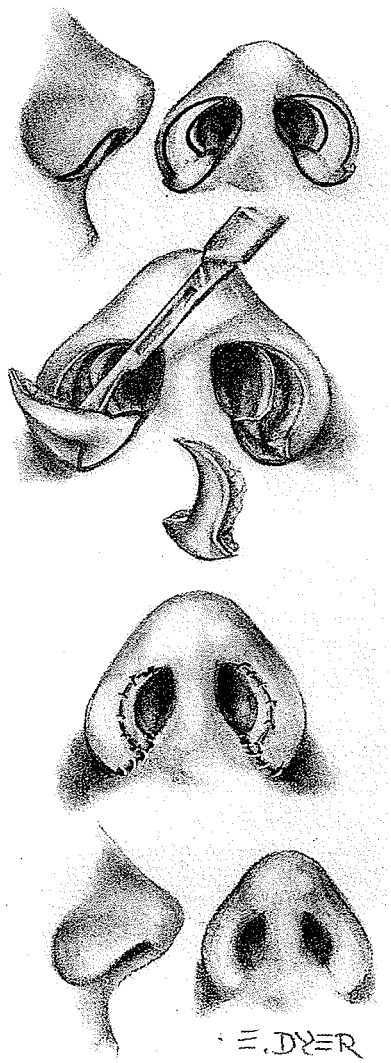
In 1965 this excision was extended as a primary procedure to thin the bulky alar rim and base as seen in Asian and



Black-type nose. This technique was endorsed by K. Boo-Chai for Asians and I. Spina for Blacks.

Fundamental Principle

There are two cardinal dividends to be gained from this procedure.



1. It thins directly thick bulky alar rims.
2. It carves a delicate flaring curve in an overhanging alar sidewall and exposes the columella in profile by lifting the ala skirt to reveal the columella knee. In modified form it can reduce merely a thick hub of the alar wing.

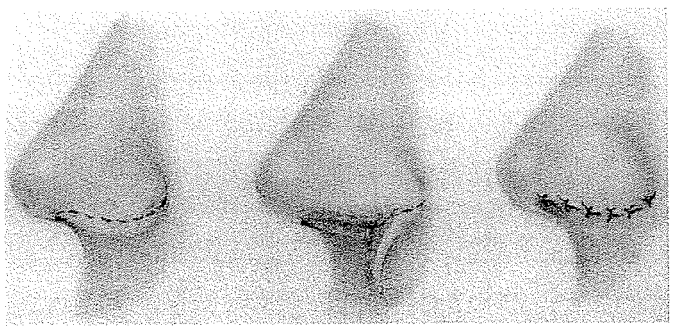
By extending the alar margin excision into the routine medial alar base wedge excision, a flaring ala is also corrected. If this is extended into a crescent excision of the entire alar base's join with the cheek (Weir) then the sidewall length from tip to cheek is reduced. Usually the combination of *shaping* and *thinning* the alar margin along with alar base excision is indicated but emphasis on a specific aspect depends on the individual nose and its alar margins.

Multiple Applications

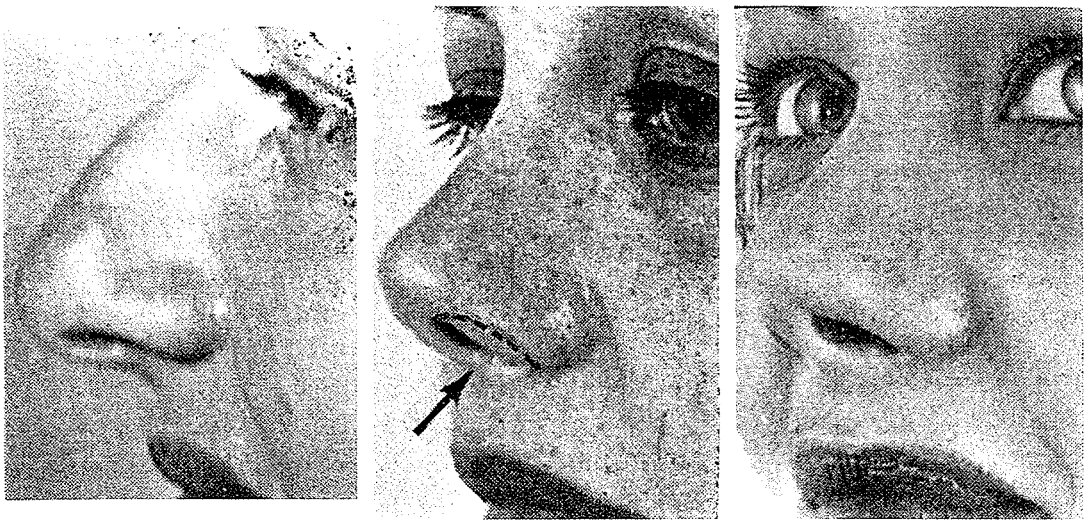
There are a variety of inelegant nasal traits which can be improved by alar marginal excisions.

1. In the double barrel shotgun or funnel nose the long sidewalls are flush with the columella. This unattractive and previously inaccessible condition inspired the procedure initially and continues to receive a greater share of its profits. It can be a primary problem but is most often seen secondarily.

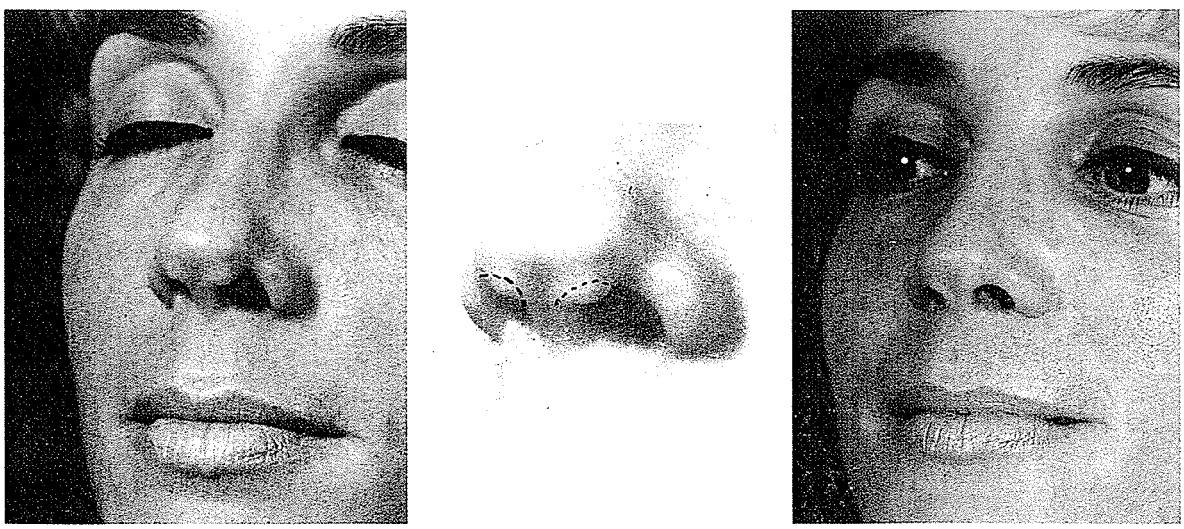
   In extremely long noses where adequate shortening calls for a severe anterior septal excision the mid-column moves back markedly. If this nose possesses rather thick skin with broad alar wings and long sidewalls then the columella will disappear as the sidewalls remain fixed and become flush with or even overhang the mid-column. This relationship is unsatisfactory as the classic profile of a nose must show the delicate strength of its columella as the alae curve back and away. This can be corrected by alar margin sculpturing with excision of the alar wedge along the sidewall.



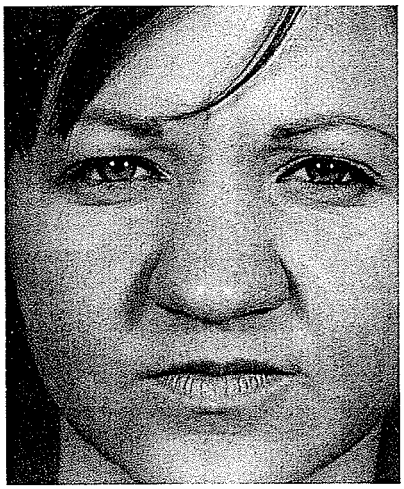
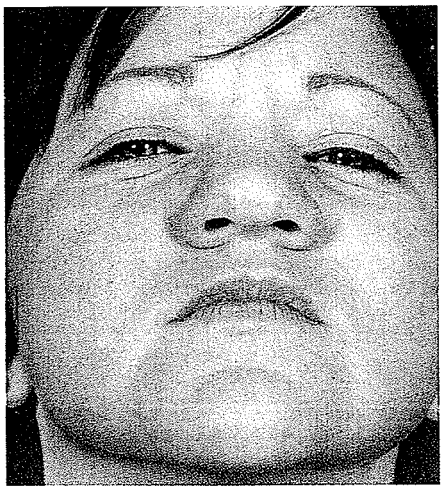
Even in less severe nasal length and thickness the relative length of the sidewall may become exaggerated after reduction rhinoplasty deserving alar margin sculpturing.



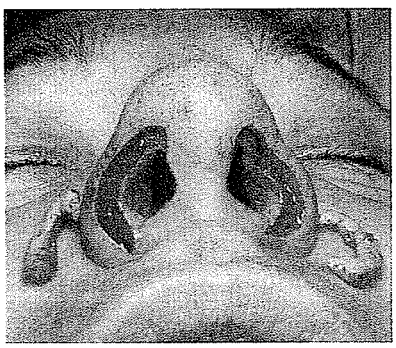
2. In corrective rhinoplasty skeletal structures and lining mucosa are reduced leaving only the covering skin without tailoring. In most cases the skin will adjust and in severe skeletal reductions wide skin undermining will allow redistribution of excess skin out into the cheeks without unattractive sequelae. Occasionally, however, the residual skin excess after cartilage reduction may be reflected in strange peripheral pile-up. Marginal sculpturing can be used to refine the discrepancies as the postoperative irregularities of the alar rims were symmetrized.



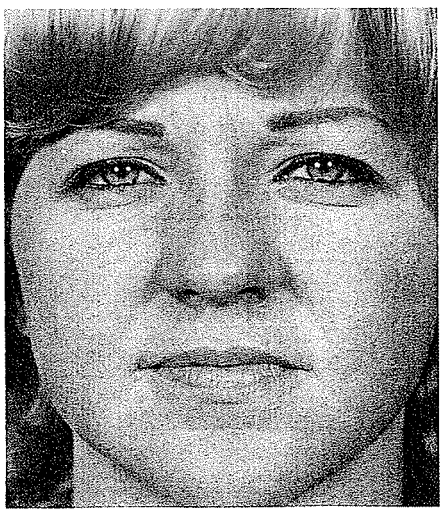
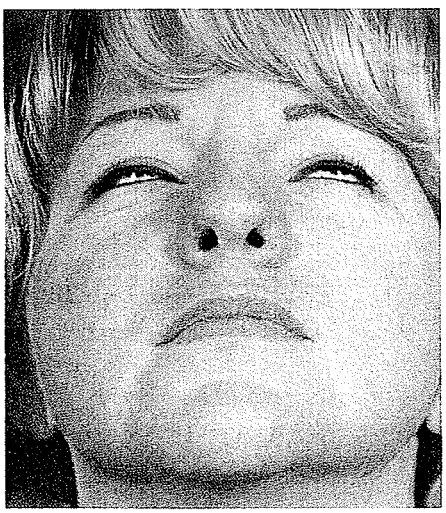
3. The thick potato type nose which so often ends with a disappointing result occasionally can be benefitted by marginal tailoring. The broad, thick nose in this 24-year-old woman required more than just routine rhinoplasty.

The alar cartilages were reduced markedly and a silastic strut was inserted on the bridge not only to heighten the profile but to produce a general narrowing effect. The most important adjunct, however, was excision of bilateral deep marginal wedges along the full length of the ala flowing into alar base wedge resections to narrow the flare. The margin incisions were closed with a gentle running suture of 6–0 silk.



Six months later a second pair of alar margin wedges were excised along the old scar to refine the effect. The final result revealed marked thinning and narrowing refinements otherwise unattainable.

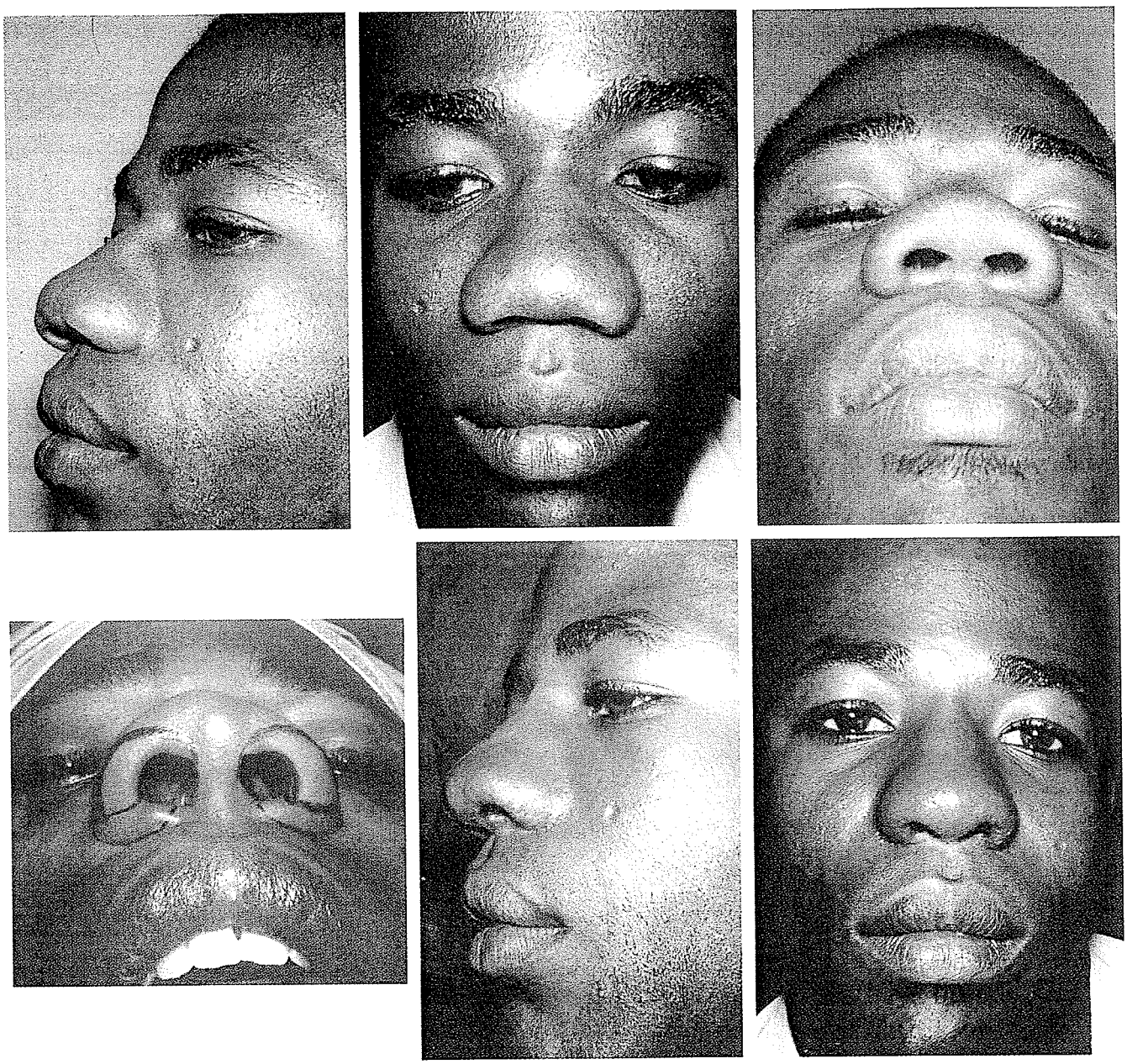




4. Its ability to change the shape of the nostril entrance serves an advantage in unilateral and bilateral cleft deformities. A direct crescent excision of the alar web taking skin and lining but usually not cartilage can aid in raising the alar arch.

5. Racial nasal characteristics can be altered. There is no universal canon of beauty as each ethnic group has its own special qualities. The blending of races has been accelerated by wars, post-hostility rehabilitation, slave trade, easy transcontinental travel, migration and immigration. This has indeed stirred the pot. American, British, and European movies and television have so brainwashed the general world public that, among other things, the fine Caucasian nose with its reasonably high, slender, straight bridge, slim sculptured slightly up-tilted tip and narrow graceful nostrils is most popular, the envy of others and cause of requests for surgical change. It is neither feasible, desirable or possible to transform totally an Asian into a Caucasian or vice versa, a Black into a Caucasian or vice versa or an Asian into a Black or vice versa. Nor is it advisable to transform a Black nose, especially when on a negro, into an acquiline nose better befitting the classic British butler. The same seems true of any Caucasian nose on an Asian. The result of such surgery can produce weird Jacksonitic hybrids. There are, however, reasonable exceptions where corrective surgery is indicated.

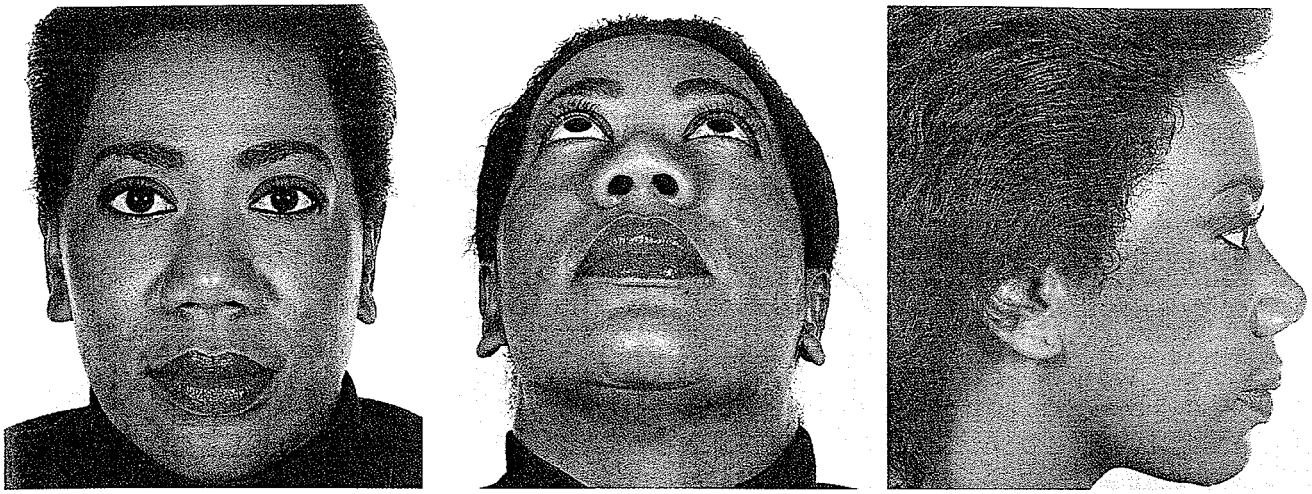
The Black Nose

When a certain racial characteristic is exaggerated to the point of ugliness in any race, corrective surgery seems justified. For instance, variation of the Black nose to an offensive extreme certainly merits modification to within the norm.

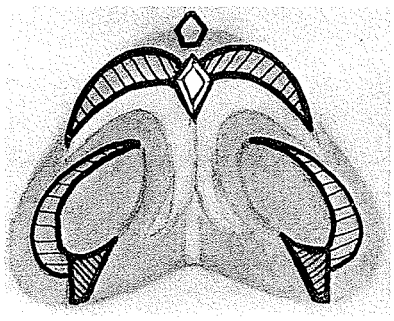


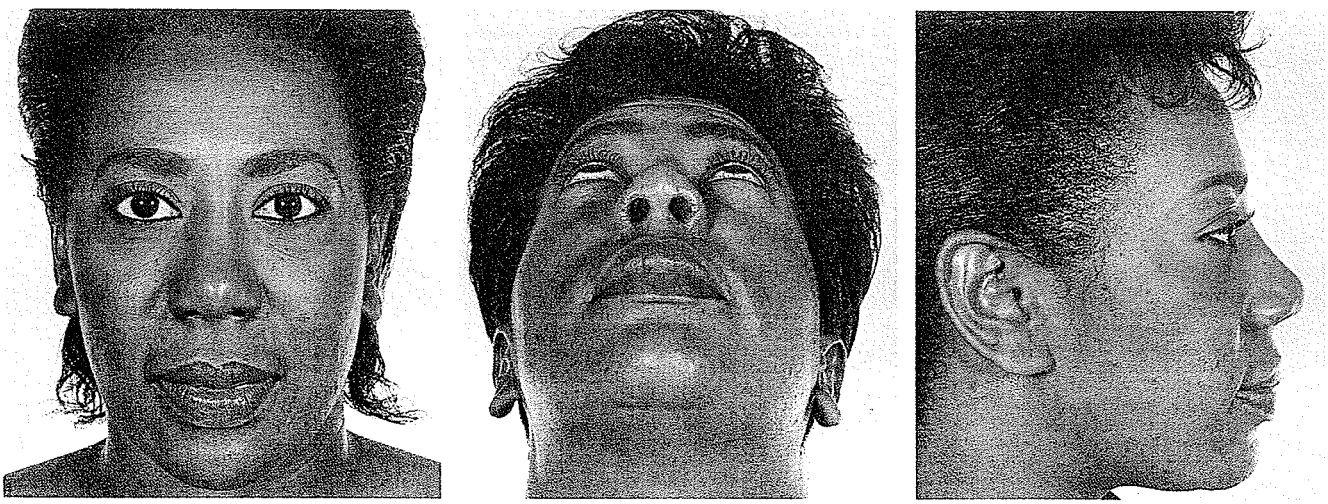
A SPECIAL CASE. This 32-year-old black woman with a low upper nasal bridge, flat, thick nasal tip, heavy, flaring alae pre-

senting bulky hanging sidewalls, requested a more Caucasian style nose.



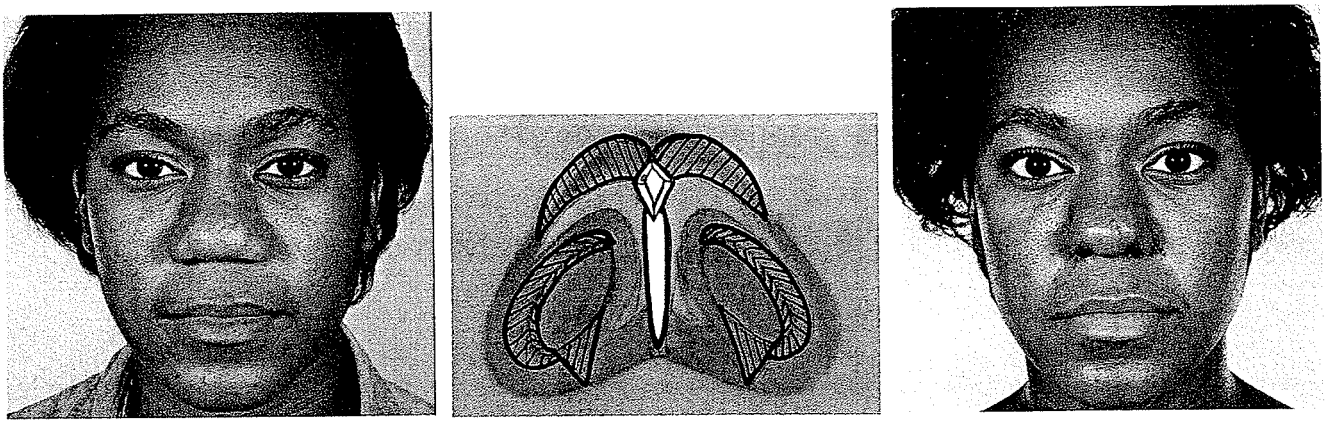
Two-thirds of her alar cartilages were resected. Through a submucous septal resection a cartilage strut was obtained and inserted up her columella into her tip for more definition. A silastic inplant was inserted onto her bridge. Then alar margin wedges extending into alar base wedges were resected bilaterally and the wounds gently closed with 6–0 silk. The alterations were subtle but effective. She asked how we liked her "white" nose. More important she seemed proud.



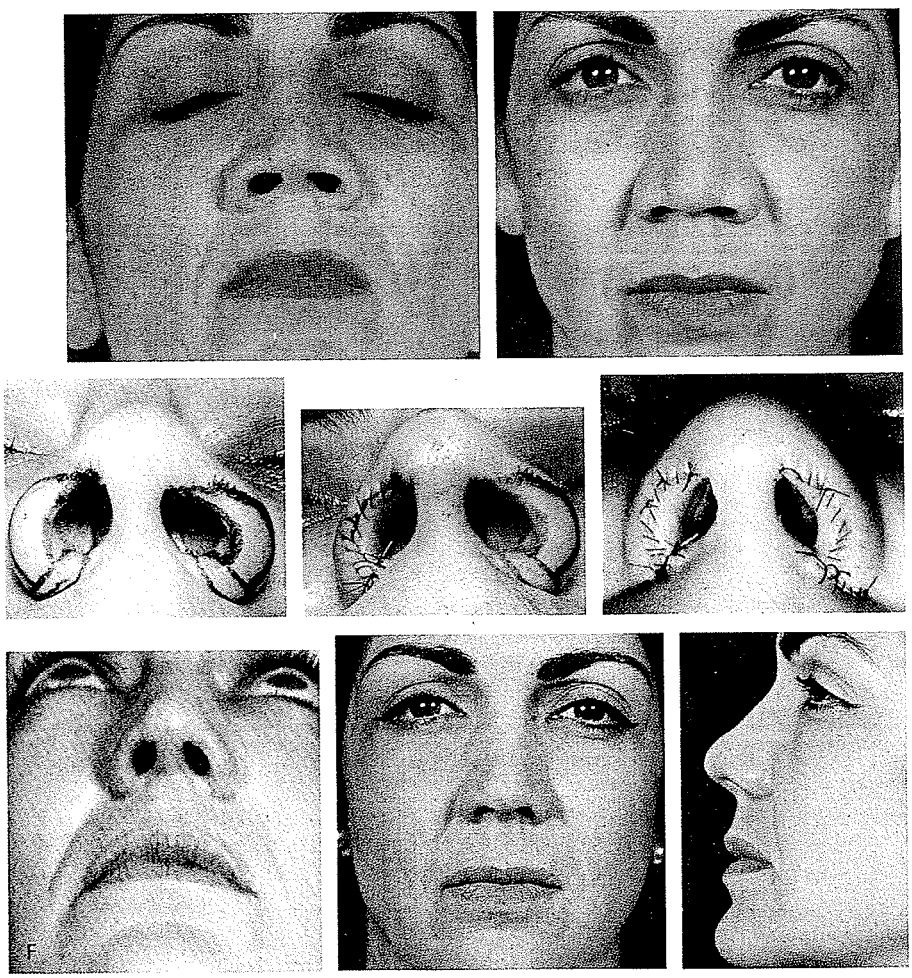


AND ANOTHER. This 19-year-old black female presented an extremely broad, thick nose with severely cystic skin in the tip that had been cauterized extensively by a dermatologist. The same general approach of alar cartilage reduction, alar margins, and alar base wedge resections was used; septal carti-

lage graft in columella to tip gave improvement after three months. Only improvement had been promised.

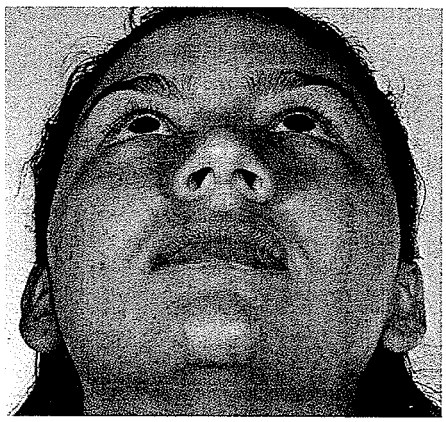


When a Negroid nose happens to be on a Caucasian, surgical modification is in order. Each patient has his or her own reasons and desires for change. These must be evaluated carefully and, if they are sane, sound and within reason, surgery should not be withheld.

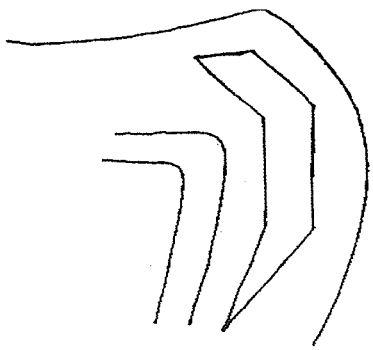


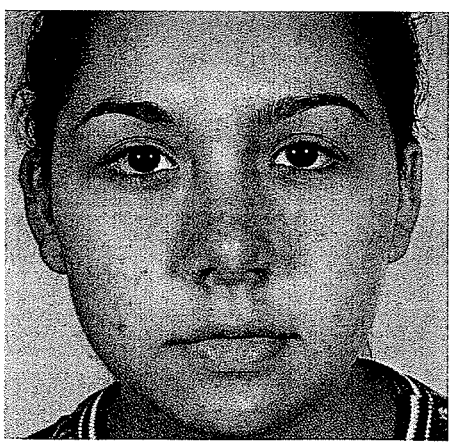
The Mestizo Nose

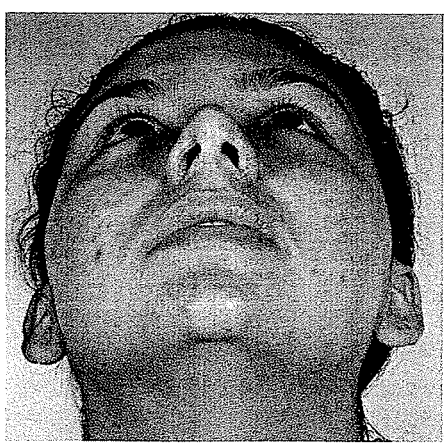
Blending of western Indian and the Spaniard may produce a thick tipped nose with heavy alae. Here is an example that was further complicated by a dermatologist cauterizing several cysts in the skin of her nasal tip resulting in moderate scarring.

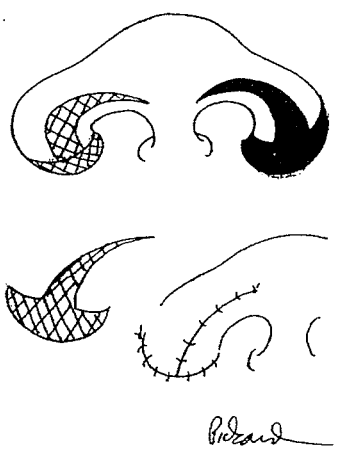


To improve the aesthetics of this nose much of the alar cartilages were excised along with the subcutaneous fat in the tip. The anterior septum was shortened but leaving as much membranous septum as available on the back side of the columella to provide more generous housing for the planned columella strut. A semi-glibbous shaped 3 cm cartilage strut with a special tip angle was obtained by submucous septal resection. Through a skin stab at the base of the columella a pocket was dissected up the columella into the tip and into this tunnel the cartilage strut was inserted to give form to the columella and to provide support and definition in the tip in spite of the thick skin. Alar margins and bases, after wedge resections, revealed a general refinement of the nasal entrance.





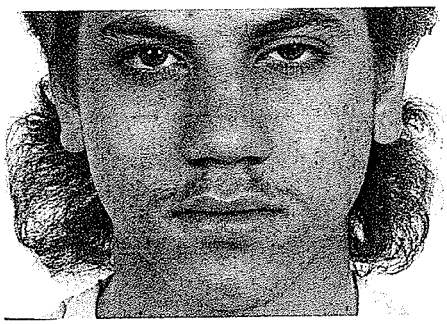


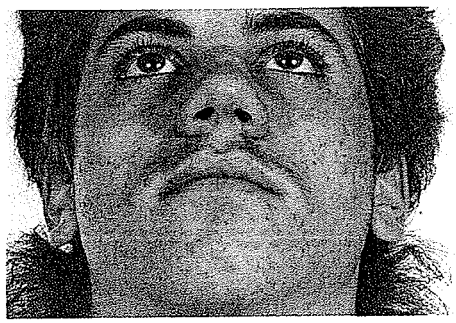


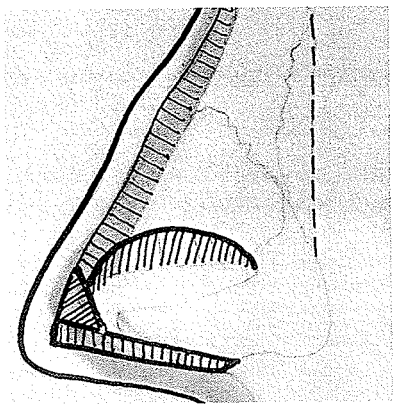
Non-Specific Noses

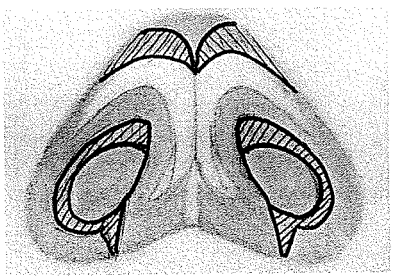
Alar margin revisions can be of aesthetic value in conjunction with reduction rhinoplasty in a variety of cases. The pertinent point is to be aware of the possibility and to be alert to the specific benefit.

This 16-year-old male patient who had sustained a nasal fracture one year before requested nasal correction but refused a chin implant.

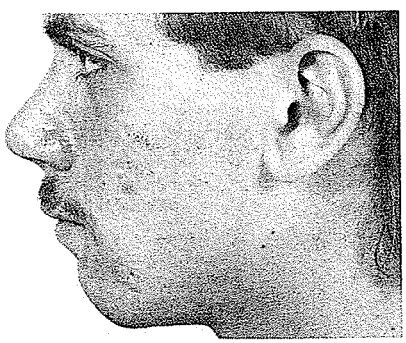


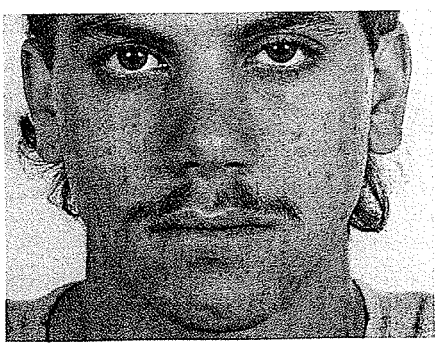


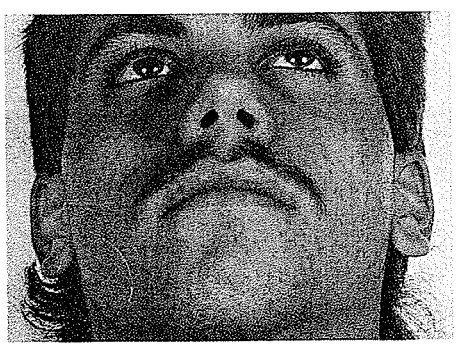




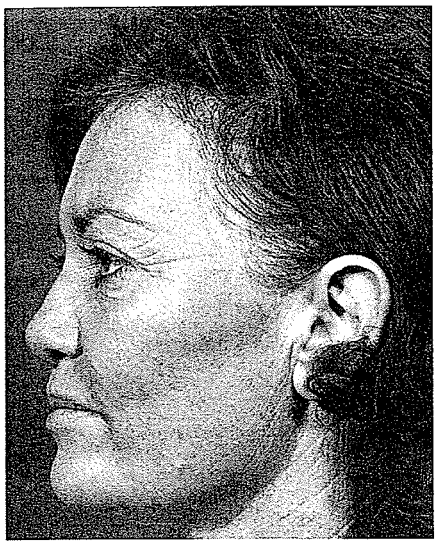
Through anterior vestibular incisions three-quarters of the alar cartilages were reduced. The dissection freeing the cartilage from the skin was achieved with right angled scissors which snipped excess fat off the under surface of the dermis along with the cartilage. The anterior septum was shortened with a rectangle resection and then tip tilted with a golden triangle excision. The bridge was levelled with chisel and scalpel. A submucous resection improved the airway. The lining was trimmed and closed. Alar margin and alar base wedge resections were marked, excised and closed with 6–0 silk. Bilateral osteotomies with in-fracture completed the nasal correction. The refinement of tip, bridge, hanging sidewalls and flaring alae is definite.

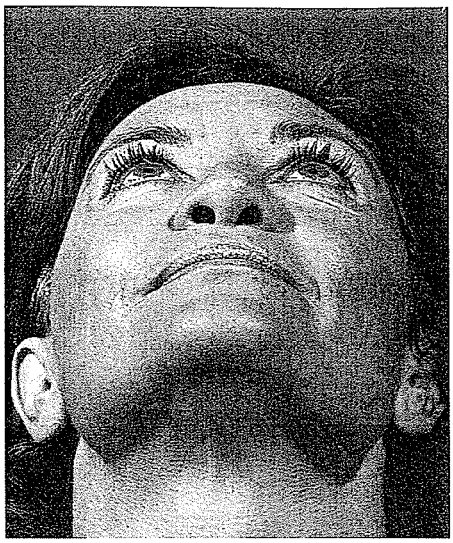
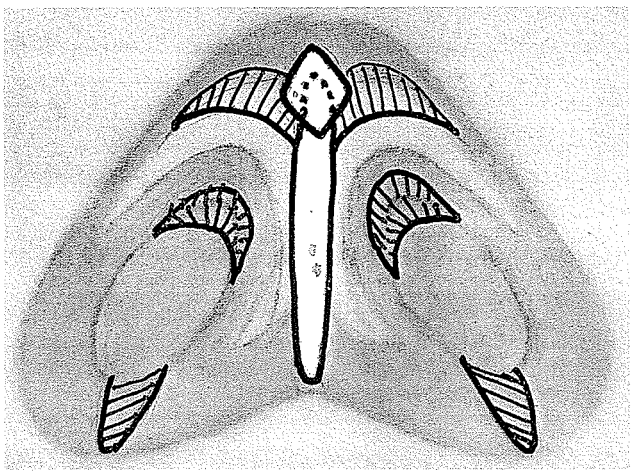


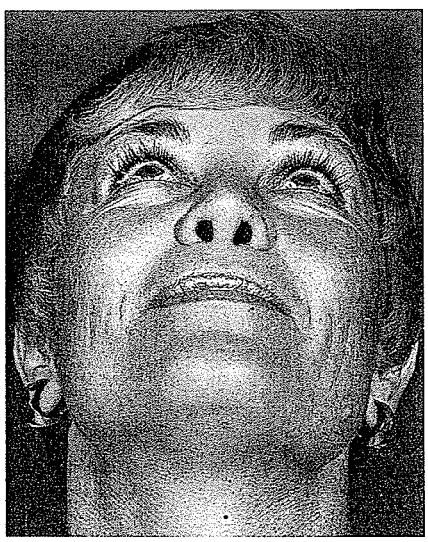




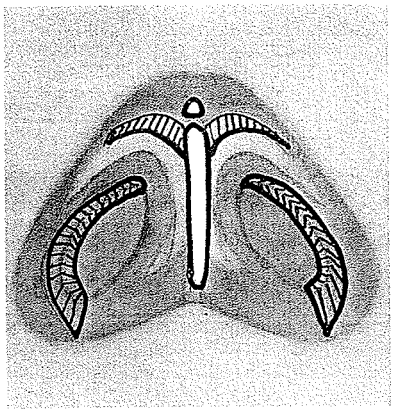
There are numerous conditions where alar margin sculpturing can be of benefit. This 41-year-old woman had an unattractively flat, flared nose with a thick tip and transverse nostrils.



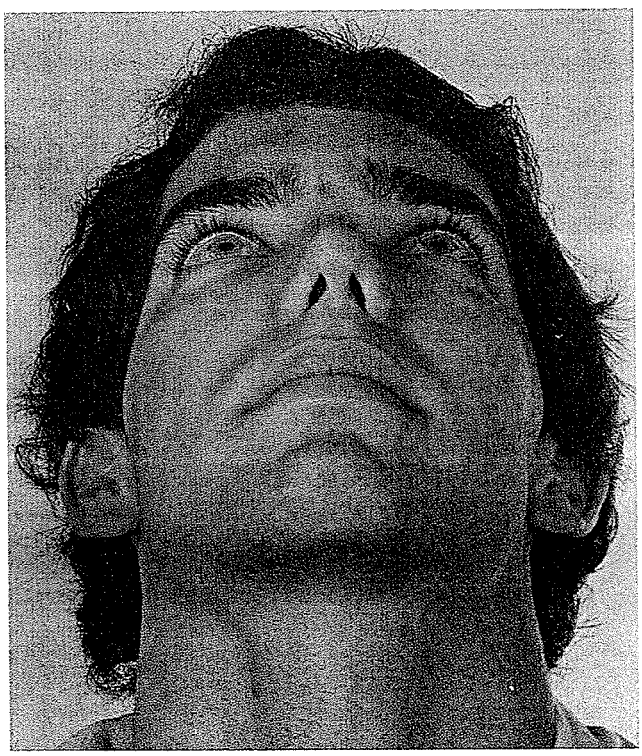



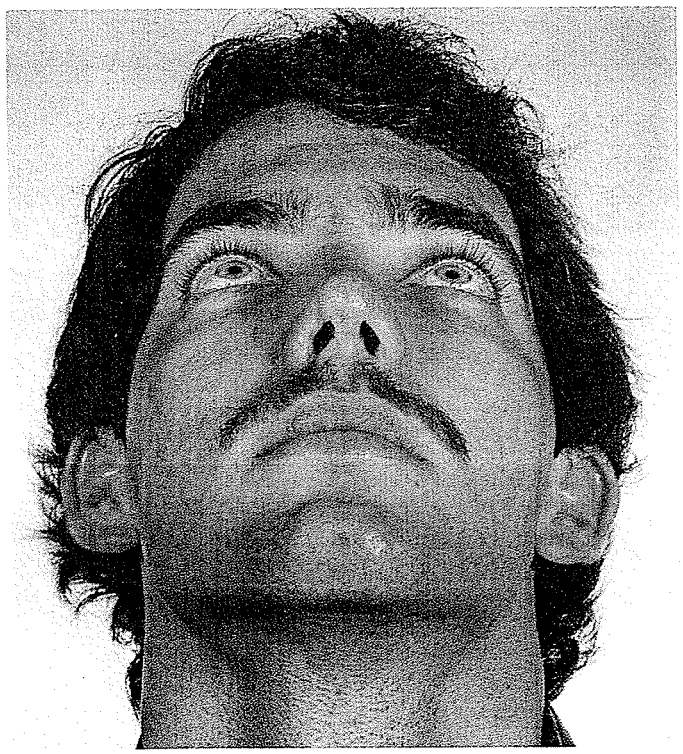



To enhance and refine her nose a submucous septal resection provided two cartilage struts, one for the bridge and one for the columella. The alar cartilages were reduced and one of these was trimmed and used to cap the septal strut in the tip. A bilateral sculpturing of the upper medial alar margins turned the transverse nostrils into a more vertical axis and alar base wedge resections reduced the abnormal flare.



An entirely different problem was solved in this 20-year-old male who had collapse of his alar margins with reduction of his airway. His nasal entrance was refined by inserting a septal cartilage strut up his columella to support his tip. His alar cartilages were reduced and a second septal cartilage strut was inserted along his bridge. The most effective maneuver was the alar margin excisions which refined his alae and opened his airway.

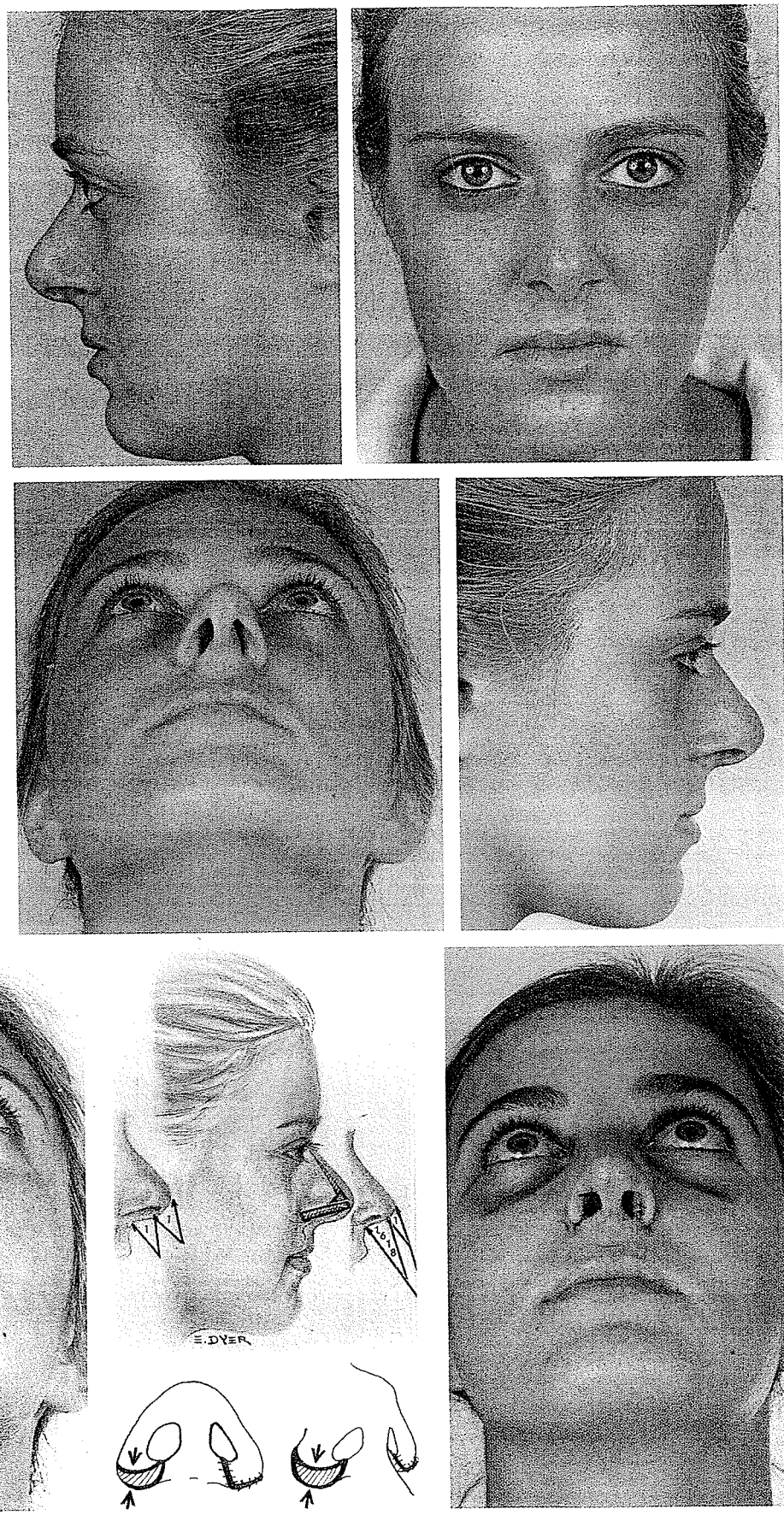


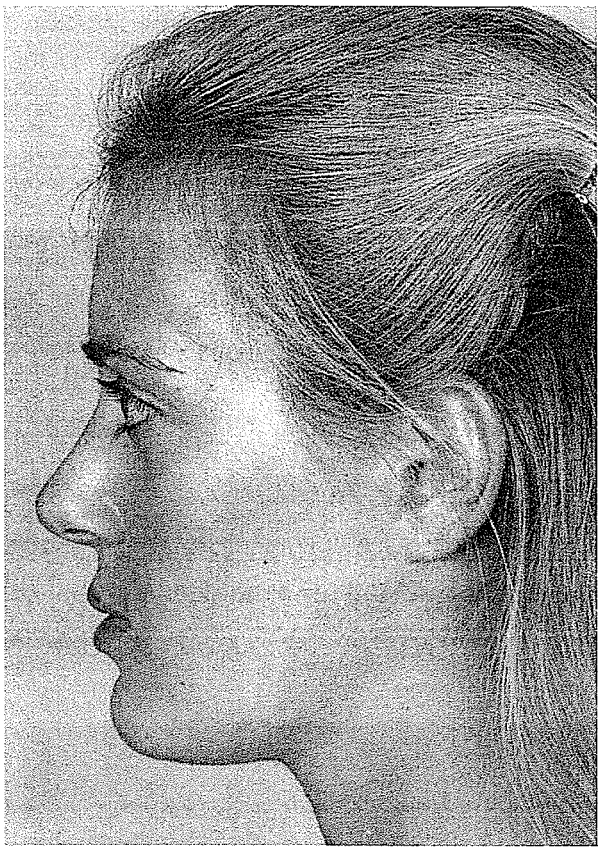


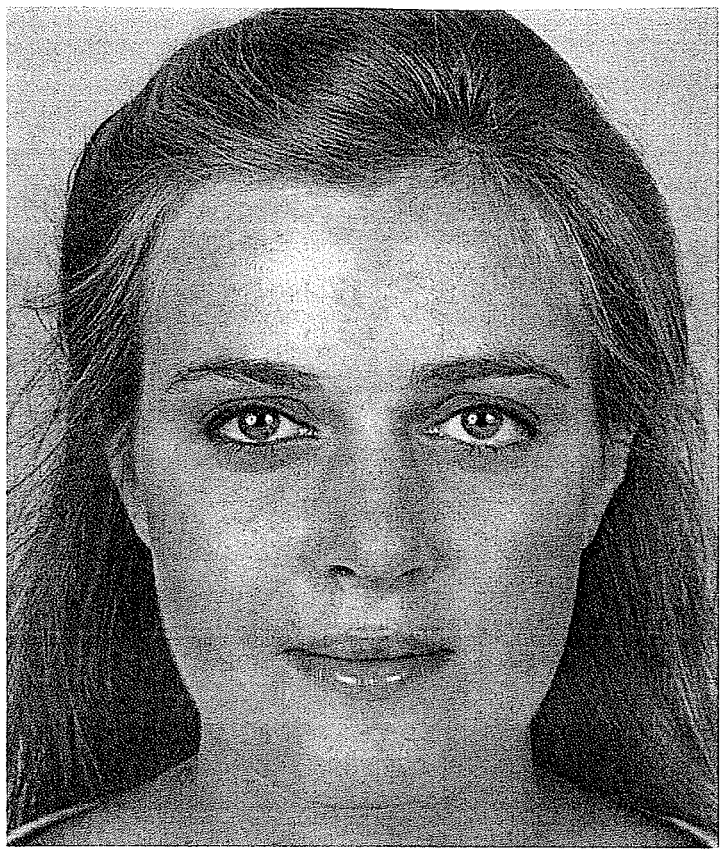
MARKING THE EXCISION

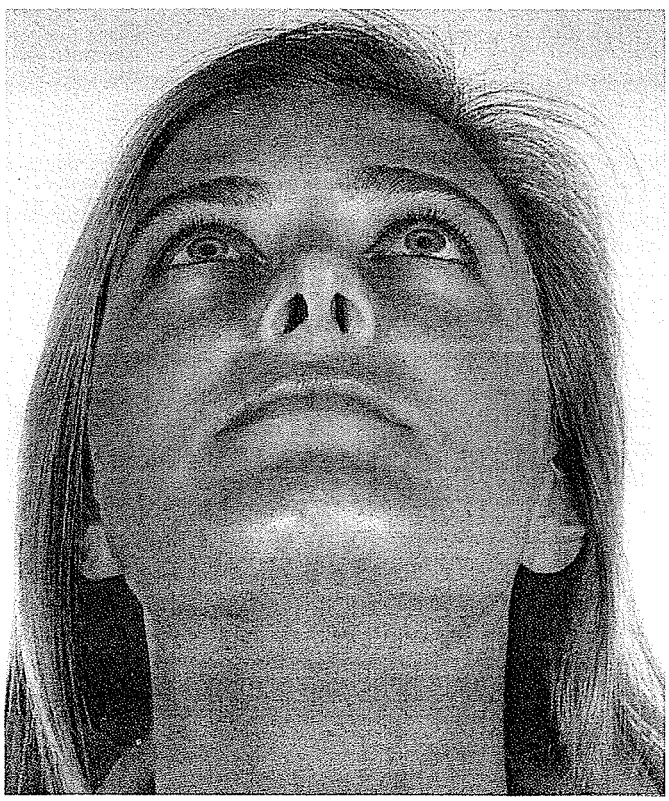
Determine the amount of alar rim cutback desired and mark with methylene blue the new alar profile along the skin outside and along the lining inside the vestibule. If the distance from the height of the alar rim to the top of the nasal tip is too long or the columella too short then the arch should be heightened by excision of the alar rims at the tip. If the nostrils are wide or the alae flared then medial alar base wedges should be marked in continuity with the marginal excisions. When the alar wing and base is long and bulky then it can be further reduced by alar margin excisions extended into a true Weir wedge.

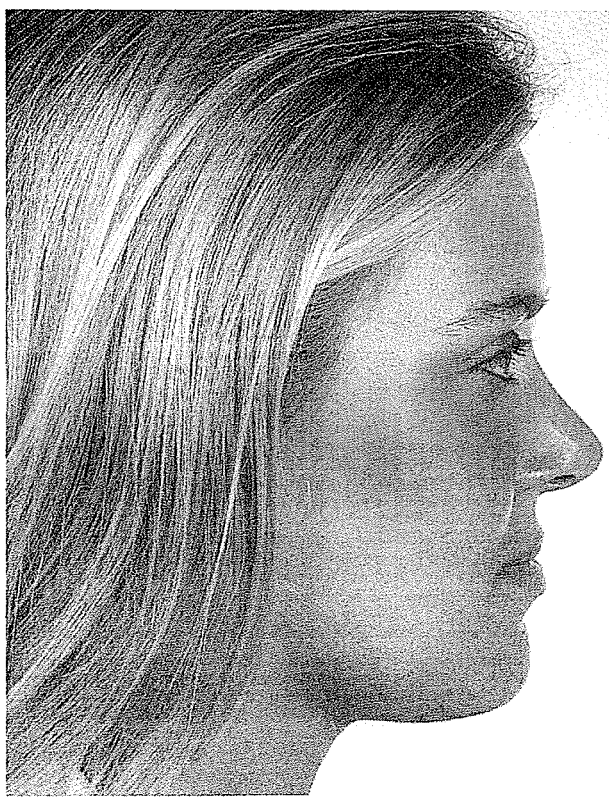
Here is a nose that required several of these adjuncts. The alar cartilages were reduced, the bridge lowered and the septum shortened and tailored to a golden angle. The alae had webs on the inside which gave a gross thickness and the alae were too long from nasal tip to alar base. These two features were refined by alar margin excisions continuous with Weir wedge resections which shortened the long nose from cheek to tip.


E. DYER









TECHNICAL DETAIL

With an eye on the marginal parallel blue marks, estimate the depth of thinning desired. Then with a hook in the height of the arch near the columella and a finger on the cheek near the alar base, tense the alar rim to a straight line and slice deeply on the bias the desired wedge from the margin. Needless to say, bilateral symmetry in this procedure is essential. This leaves a thinned fish-mouthed edge which will come together with a continuous No. 6–0 silk suture without the least tension.

A WARNING

It is important not to remove all of the devibrissized zone on the lining side of the vestibule so that hair does not grow too close to the alar edge.

In 1993 J. Planas and J. Planas, inspired by my 1960 description of external margins excision, presented excellent results following marginal excisions in the cleft-lip nose and in primary and secondary rhinoplasty.

A GUARDED REASSURANCE

This marginal scar has been quite unnoticeable as it lies along a natural line where light and shadow meet. It is important not to suture too tightly or leave the sutures more than 3 to 4 days. Occasionally there may be suture indentations but these usually smooth out in time and have not been a concern to the patient. There had been no record of keloid forming in this region of the nose in any race. It was particularly encouraging to have confirmation of our findings in the Caribbean and Florida by a 1962 report by Crockett from the Sudan of absence of keloids in members of the Black race.

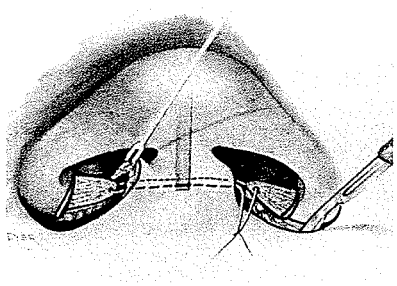
Alas in 1994 Osman Mustafa, a plastic surgeon of Nairobi, Kenya, a member of the Flying Doctors, reported to me finding keloid in the noses of black patients of Uganda, Zaire, and Tasmania. Here is an example of keloid forming in the ala and columella of a cleft case which had had incisions in the alar base, alar margin and columella during attempts at corrective surgery. Although keloid in the nose is rare evidently it does occur in certain races in Africa.

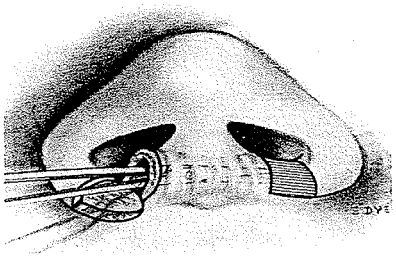
ALAR CINCH

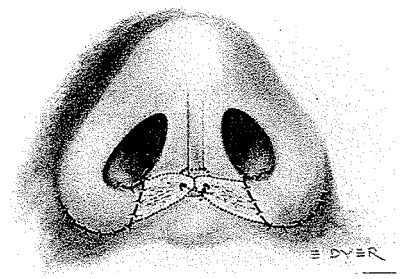
The alar cinch procedure was developed for the flaring ala of the cleft lip deformity and was first published in 1974. The principle involved the fashioning of a de-epithelialized tether on the freed, flaring alar base. This tether, like a string on a puppet, can be manipulated to advance the alar base into symmetry with its mate as it is fixed to the septum at the nasal spine with a permanent suture. This procedure has been used routinely in both unilateral and bilateral cleft lip nasal flaring.

The bilateral alar cinch operation was found to be effective in correction of certain wide noses as reported in 1980. When the nose is flat and spread all over the face with wide, flaring alar bases associated with a depressed nasal tip, then the alar cinch can be extremely effective.

Alar base flaps incorporating the abnormally wide nostril sills can be cut free, the incisions being camouflaged carefully in the junction shadow of the nose join with the lip. The medial ends of these flaps are denuded of epithelium, leaving strong dermal subcutaneous flaps that can control the position of the alar bases and nasal width at the entrance of the nose. A tunnel from donor area to donor area of the nostril sills, dissected across the upper lip, just in front of the base of the septum and nasal spine, provides a pocket into which the two denuded alar extensions can be advanced. These flaps are cinched to each other at the base of the septum with one or



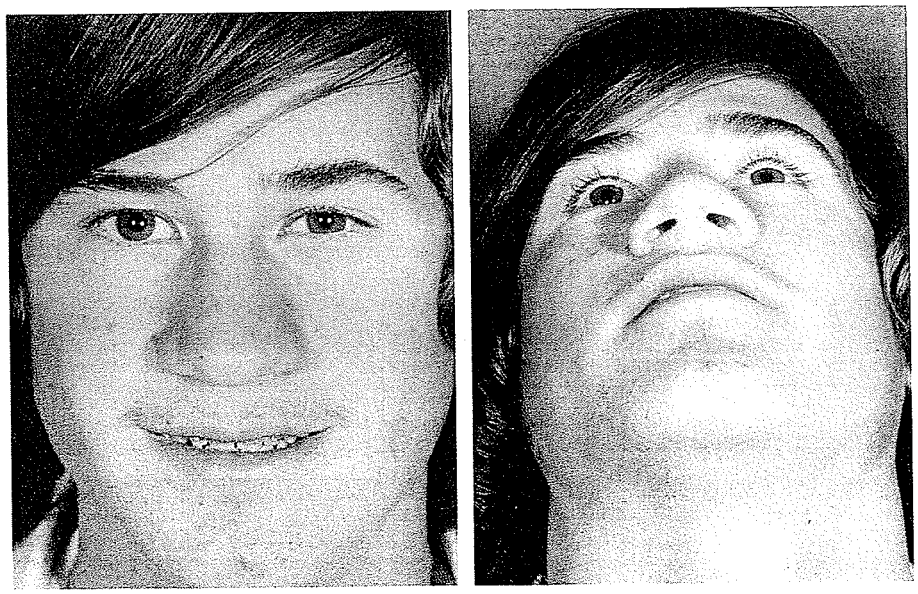




more permanent sutures, Ethicon's 4–0 Prolene. Although the buried tie is executed off center on one side of the columella, a symmetrical effect can be achieved with the hitching action much like straightening a saddle after one-sided cinching of the girth. As the suture is tied, the alar bases move in as the entire front of the nasal entrance is narrowed markedly and according to desire. The correction will be maintained as one tether is tied to the other tether in a self sustaining bond. The fringe benefits of this action raises the depressed nasal tip, advances the columella as the axis of the nostrils change from a flat, transverse to a more oblique, vertical aesthetic line.

When indicated the normal rhinoplasty procedures such as alar cartilage reduction, insertion of septal cartilage strut into the columella-tip area and osteotomies with in-fracture can be used in combination to improve the overall aesthetic result.

The first example of the use of this cinch procedure in a non-congenital deformity was in a 16-year-old male who had a flat, flaring nose that seemed to spread all over his face.

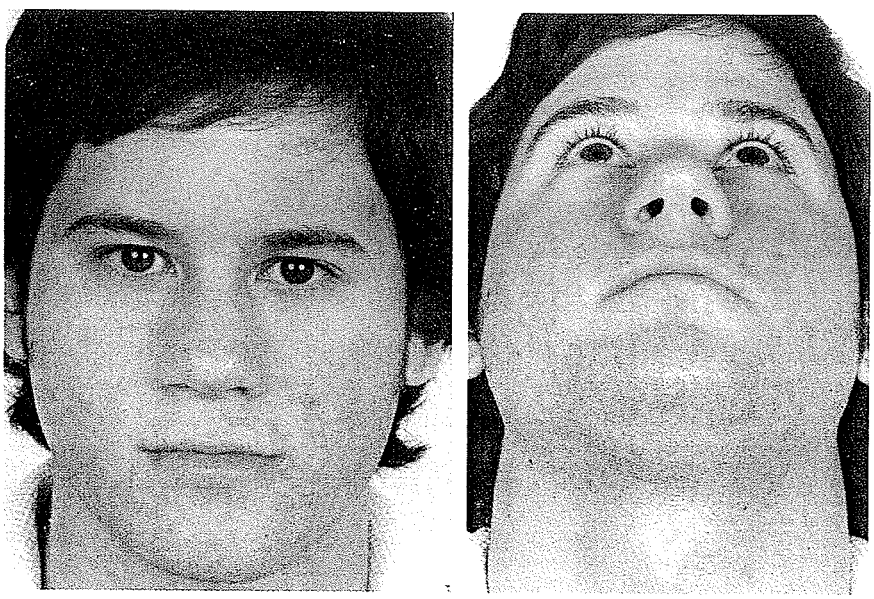


Corrective surgery involved marked reduction of the alar cartilages through anterior vestibular incisions. Two long narrow strips of septal cartilage, obtained during submucous septal resection, were sutured together and allowed to splay at

the tip. This double strut was inserted at the base of the columella and tunnelled up the columella into the tip for projection.

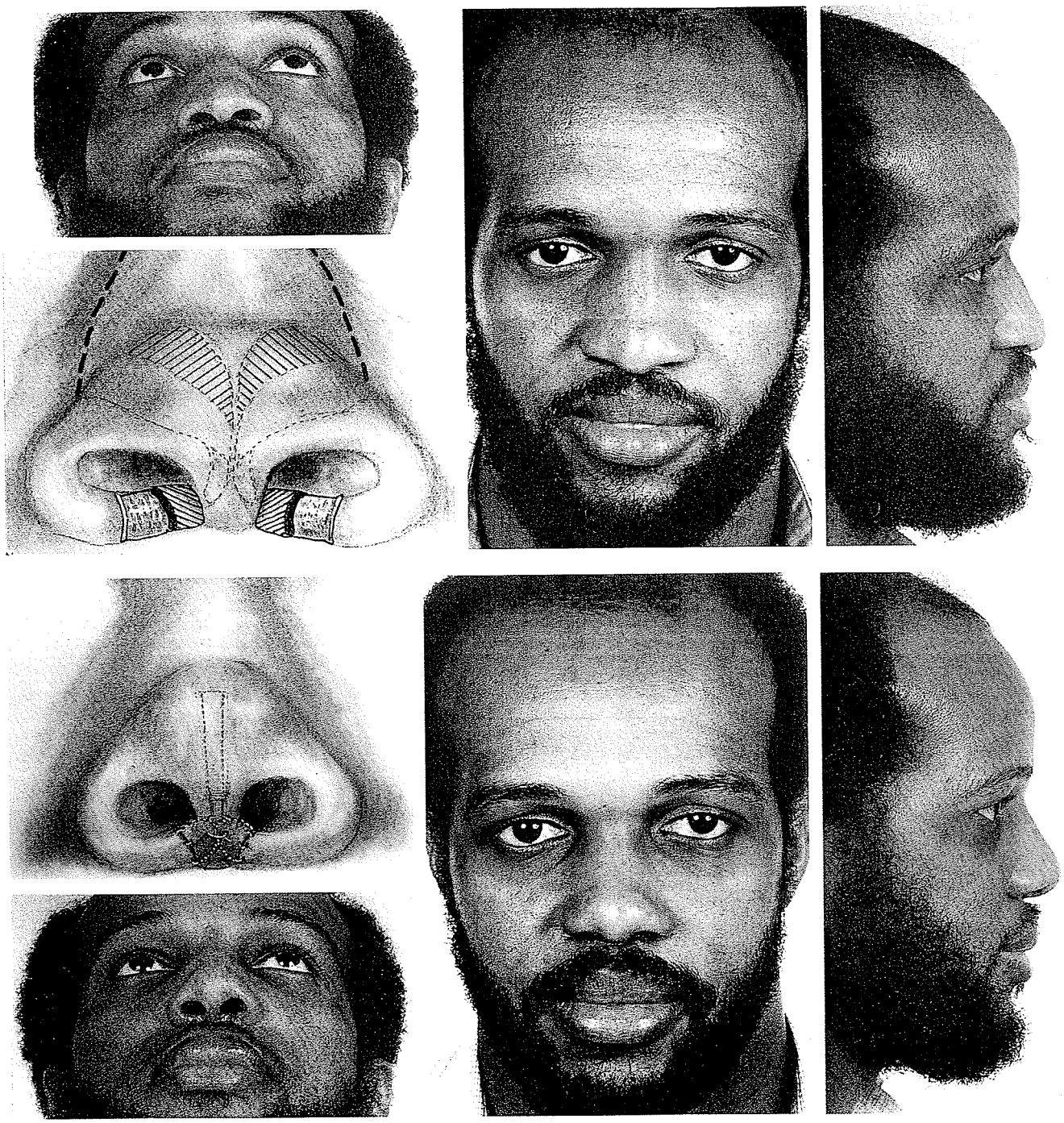
Then attention was directed toward correction of the grotesque nasal flaring and flatness. An alar cinch procedure was executed. Alar base flaps incorporating the abnormally wide nostril sills were cut free, the incisions being camouflaged carefully in the junction shadow of the nose and lip. The medial ends of these flaps were denuded of epithelium leaving strong dermal-subcutaneous flaps that controlled the alar bases and nasal width at the entrance. A tunnel from donor area to donor area of the nostril sills, dissected across the upper lip, just in front of the base of the septum and nasal spine, provided a pocket into which the alar flaps could be advanced. The denuded alar flaps were cinched to each other at the base of the septum with one permanent suture. As the suture was tied, the alar bases moved in and the entire front of the nose became more narrow. Also, the columella lengthened slightly and the axis of the nostrils changed from a flat, transverse to an obliquely vertical.

After two years the cinch procedure revealed permanent improvement in its narrowing effect.

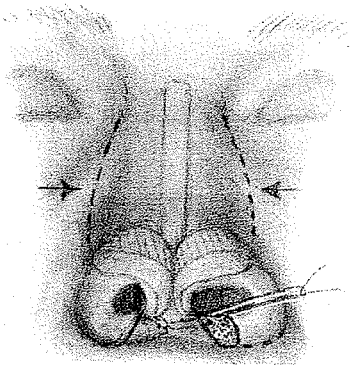


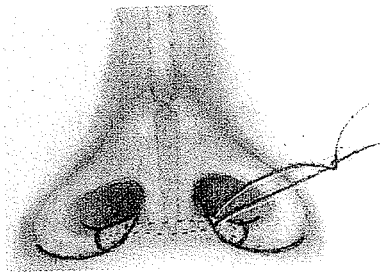
The alar cinch procedure has been effective in other races or blended races.

1. This 32-year-old black physician had a depressed nasal tip with a relatively broad, flat nose. Alar cartilage reduction, cartilage graft to the nasal tip and bilateral osteotomies with in-fracture set the stage for a bilateral alar cinch.

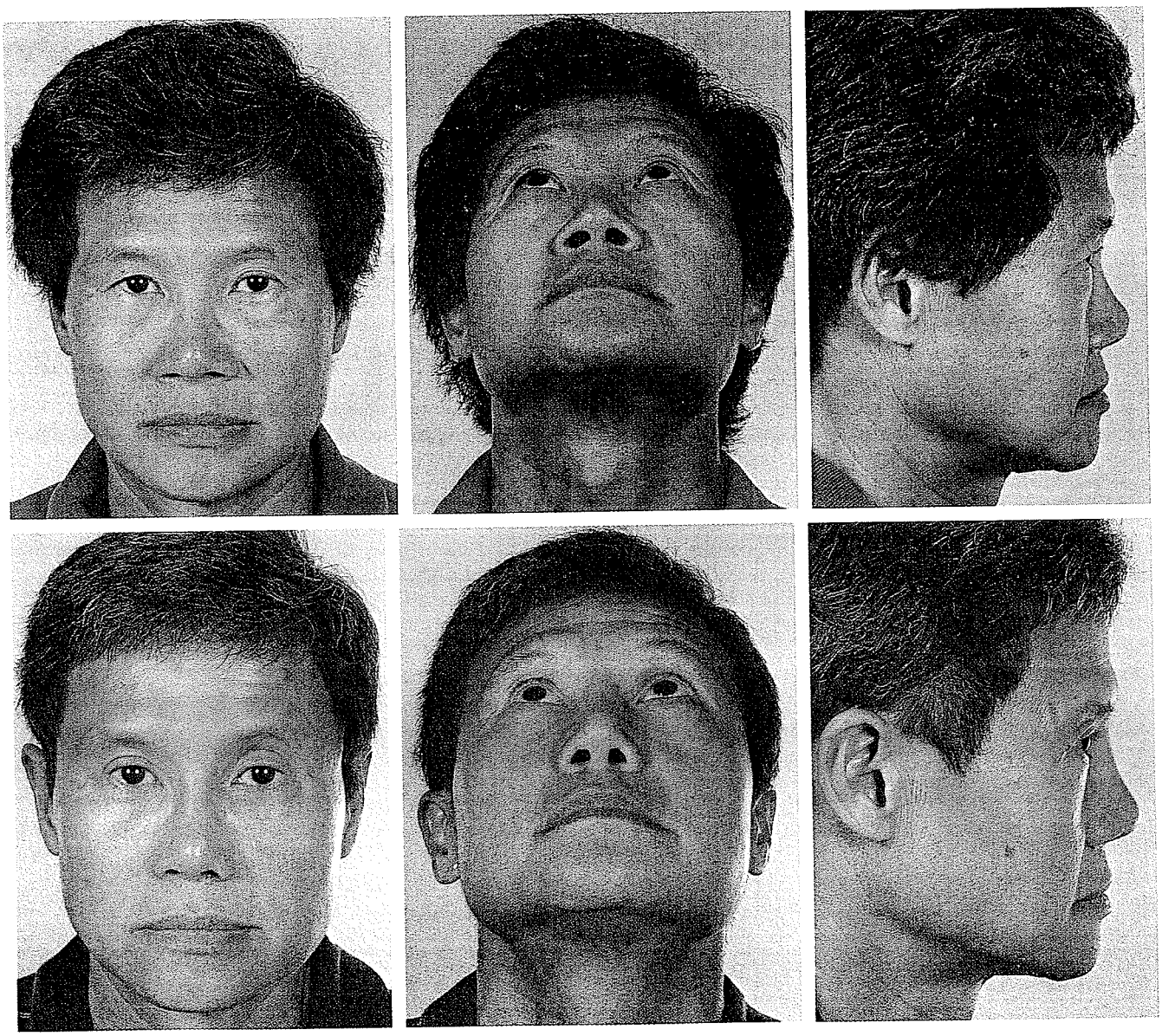


2. This 37-year-old black woman requested nasal refinement expressing her dislike of the typical broad, flat flaring nose. Her alar cartilages were reduced and a diamond shaped cartilage graft was inserted into her tip. Her alar margins were sculptured. Bilateral osteotomies followed by in-fracture narrowed her bony base. Then she had a bilateral alar cinch which narrowed the front entrance of her nose. A silicone implant to her bridge refined her profile and a silicone implant to her mentum improved the chin and nose relations.





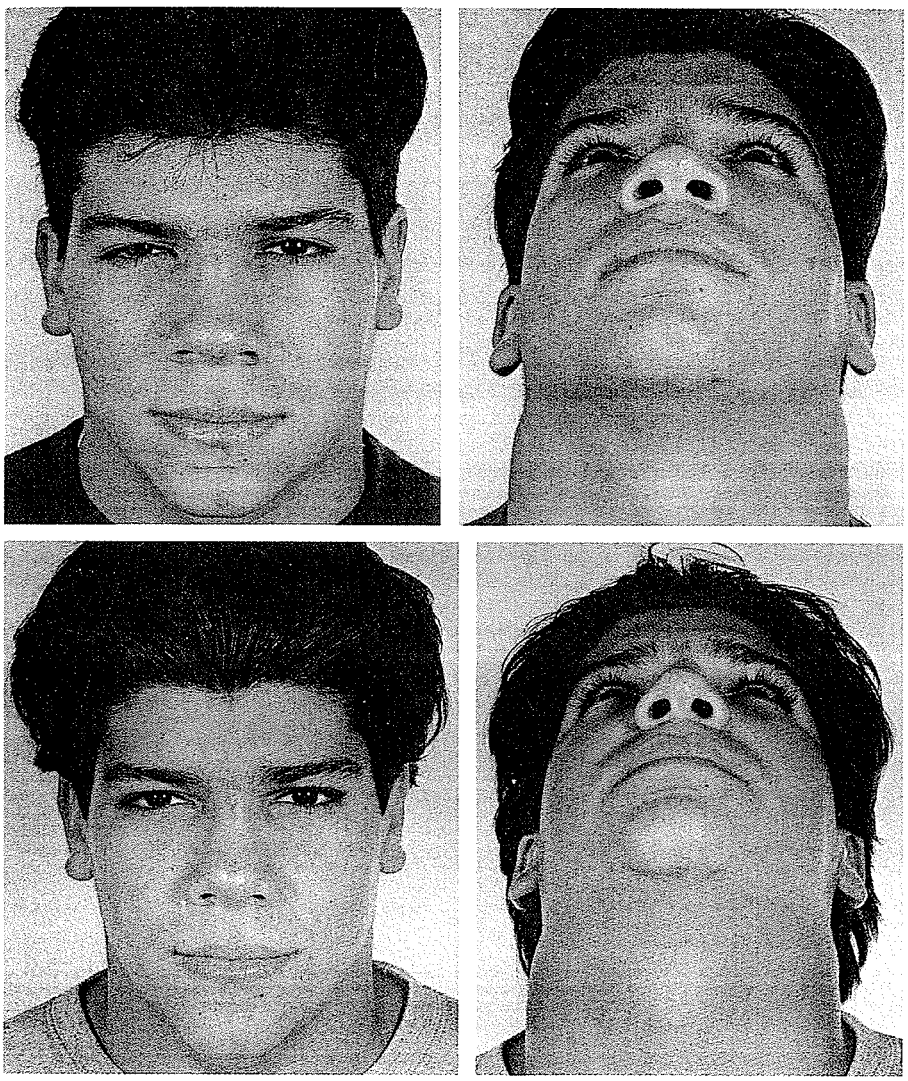
3. A successful 57-year-old Asian business man from Jamaica expressed his desire to be Occidentalized. An operation I described in 1955 to release the mongoloid folds and to create a double fold to the upper eyelids was carried out. The nasal profile was enhanced by a silicone implant. A submucous septal resection provided a cartilage strut which was inserted up his columella into his tip. Then a bilateral alar cinch procedure reduced flaring of the entrance of his nose.



4. The New World crossbreeding of the Western Indian and the Spaniard often produces a broad, thick nose (a "mestizo" nose). Here is an example.

This 20-year-old male patient with a receding chin and a wide flaring nose came in requesting a narrower nose.

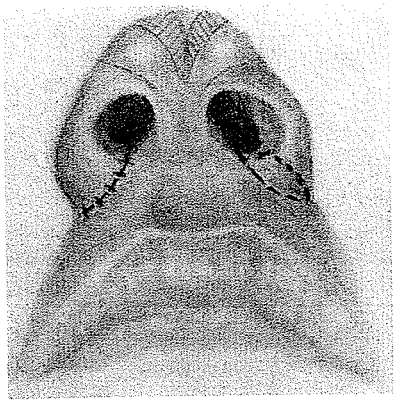
A chin implant was inserted through a lower labial sulcus incision, alar cartilages were reduced, standard alar cinch procedure was marked, and nostril sills were developed as flaps and denuded of epithelium. Through these alar base incisions a chisel was passed through on each side to achieve osteotomy of the frontal process of the maxilla. Bilateral infraction was accomplished. Then the denuded nostril sill flaps were cinched to each other with a 4–0 Prolene suture through a tunnel at the base of the columella in the area of the nasal spine.



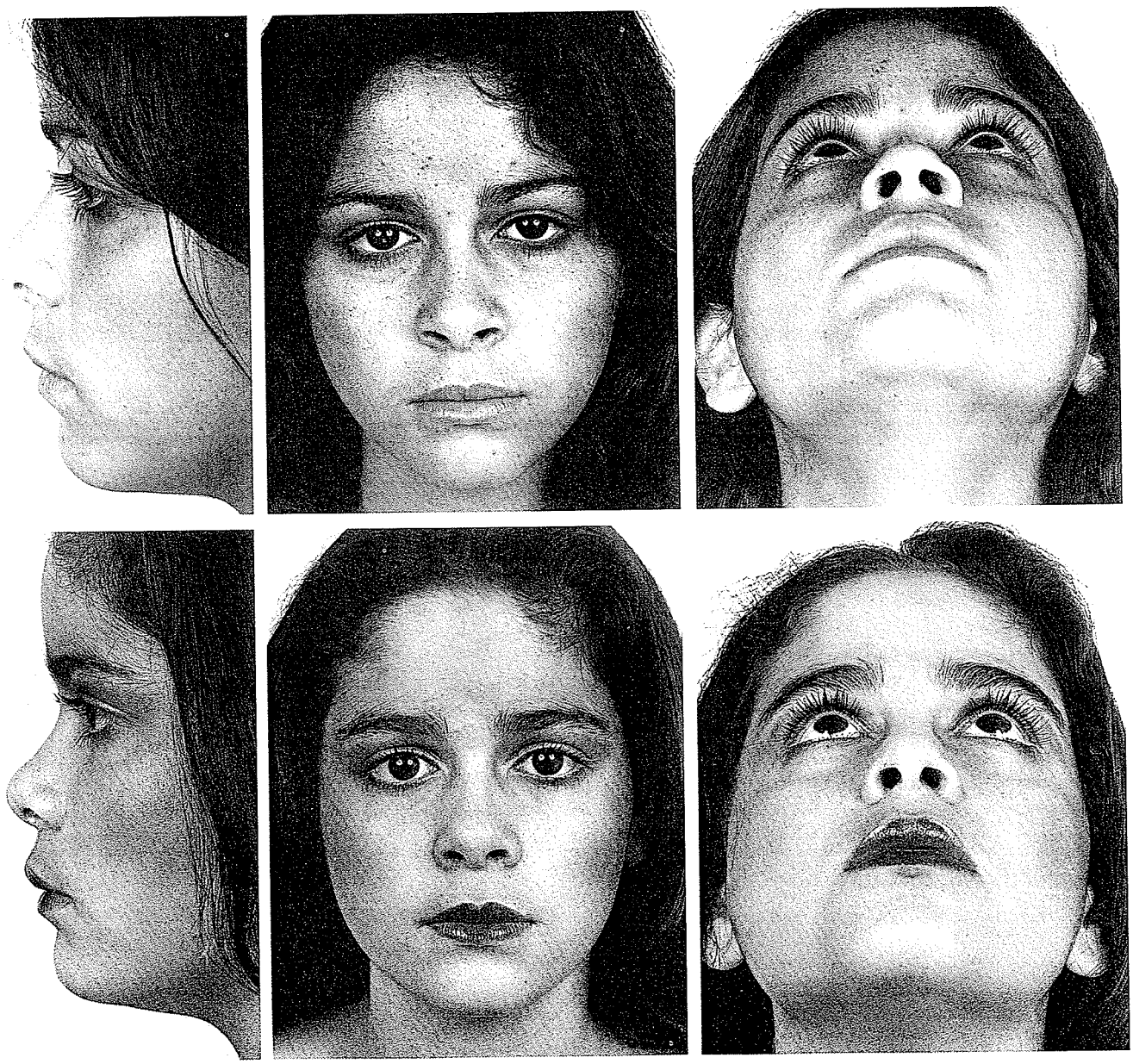
The position of the cinch scars camouflaged along the margin of the alar bases and the join of the nostril sill with the columella rendered them totally unnoticeable after one year.

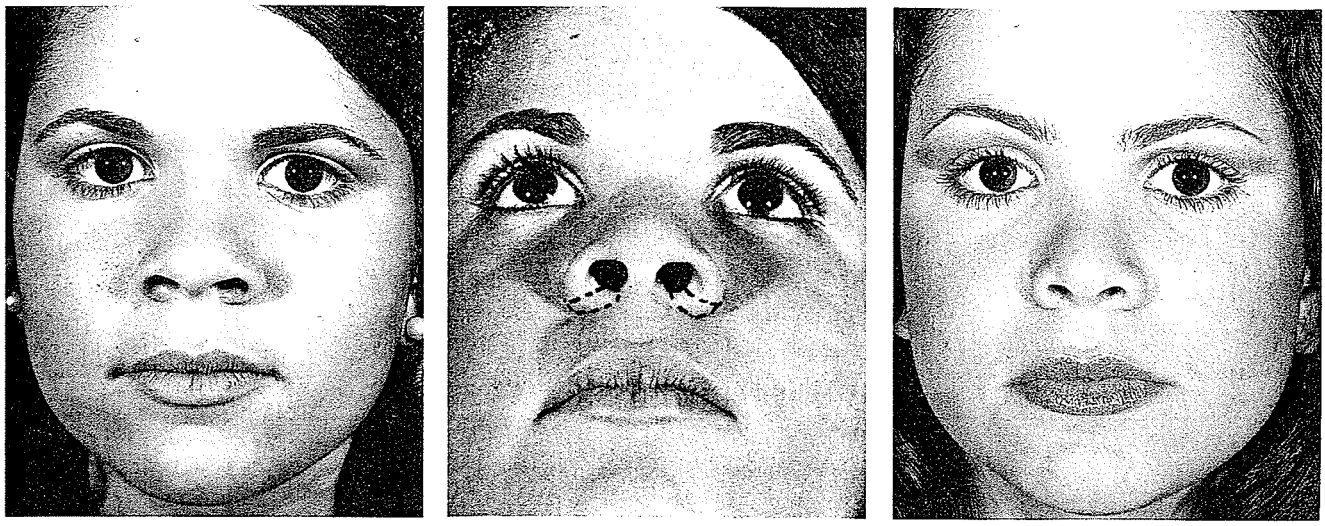
THE CINCH IN WIDE TIP-TILTED NOSE

This 16-year-old female patient had a flaring nose and long nostril sills but her nasolabial angle was already acute.



The alar cartilages were reduced. Then the nostril sills were cut as flaps and denuded of epithelium. They were pulled to each other through a tunnel across the columella base with a suture in the cinch procedure. In this case the uptilt of the nasal tip was exaggerated too much. Thus the suture was removed and the denuded alar bases were excised as wedges and simply sutured in the usual fashion. This reduced the flare without turning the nasal tip up too much.



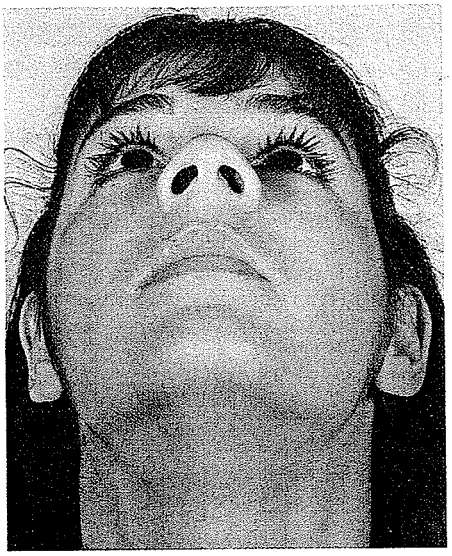


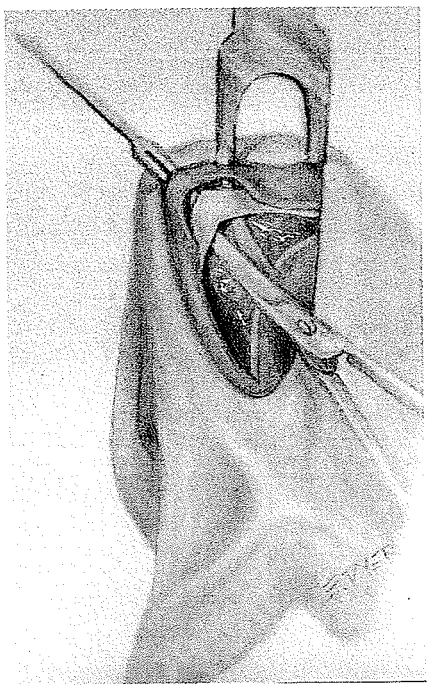
Here is another example where simple alar base wedge resections served well without the need for an alar cinch.

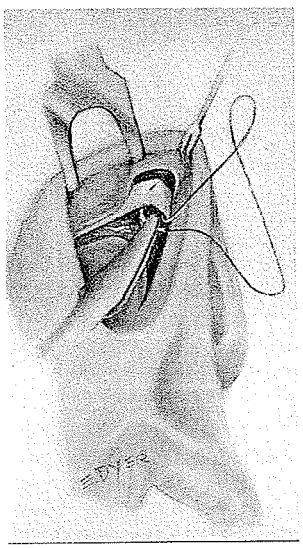
OTHER ADJUNCTS FOR SUBTLE BROADNESS

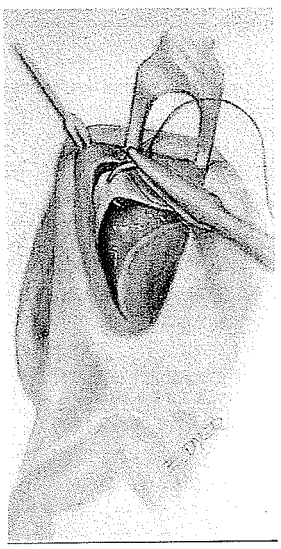
This 20-year-old female with a good profile and nasolabial angle requested aesthetic correction of her nose. When her nasal broadness was analyzed focus was placed on her alar cartilages, broad columella and moderate alar flaring.

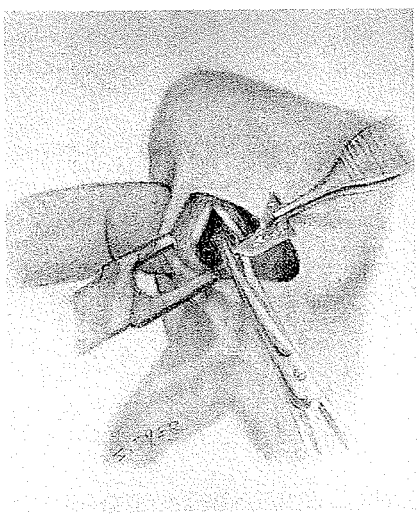
This nose was best treated without open rhinoplasty. Through routine anterior vestibular incisions the alar cartilages were reduced to intact 3 mm strips which were easily dissected free from overlying skin and underlying vestibular mucosa. Once these strips of each medial crura were freed they were sutured to each other in the tip with one 4–0 Prolene suture. This narrowed the tip and improved its projection. A diamond shaped alar cartilage graft was inserted in the anterior tip in the usual separate incision to fill out this contour. Through the membranous septal incision the columella was everted to expose the backside. A triangle of excess subcutaneous tissue was excised and the feet of the medial crura were sutured together with a 4–0 Prolene stitch to narrow the columella base. Small alar base wedge resection refined, by narrowing, the alar flare.

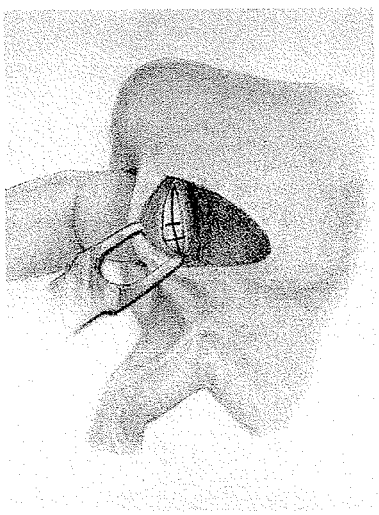


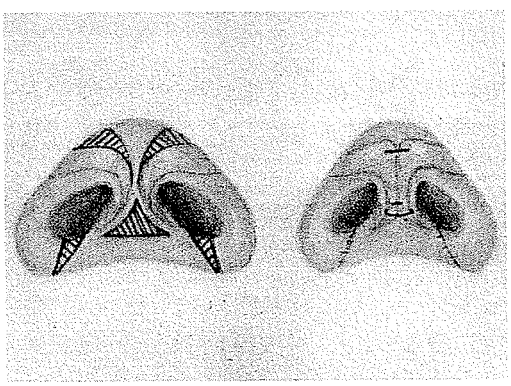


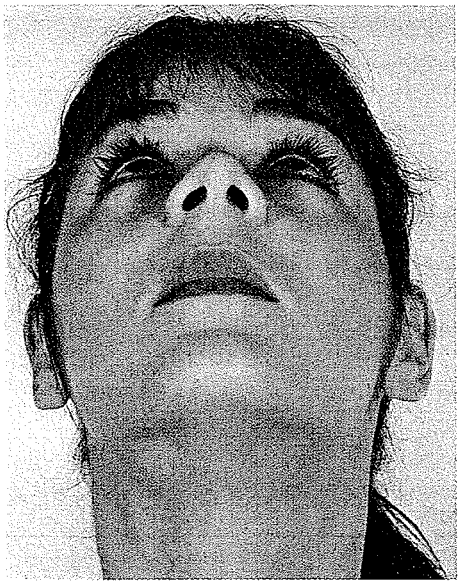








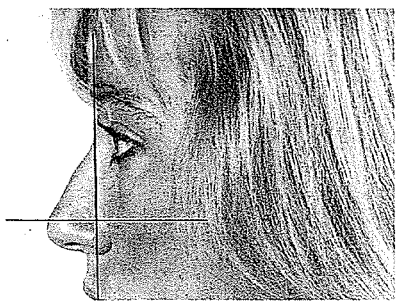
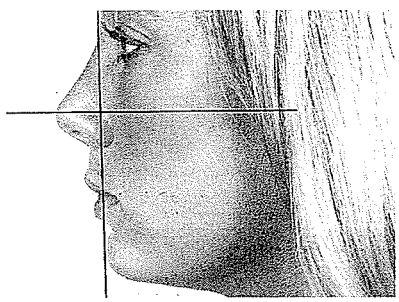


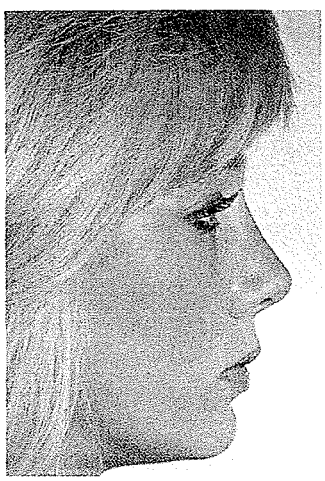

AUGMENTATION MENTOPLASTY

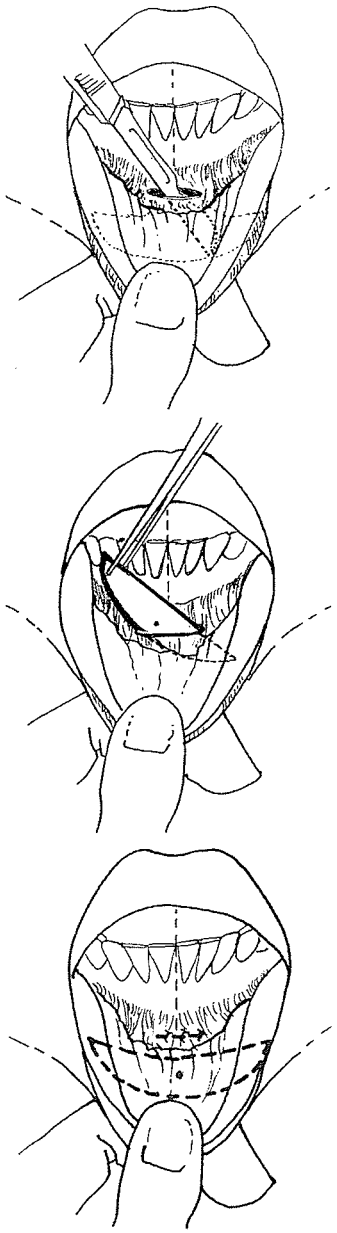
When patients consult about nasal correction, it is justifiable to bring their attention to a receding chin, particularly when, without its correction, the overall effect will fall short of the potential. The surgeon's purpose is not to produce platoons of perfect noses all shaped from the same pattern, but rather to refashion faces by adjusting one or more features so they blend in *natural* attractive harmony.

When the vertical plane from the nasion crosses the Frankfort plane at 90 degrees, if there is daylight showing at the mandibular mentum, this can be used as a guide to chin augmentation. For minor to modest discrepancy a chin implant at the time of rhinoplasty will suffice.

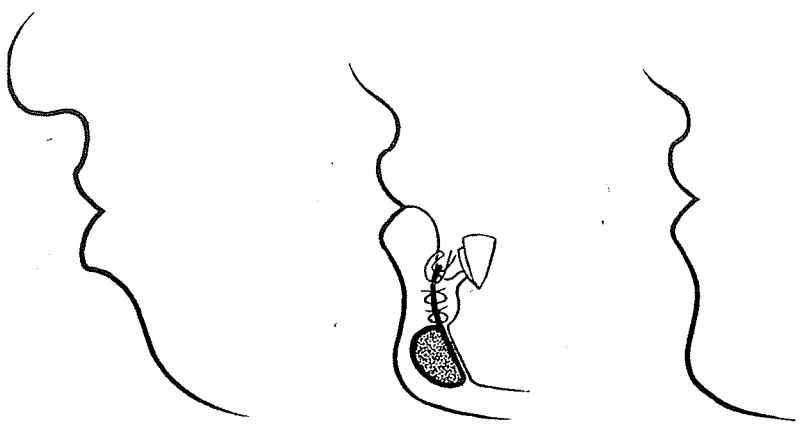




When the deformity is more extreme along with malocclusion, Xray studies and dental models are necessary for exact planning of osteotomies and mandibular advancement. When the chin is receding and the mentum extends vertically too long then a sliding genioplasty can solve both problems as Gillies and Millard described in 1957.

Chin implants are inserted at the time of rhinoplasty in about 15% of my patients. At least 75% of these patients were not directly conscious of the chin discrepancy before consultation, but close to 100% are pleased with the final chin improvement. Few operations match these statistics, and the reasons for the success of this procedure, besides the permanent increase in chin contour, can be found in its simplicity, speed of execution, absence of scars, and lack of complications. There is also the extra dividend of its complimentary effect not only on the nose but on a relatively protuberant hanging lower lip and excessively protrusive teeth. Either or both of these unattractive characteristics are partially camouflaged by increased chin prominence.



It is important not to make the chin projection too much especially in the female.

SPECIAL PREPARATION FOR OPERATION

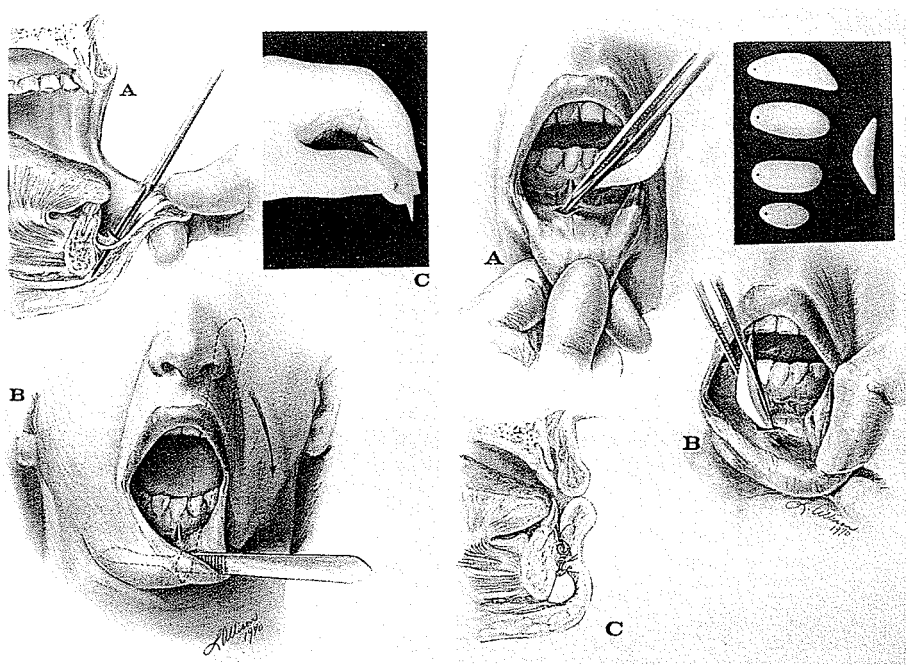
Four routine color photographs of the face (front, profile, and a view under the nostrils) are taken and mounted in the oper-

ating room as a standard guide to prevent deception from the various transient distortions of local anesthesia, edema, and progressive operative changes. When draping the patient, it is important to leave the forehead, nose and chin unobstructed. To expose only the feature destined for surgery reduces the chances of gaining a harmonious relationship. The chin implant is inserted first and thus sets the scale for shaping the nose.

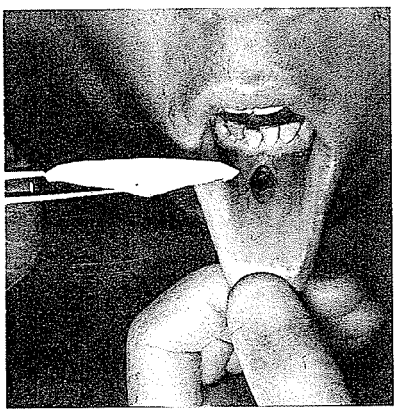
Technique of Insertion of a Chin Implant

In order not to distort the chin contour, a total of 3 cc of 2% Xylocaine (Lidocaine) with Adrenalin (Epinephrine) 1:100,000 is injected through the lower labial sulcus to block both the mental foramen region and the area of the future implant pocket. A 1 cm stab is made in the midline of the lower labial sulcus 1.0 cm out from the mucous membrane attachment to the mandibular alveolus. This stab is carried to the point of the mentum, but a pad of subcutaneous tissues 1.0 cm thick should be kept over the mandible until the destined site for the implant has been reached. A pocket from 4 to 6 cm in length is dissected just in front of the mandibular periosteum.

It was noted in 1969 by M. Robinson and R. Shuken that solid silastic implants placed on the mentum caused bone re-

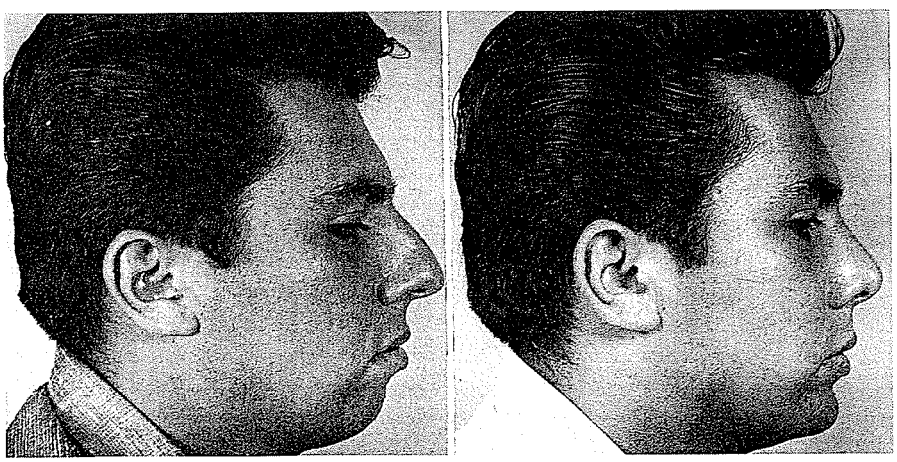


sorption which could be demonstrated by a lateral radiograph. In 1973 R. Jobe, R. Iverson and L. Vistnes confirmed these findings in human and rabbit studies. The authors did not present this as a contraindication for chin implants. As the resorption is more likely when the implant is placed subperiosteally I prefer to place the implant on top of the periosteum and have not found resorption to be a problem.



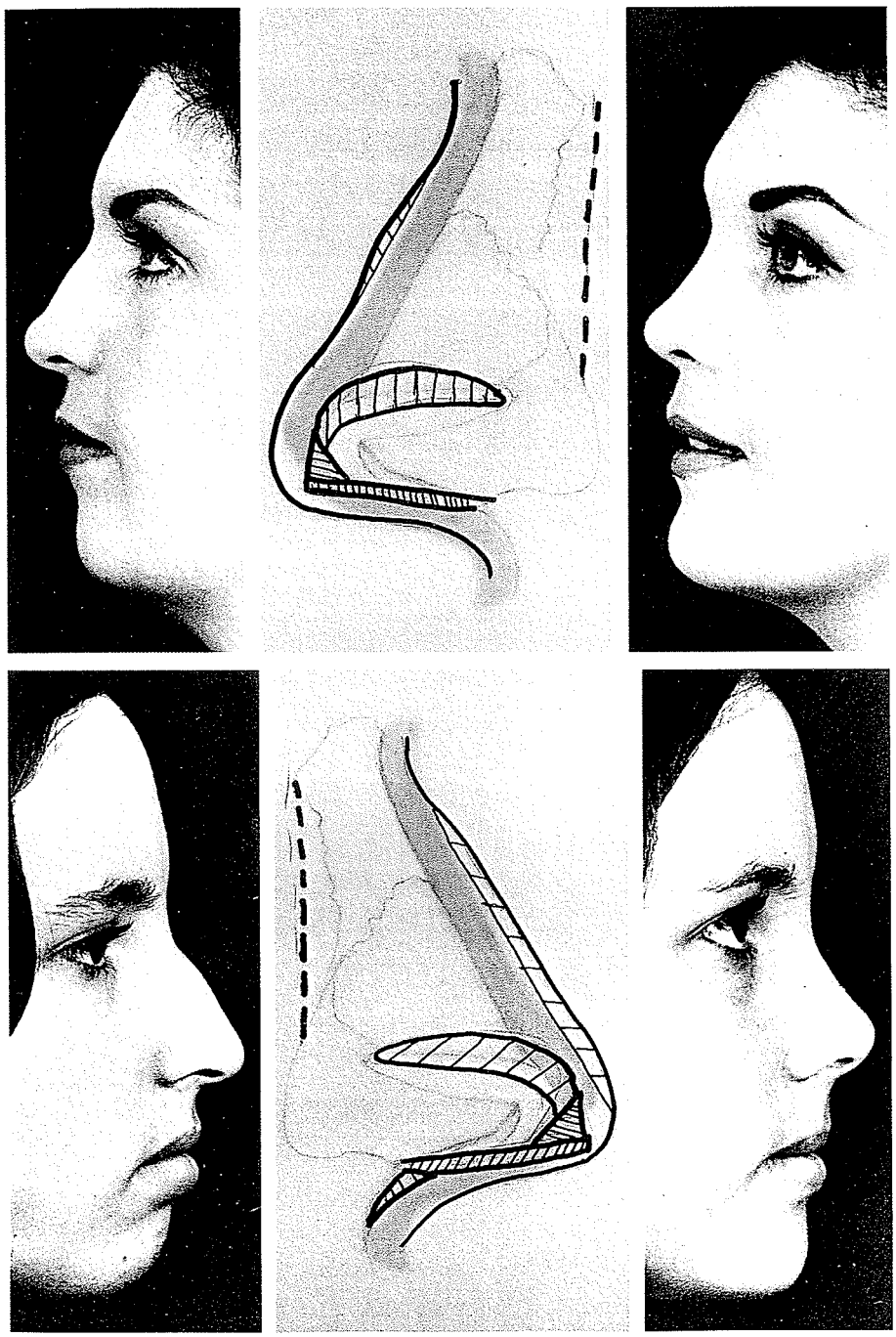
Care is taken not to extend the pocket dissection over the edge of the mandible, so as to avoid an overhang of the implant. A temporary gauze pack soaked in Adrenalin is inserted into the pocket to aid hemostasis. A McGhan silicone solid chin implant 1–6 is chosen. One end is then inserted to the depth of the chin pocket to the right, and the other end to the depth of the pocket on the left. A blue mark on the center of the chin skin is lined up with a blue X mark on the center of the implant sighted through the mucosal buttonhole. There is no need for fixation. The pocket should be a perfect fit for the implant reducing the chances of slippage. If the implant needs reshaping for the specific case, this is quite possible.

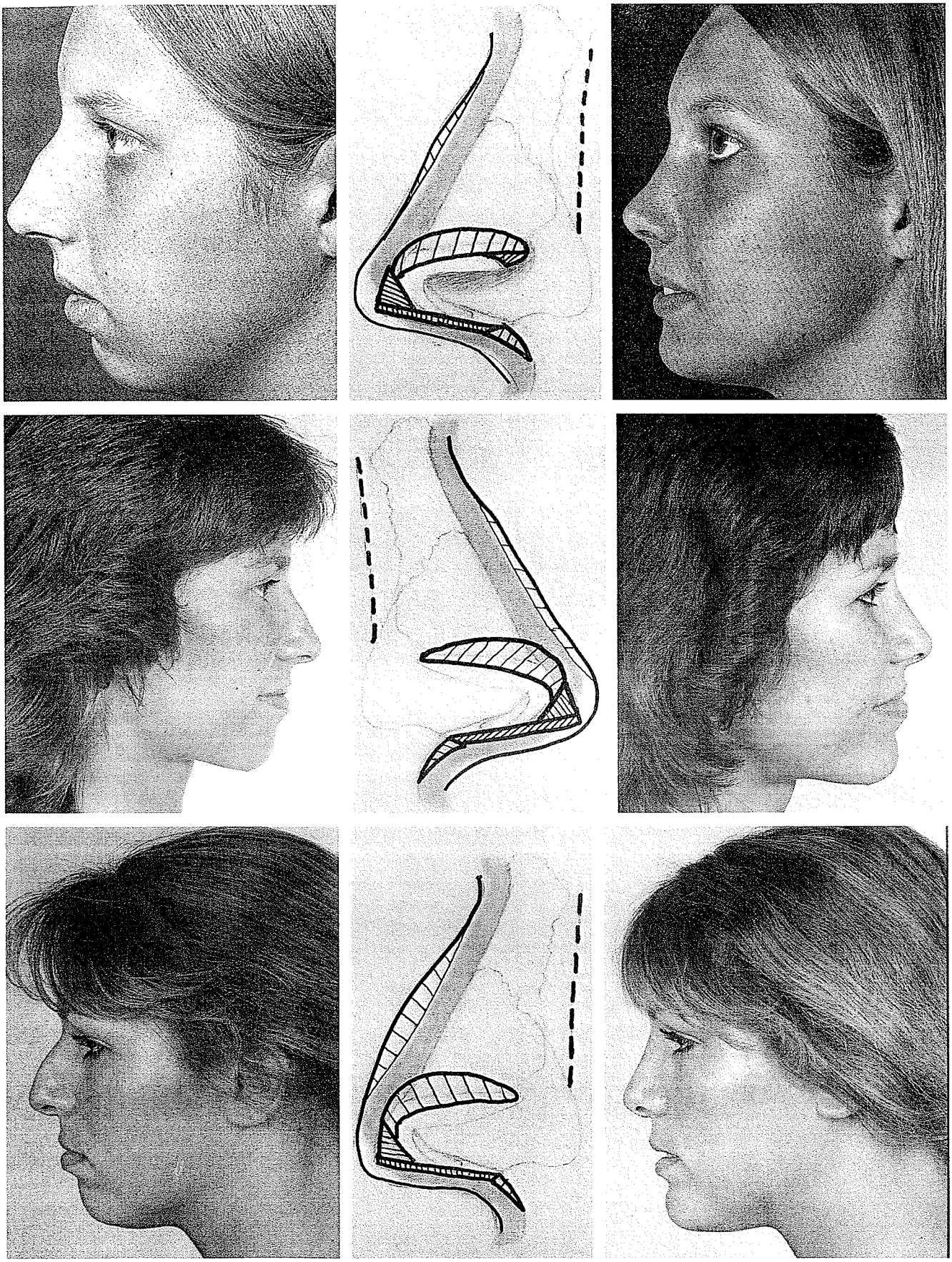
The wound is closed by two layers of 4–0 chromic catgut sutures to the subcutaneous tissues, absolutely sealing off the pocket. A final layer of mattress sutures closes the labial mucous membrane. An elastoplast pressure dressing is applied at the end of the operation and is maintained five days to press the entrance tunnel closed, immobilize the lip and discourage chin swelling. Antibiotics are administered for five days.

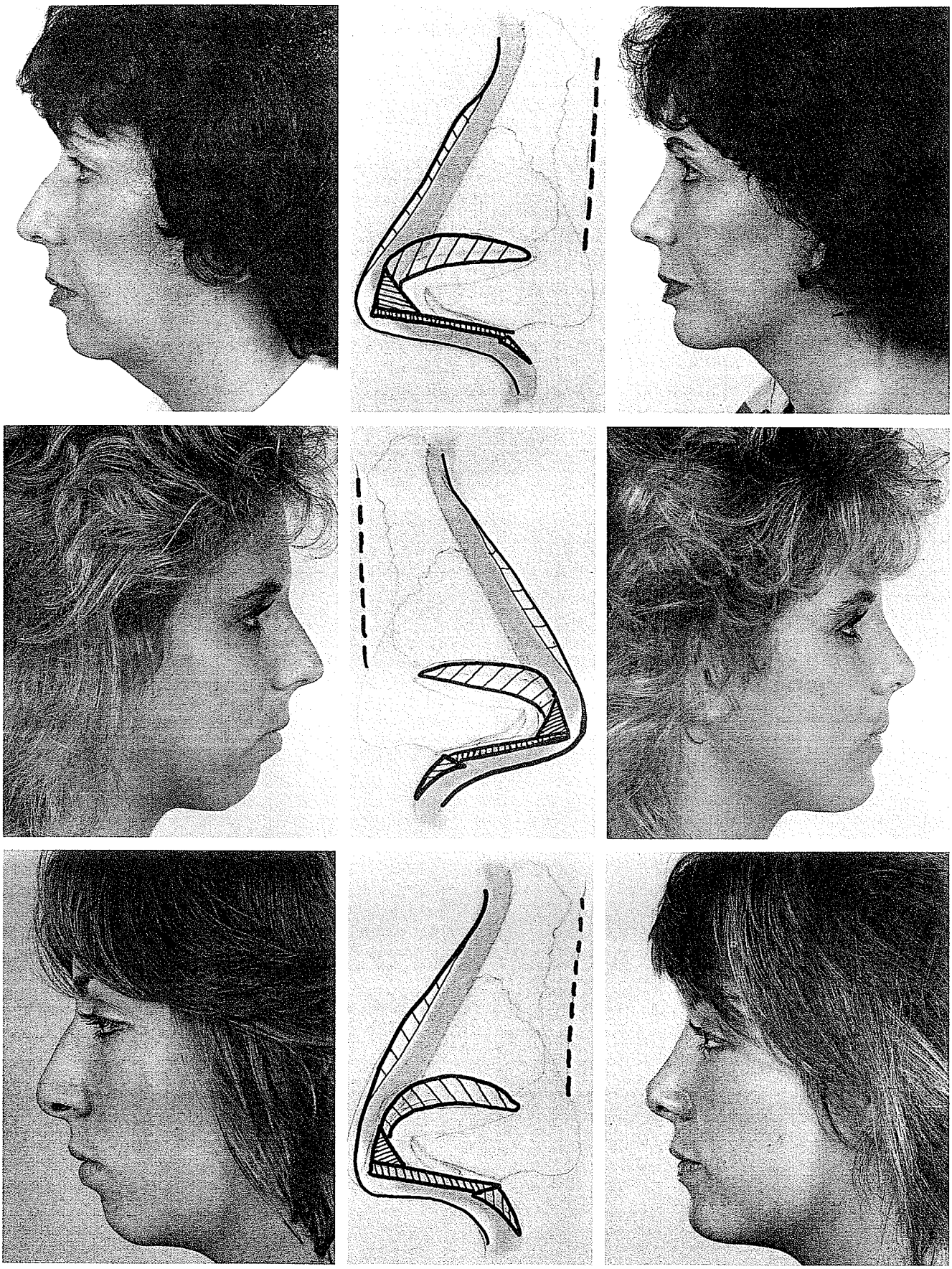


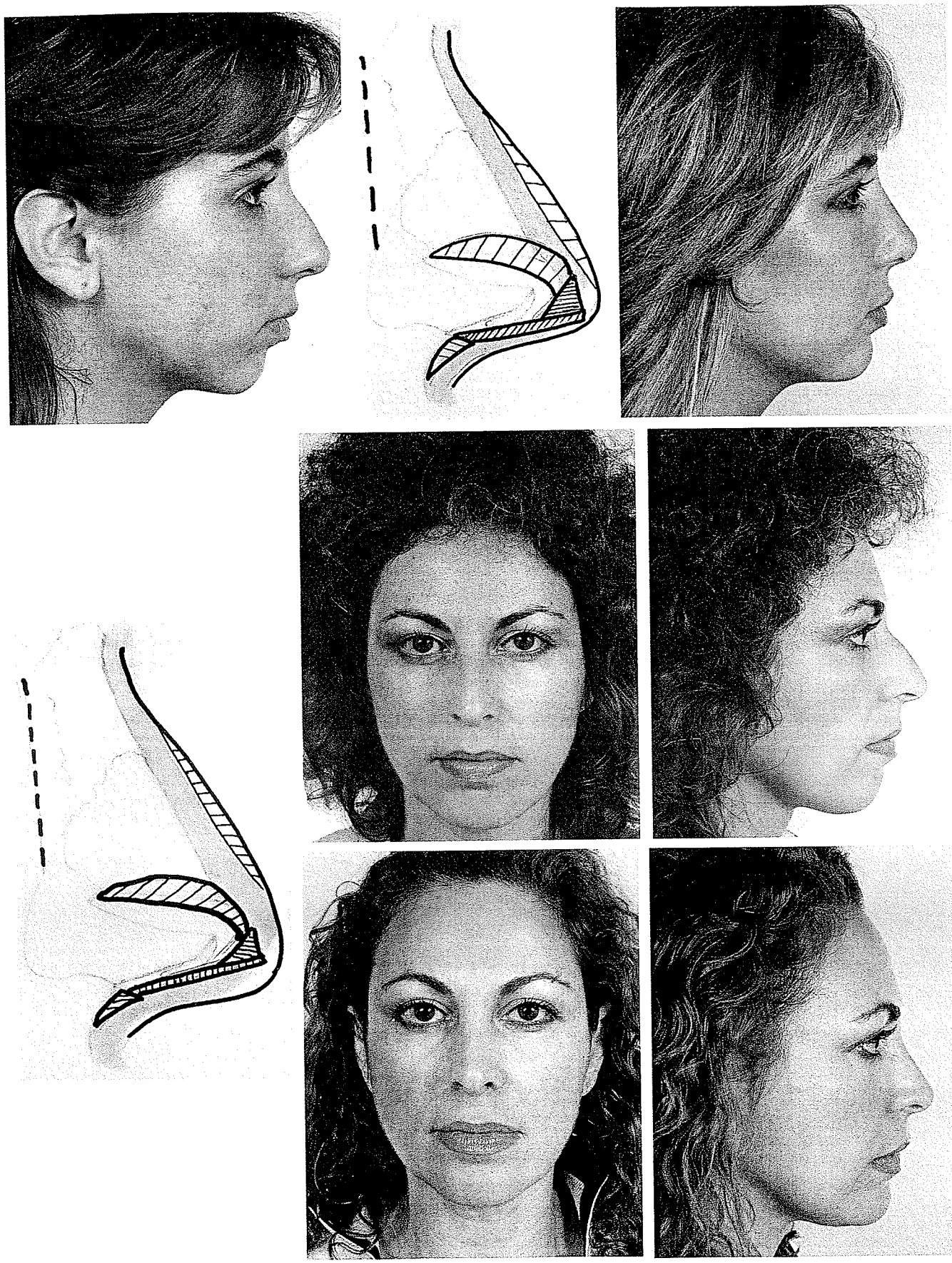
This simple procedure requires only an additional 15 minutes. There are no external scars and no telltale puckered submental dimple. In 1950 Converse described an intraoral approach for the introduction of autogenous bone grafts to the chin. I was the first to insert foreign body implants through the intraoral approach and have done so for 45 years.

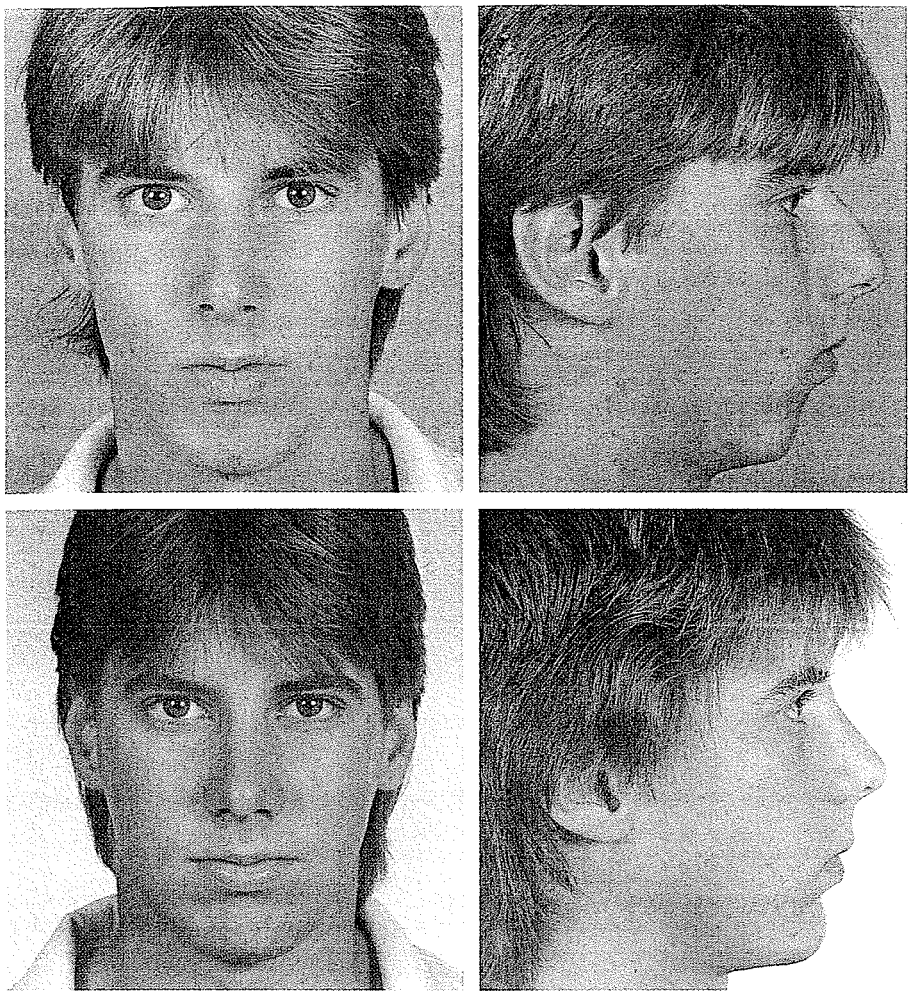
Here are a series of cases showing the combined improvement of corrective rhinoplasty and chin augmentation.

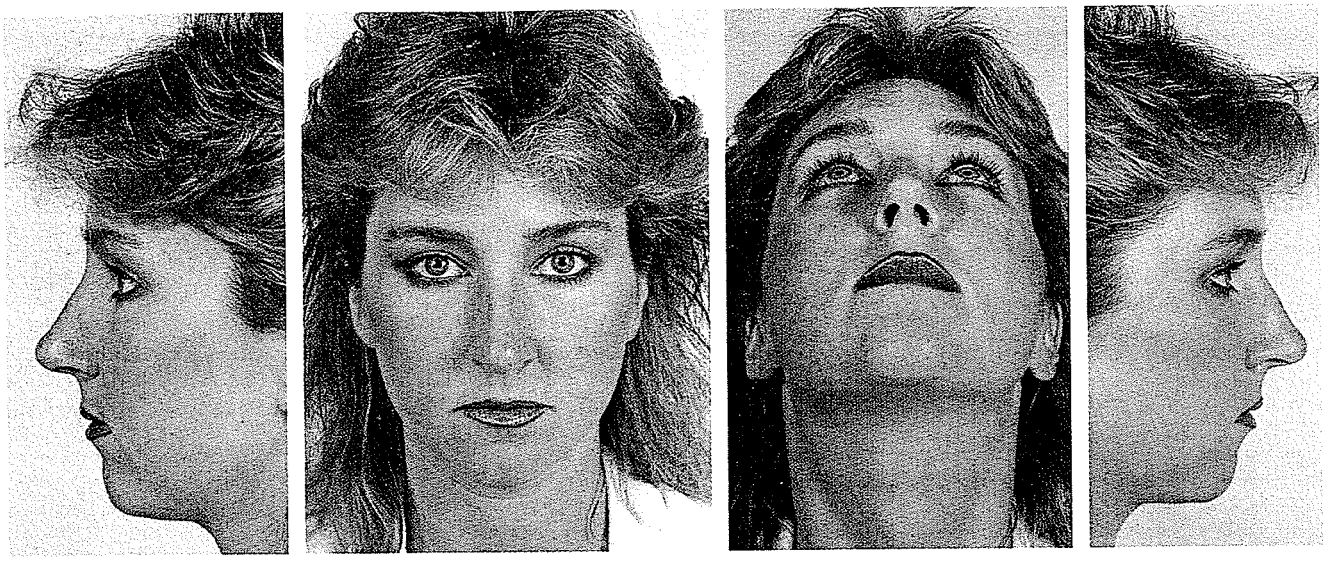


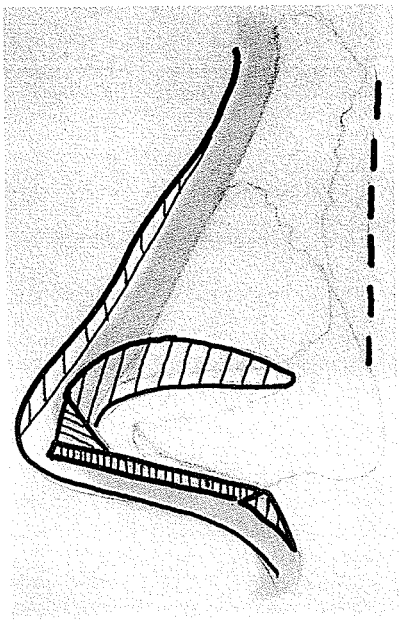


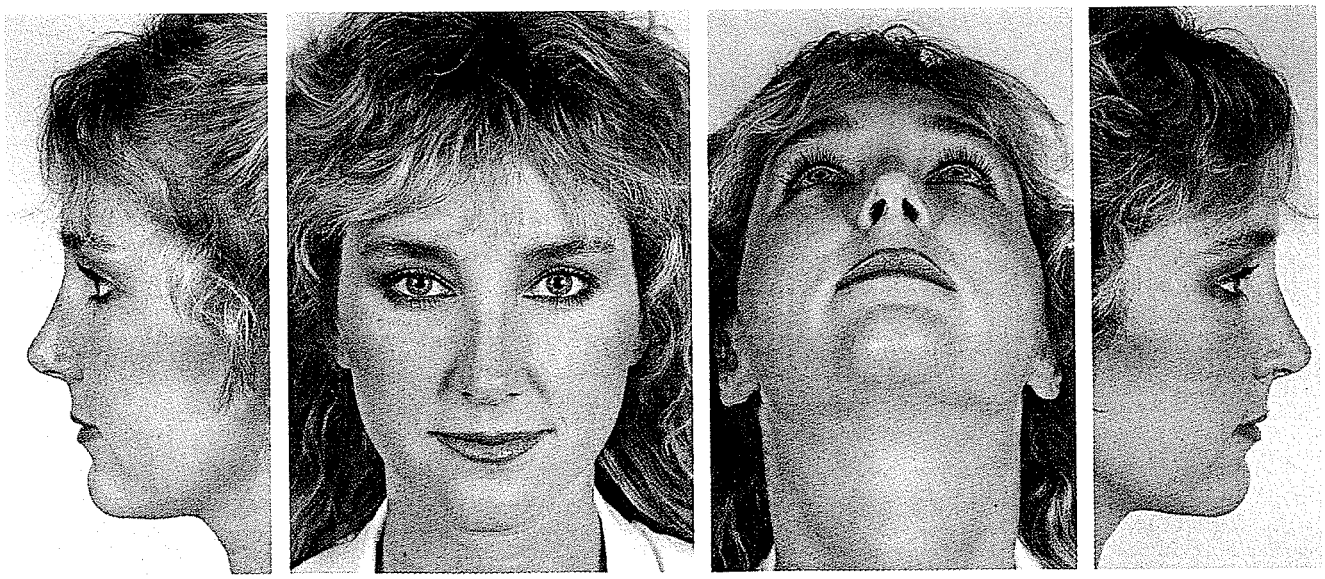


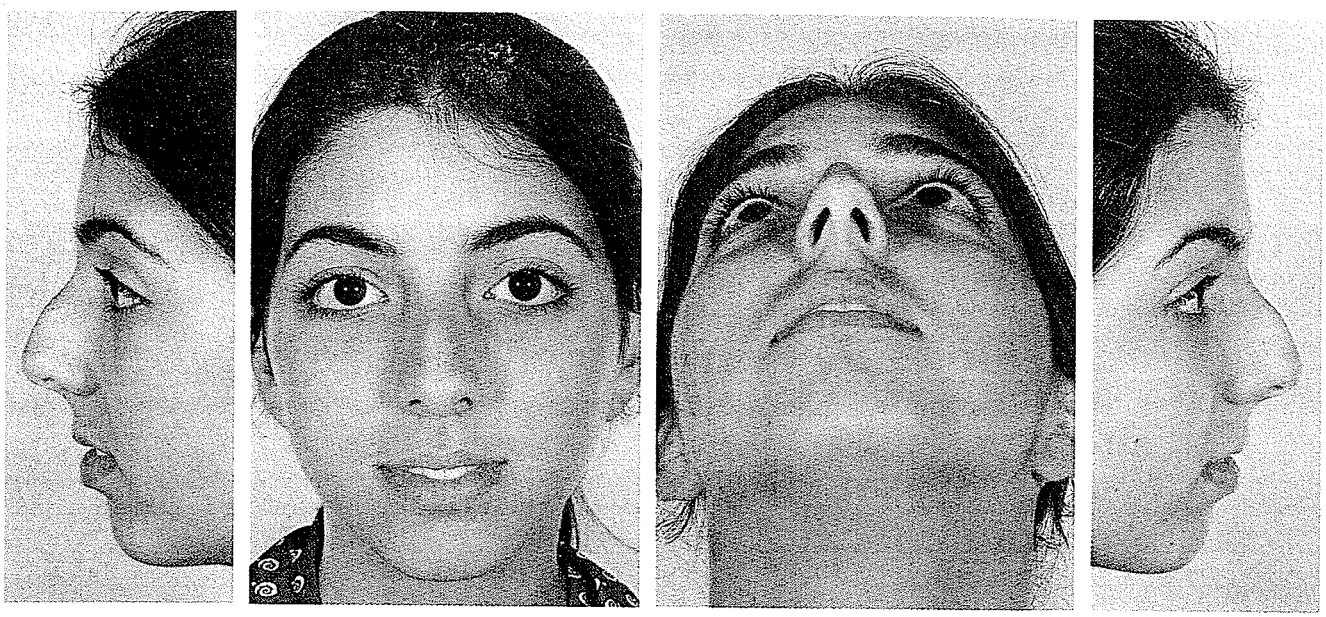


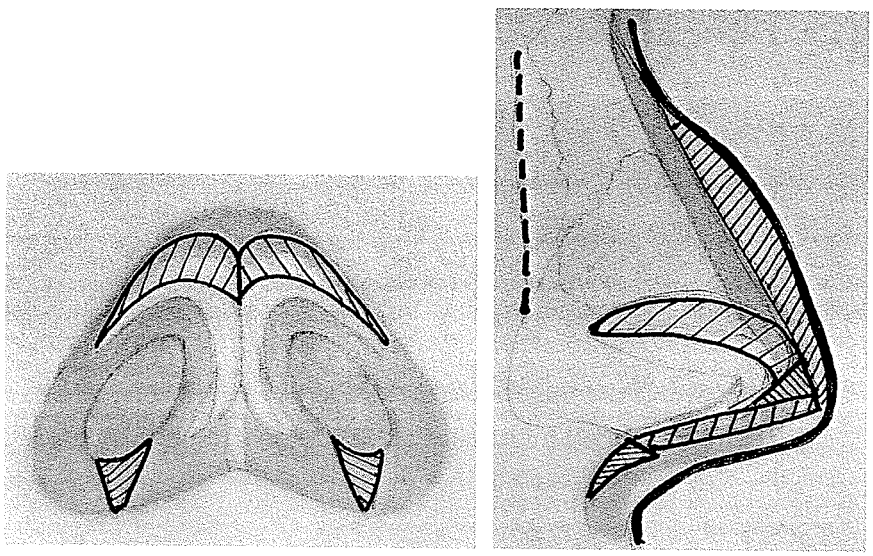






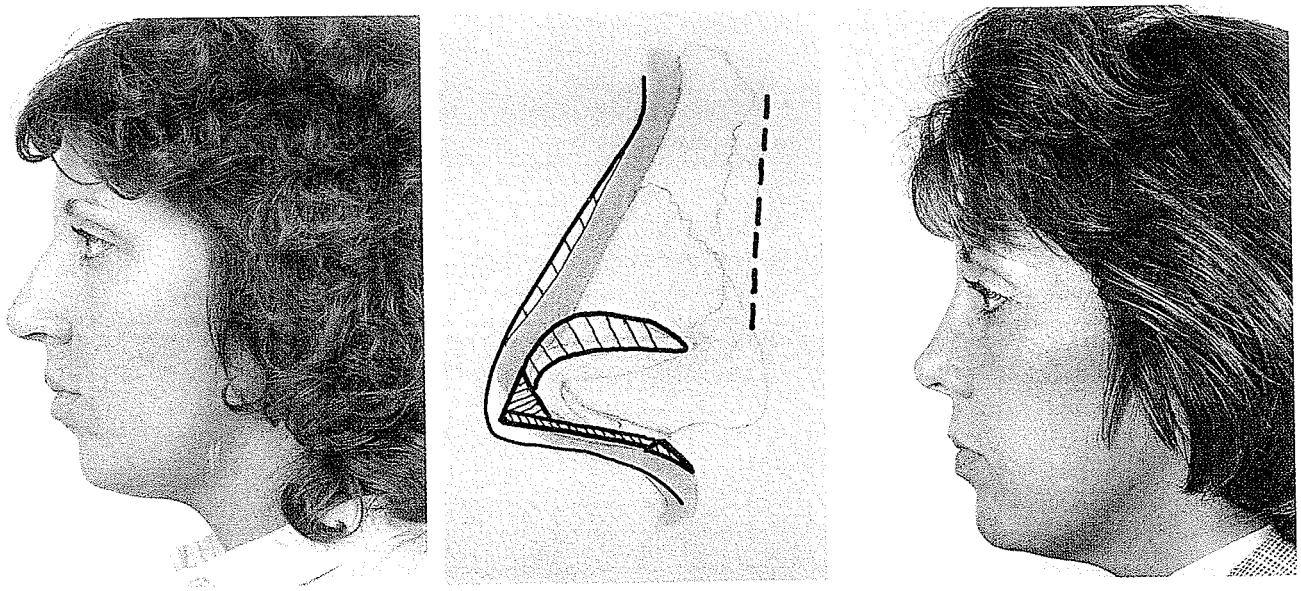




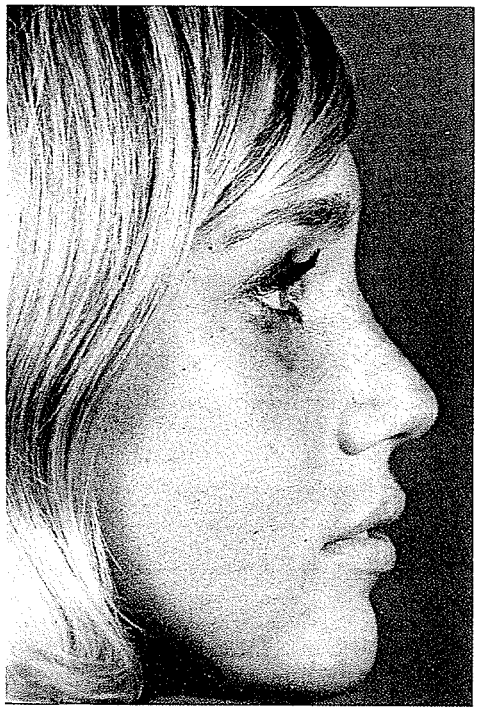


It is impressive how effective a chin implant can be on a receding chin especially in the profile view. It is also important that the nose be reduced and shaped to fit the new chin so that there is a harmony of features. Here is a 39-year-old female who wanted her nose reshaped but refused a chin augmentation. It is remarkable how the nasal reduction harmonized with her receding chin but an implant would have been even better.

The same was true of this 20-year-old female who had a rhinoplasty but refused a chin implant. Reduction of her nose and nasal spine improved her facial relations but not as much as a chin implant would have done.



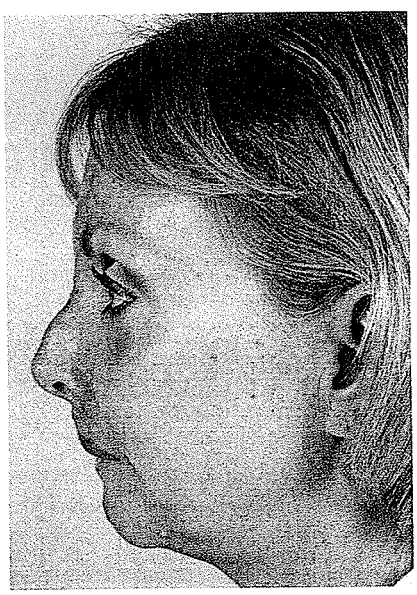
It is not too late for a chin augmentation after the nose has been operated especially when a parrot's beak has formed. Secondary revision of the nose and a chin implant improved the balance of features.

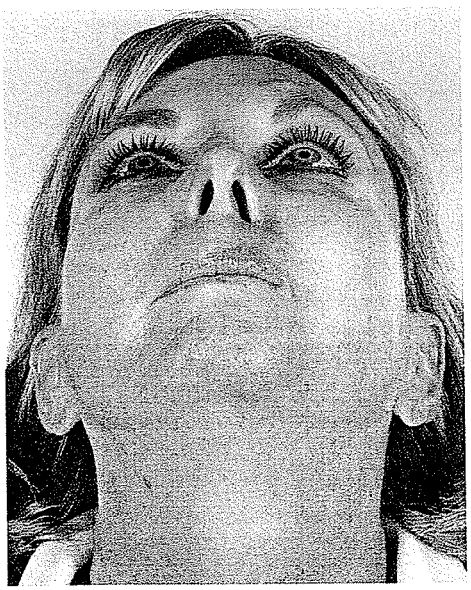


THE INTERFACE OF AESTHETIC AND RECONSTRUCTION IN PLASTIC SURGERY

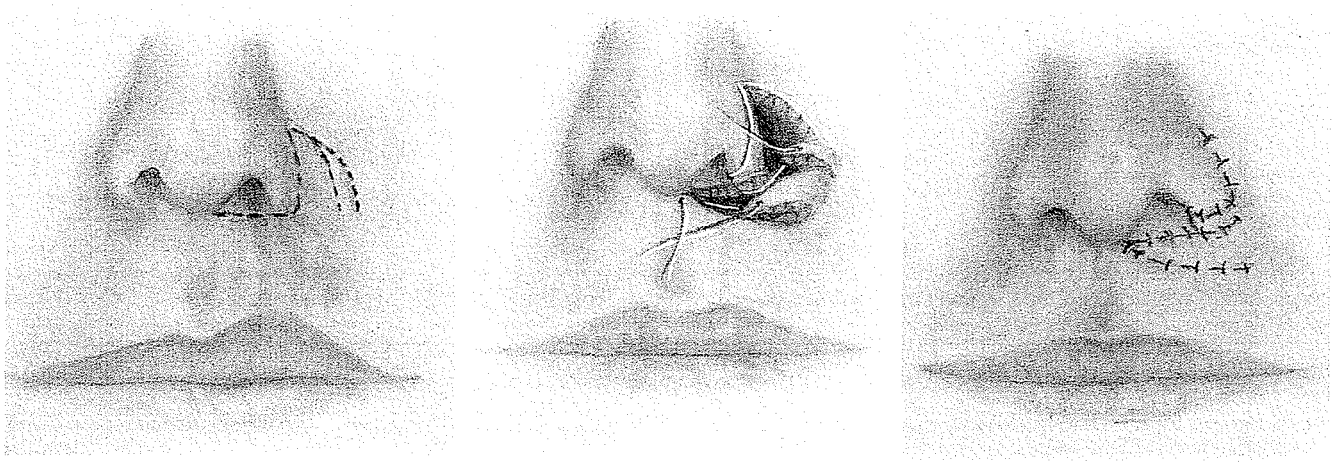
In 1983, at the specific invitation of President B. Williams of the International Federation of Plastic Surgeons, I presented the opening address at the Montreal meeting devoted to the increasing interface of cosmetic and reconstruction in plastic surgery. It was noted, in general, cosmetic surgery is a routine discipline demanding perfection while reconstruction is less routine but dependent upon principles and imagination. A true plastic surgeon should be adept in both. Thus plastic surgeons can no longer be content to act as O-Fillers merely plugging tissue into holes. The sophistication of our great specialty has elevated us to the state where failures in aesthetic surgery must be reconstructed and reconstructions must be aesthetic.

In this same spirit the final result of selected trauma cases may be improved if the reconstruction is augmented by any indicated aesthetic surgery. The epitomy of this philosophy is seen in the treatment of a 45-year-old female pedestrian struck by a car from behind and catapulted to the cement sidewalk. She avulsed a portion of her left eyebrow, lacerated her forehead, avulsed a portion of her left alar base and the upper lip in this area. She was seen soon after the injury revealing early contractures. These wounds were allowed to heal and soften for a year.





The retracted slightly shortened ala and the markedly contracted left upper lip were relieved by a two-pronged nasolabial flap, one minor prong to the ala and the major prong to the upper lip.



At the same time a corrective rhinoplasty and a chin implant improved her aesthetics. As our fees were not exorbitant her Prudential insurance went along with us on all of this preventing the tragic accident from being a total negative.

Another example of the subtle interface of aesthetic and reconstructive surgery is seen in this 73-year-old male who developed basal cell carcinoma of the right side of his upper nasal bridge. The lesion was excised down to bone and cartilage and the margins were reported clear by frozen sections. A transverse 1.5 × 2.5 cm forehead flap was taken from the glabella area based on the right supratrochlear vessels. A tunnel was developed from the forehead donor area to the nasal defect and the island flap was threaded beneath the skin bridge and sutured into the defect. The donor closure provided a mini brow lift. The flap healed to near invisibility.