

4. *Optimum Time for Bilateral Cleft Lip Surgery*

DISAGREEMENT as to the best time for closure has been even greater with regard to the bilateral cleft than with regard to the unilateral cleft. Some of the reasons are similar; some are different. The commonest arguments for early closure have been parental concern, improvement in sucking, avoidance of emaciation from starvation and reduction in premaxillary and maxillary bone gaps. It is interesting that each of these can be controlled effectively today without surgery.

KEEPING THE TEETH OUT OF IT

In 1844 Joseph Pancoast of Jefferson Medical College, Philadelphia, wrote down his thoughts about the age at which the operation should be performed:

This is a point mooted by the older writers and which is not yet so well settled as to lead to uniformity in practice. Dionis, Lassus, Sabatier, etc. deferred the operation till the child had reached its third or fourth year. Sharp, Ledran and Heister advised its performance from a few days to a few weeks after birth. Between the ages of two and four years, children are found so indocile, and so apt, however closely watched, to pull upon the sutures and disturb the process of union, that a great portion of modern surgeons have with good reason recommended the performance of the operation between the second month and the second year after birth. . . . The author gives a decided preference to the period under six months, as we then avoid the necessity of having to extract any deformed teeth, and are less likely to

be troubled with the irritation attendant upon the teeth making their way through the gums, which acts unfavorably on the union of the parts.

A MATTER OF LIFE AND DEATH

Congenial Francis Mason of St. Thomas' Hospital, London, wrote in 1877:

In some bad cases of double harelip, the operation ought, in my opinion, to be done within the first three months, or even earlier; in fact, as soon after birth as possible, in order to save the life of the child.

Modern improvements in general pediatric care, gavage feedings and antibiotics have taken the urgency for survival out of the surgery.

EARLY SURGERY MAY STILL BE THE ONLY HOPE

As in all of surgery, there are extenuating circumstances under which the usual rules must be set aside temporarily so that one can deal intelligently with a specific problem. For instance, in underdeveloped countries the multitude of people often overwhelms all reason to the point that the value of a single lip is not of great concern. An infant with a bilateral lip cleft cannot suck at the breast, and very little ingenuity will be evoked to perpetuate what to the parents is a frightening and monstrous mistake with almost no hope of correction. Thus, such an infant, if not operated on after birth before he leaves the hospital, may never return for a second chance. I have witnessed this tragedy time and again in certain areas of the Orient and the West Indies.

PARENTAL CONCERN

In 1947 Brown, McDowell and Byars in St. Louis stated:

The child with a double cleft of the lip has a very difficult feeding problem, produces much psychic shock to the parents, and incites so many exclamations of curiosity and pity from others that an early closure is necessary. A fairly satisfactory rule is to close it as soon as possible after the baby weighs ten pounds.

Donald MacCollum, who closed hundreds upon hundreds of bilateral clefts at Boston Children's Hospital through the 40's, 50's and 60's, was content to operate at six pounds. Most other surgeons have followed the 10-pound standard of Brown.

Few deformities strike parents with the same shock and shame as a severe bilateral cleft lip does. They are almost frantic in their efforts to have corrective surgery started immediately. For the sake of the child parental concern must be a secondary consideration. Usually if the reasons for postponement are kindly explained, the parents are quite willing to wait whatever interval is suggested. They will get different times and different reasons from different surgeons.

FOR EARLY MOLDING ACTION

Claire Straith of Detroit used to close his bilateral clefts in the first couple of weeks of life so that the muscle band could restrain the premaxilla, as he said,

before the premaxilla and vomer had ossified enough to resist displacement.

He felt so strongly about early closure that as late as 1950 he was using local anesthesia to bypass the dangers of non-endotracheal general anesthesia.

A multitude of surgeons through the years have looked to lip closure as the creation of a physiological restraining band. Wayne Slaughter, who trained with Straith, and his Chicago cohorts Brodie and Pruzansky all have confidence in the molding muscle action after lip closure. Slaughter did not operate as early as Straith but postponed bilateral clefts a month or two for the first side and several months for the second side.

Evidently feeling an urgency to operate early on complicated bilateral clefts to restrain the premaxilla without section of the septum, Barros Saint-Pasteur of Caracas in 1964 reported his surgical timing. After blood studies of coagulation and bleeding time, red blood count and hemoglobin, he used local anesthesia for a Veau closure of the lip and anterior palate on one side during the first 36 hours following birth and on the second side 16 to 30 days later. At 15 months the posterior palate was closed and the lip corrected secondarily.

Fara and Smahel of Prague have a more ethereal concern. They believe that postembryonic mesenchymal penetration of the "sterile" prolabium from the lateral lip elements has a better chance if the lip closure is carried out during the early months.

EMERGENCY NO LONGER

In bilateral clefts, the sooner the lip muscles can be joined across the gaps the better. Yet special devices take the *urgency out of the surgery*. An Asepto syringe fitted with 1½-inch rubber tube extension, when placed over one side of the infant's tongue and with the infant in bolt upright position, can facilitate feeding remarkably. Rubber band traction when attached to a headcap can be effective in restraining the projecting premaxilla. This takes the pressure off the need for early surgery, which now can be postponed until the patient is really ready.

PROCRASTINATION RECONSIDERED

There are those who would postpone surgery conscientiously for years and years. This is probably a sophisticated overreaction to the fact that for centuries surgeons obsessed with closing the hole resorted to drastic procedures until eventually dentists, facing unbelievable alveolar distortions, started an anti-surgery protest. Both surgeons and dentists turned to unoperated adult clefts for the answer. Ortiz-Monasterio of Mexico found that in adults with untreated clefts the original deformity *did not increase* during the natural process of growth. Pitanguy of Brazil went him one better by claiming that these cases actually *improved with aging* and had his findings confirmed by Innis in North Borneo and Mestre, Jesus and Subtelny in Puerto Rico. The same is suggested by the unoperated adult bilateral cleft shown here, seen in Jamaica. It is generally accepted, however, in most civilized societies, even by dentists, that patients suffer more from being left with uncorrected facial clefts through childhood waiting a possible improvement than from having them closed earlier by modern *atraumatic* methods.



Skoog of Sweden in 1965 agreed that cleft lip surgery is not an emergency but added:

Surgeons may differ concerning that specific age [for surgery], but this in itself is not an important issue as long as *repair is carried out early enough to utilize the existing growth factors for gradual correction of the deformity*. This principle of reconstructive surgery is especially important in the case of complete bilateral cleft of the lip and alveolus.

*the italics
are mine*

AN "EARLY" CONFLICT

Although most modern surgeons begin operating on the bilateral cleft lip between the early weeks and the third month of age, it is interesting to study the two extremes of this timing as expressed in two books, Stark's 1968 *Cleft Palate* and the 1971 *Cleft Lip and Palate* by Grabb, Rosenstein and Bzoch.

A matter of weeks

DeHaan, for Stark, admitted avoiding the operation during the first 24 hours of life because of the high perinatal mortality but advocated closure in the early weeks.

The very young infant who still has immunity from the mother and high resistance to infection tolerates surgery well and requires minimal anesthesia.

He mentioned other advantages such as solving the sucking problem, protection of the nasopharyngeal mucosa as a deterrent to respiratory tract infections and early union of the orbicularis oris musculature to act as a biological orthodontic band on the premaxillary and maxillary segments. DeHaan cited an example of postponing lip surgery in a 4-pound premature bilateral cleft infant. The tiny patient not only failed to gain weight but developed an upper respiratory infection at two and one-half weeks with loss of one-eighth of his total body weight. Corrective lip surgery at seven and one-half weeks was followed by a prompt gain. DeHaan concluded:

In retrospect, deferring surgery because of prematurity was a mistake, as our pediatric colleagues agree.

DeHaan also strikes down the argument that one should wait for increase in the size of the lip to facilitate closure:

We have not found this to be true and, in fact, feel that the slightly longer lip at the age of 3 months is no easier to correct.

Or months

Ray Brauer, for Grabb et al., cited the common causes delaying lip closure:

protruding premaxilla; collapse of the lateral palatal segments; the presence of other congenital anomalies such as congenital deformity of the heart; and poor general nutrition. . . .

Babies with poor general nutrition simply fail to thrive, and until the general nutritional status is one of steady improvement, surgery should be delayed.

Brauer concluded:

Today most surgeons prefer to wait until the child is 2 to 3 months old and weighs at least 12 pounds before starting lip repair. This allows time for sufficient development of the prolabial and lateral lip segments and makes both planning and execution of the surgery easier. During this period, maxillary orthopedic procedures can be used.

A bit of both

In a 1970 Russian handbook A. A. Kolesov of the Moscow Medical-Stomatological Institute stated in reference to the primary lip operation in bilateral clefts:

In the first stage, only one side of the cleft is closed. The first stage in most children can be carried out while they are in the nursery. The other side of the cleft is closed after two to two and one-half months.

THE PRELIMINARY LIP ADHESION

The simple, quick, bloodless procedure of creating a preliminary minor lip attachment across the cleft makes it possible to achieve some benefits quite early. This of course is the appeal of the adhesion, and its real value, it would seem, lies in its early use.

Bengt Johanson and I employed the preliminary adhesion for

various primary reasons but both of us enjoyed some premaxillary manipulation from our adhesions. Celesnik in 1962 proposed a preliminary alveolar and nasal floor closure at four months of age to be followed with prosthodontic manipulation and definitive lip surgery no sooner than six months later. Randall, at first enthusiastic and now more selective, uses preliminary adhesion in two stages but not until three and six months of age in bilateral clefts. Walker and Collito approximated lip cleft edges without undermining on a conservative combination of adhesion-closure but with good molding of the maxillary segments.

Evidently all of these adhesions and the fear that surgery will stunt maxillary growth led one Austrian surgeon, K. Hollmann of the University of Vienna, to propose in 1973 a sequence of operations with a variation in timing that he has used since 1967. At *one week* of age he creates an adhesion with mucosal flaps from the lateral lip segments sutured under the inferior prolabium vermillion and lets this

stimulate soft tissue growth of the labial stumps in the clefted area.

At one year the soft palate is closed, and not until two years of age is the definitive closure of the lip accomplished.

PRIME TIME

In the rare case with a very severely protruding premaxilla which cannot be positioned properly by rubber band traction or coaxial screw retraction, an adhesion may be the best preliminary maneuver and can be executed at the time of soft palate closure. Yet in most complete bilateral clefts I prefer to bypass the adhesion and achieve the earliest practical one-stage definitive closure in order to create an intact muscle band across both clefts as soon as the rubber band traction from a headcap has reduced the projection of the premaxilla to a reasonable degree. This operation is usually possible at *one month or earlier* provided the baby is well and gaining weight. I do not feel that Musgrave's "rule of 10" need be enforced with regard to the 10 pounds in weight in bilateral clefts, but his other standards are essential. As cited years

ago by Oxford's Professor Kilner, at least 10 gm. of hemoglobin and no evidence of upper respiratory infection are essential to ensuring a smooth postoperative course with optimum wound healing.

TRIPLE ACTION

At the time of bilateral lip closure two other aspects of the cleft syndrome, otitis media and cleft palate, are also treated. As usually indicated, the E.N.T. actions of bilateral myringotomy, suction of fluid and insertion of tubes are carried out. A mouth gag is then inserted and as much soft palate cleft is closed as possible by simple edge splitting and approximating with sutures. Early muscle closure of the velum provides at the back of the cleft the same molding contracting muscle action that the lip closure achieves up front. Not only will the velar atrophy of disuse be avoided but there must be beneficial effects from the early coordination of velar and pharyngeal musculature. Thus these two additional procedures, being quick and bloodless and taking so little time from the primary lip operation, are more than justified by the assets that eventually accrue.