Aspects of Plastic Surgery

Cleft Lip and Palate—Management

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At Birth

The complete cleft lip and palate is a hideous deformity and the mother may need much support at this time. The surgeon should see the child at an early age and outline the programme of repair for the parents as soon as possible. If there is concomitant underdevelopment of the jaw (Pierre-Robin syndrome) there may be respiratory difficulties, particularly during feeding. It may be necessary to nurse the baby in the prone position with the head tipped down and in severe cases this regimen may have to be kept up for many months. Fortunately, the condition tends to improve gradually.

From time to time, in some centres, there has been a move to repair the cleft lip in the first week or so of life, so that the baby is looking reasonably presentable when the mother goes home from hospital. But operation at this time does carry a greater risk than operation at the conventional time of 3 months and, because of the size of the parts, it is considerably more difficult to achieve a satisfactory end result. In my opinion, therefore, this does not constitute a justifiable risk and I believe that the best chance of getting a good permanent result with the least risk is obtained by operating at the conventional age of 3 months.

Feeding

These children are very often slow feeders. Except in minor degrees of deformity, they cannot breast-feed and have to be fed either by bottle or spoon. Special teats are available for bottle feeding, but if such a teat is not available, the baby will usually feed quite well if the hole of an ordinary teat is enlarged substantially by cutting away on one side. The baby should be encouraged to feed from a spoon as soon as possible because spoon feeding is more satisfactory than bottle feeding in the immediate postoperative period. Special spoons are available, but if an ordinary spoon is squashed from side to side to make it deeper and narrower this will usually prove satisfactory.

Pre-operative Orthodontics

In addition to the presence of the cleft there is distortion of the segments of the alveolar arch, mainly because the bone has not been subjected to the normal moulding effect of an intact muscle ring of the lip. This distortion may cause wide separation of the two sides of the cleft nostril. Both McNeil and Burston have shown that by using dental plates the position of the dental arch can be improved and if the deformity is severe this may greatly facilitate the task of the surgeon at the primary repair. In babies with severe distortion of the arch, therefore, the advice of the orthodontist should be sought at an early age because the bone of the upper jaw is most malleable in the first few weeks and susceptible to correction by orthodontic methods. Apart from facilitating the operation it is still not certain if this pre-surgical orthodontic treatment has any beneficial effect on the final result and probably this treatment is necessary only in cases with severe deformity of the dental arch. In addition to the effect on the dental arch a dental plate may also help with feeding and is well worth trying in babies with feeding difficulties.

Operative Repair

In a complete cleft of the lip and palate the accepted view is that the lip and alveolus with a varying amount of the anterior plate should be repaired at the age of 3 months and that the remainder of the palate should be repaired by 1 year. If this is done the repair of the palate is complete by the time the child begins to speak.

Preoperative Investigations

If postoperative complications are to be avoided it is essential that these children should be completely fit beforehand. Before being considered for operation, therefore, the baby must be generally well and free from infections, feeding well, and putting on weight, and the old requirement that the baby should weigh 10 lb (4·5 kg) and be gaining weight is still a good rule. One of the most serious postoperative complications is infection with haemolytic streptococci—the one complication which may irreparably ruin a skillfully executed repair. All babies, therefore, should have a throat swab taken a few days before operation to exclude the presence of β-haemolytic streptococci. The presence of β-haemolytic streptococci is an absolute contraindication to operation, though that of other organisms is not of any great significance. The haemoglobin level at 3 months is rarely over 80% but with levels of 70% or below there may be difficulties during anaesthesia and there may later be difficulties with healing. If the Hb level is below 75%, therefore, operation should be deferred and an iron preparation should be given for a month. If the level is still low then it may be reasonable to try for a further month, but if it is still not possible to raise the level it will probably be necessary to use a blood transfusion at the time of the operation. The assessment before the repair of the palate at the age of 1 year follows on the same lines.

Operative Repair

LIP

In an incomplete cleft, or in a cleft of the lip alone without involvement of the palate, the aim should be to get a lip and nose of near normal shape and it is often possible to achieve this. In complete clefts where the gap in the alveolus is very wide, it is usually possible to get a good repair of the lip, but it is often not
possible to obtain a satisfactory correction of the nose and some
dergree of nasal deformity almost always persists after the primary
operation. The amount of the hard palate which is repaired at the
primary operation differs from surgeon to surgeon, but this is probably
not of any great importance and is very much a matter of personal
preference. The repair of the lip itself nowadays is usually by means
of a flap operation, either after the method of Tennison (fig. 1a) or
Millard (fig. 1b).

The old repair, which left a straight line scar, tended to give a lip
which was tight at the free margin and almost always resulted in loss
of the Cupid’s bow. It became increasingly realized, however, that the
Cupid’s bow is always present on the medial side of the cleft, though
drawn up into a cleft. The modern operations depend on cutting
across the medial border of the cleft either at the level of the peak of
the Cupid’s bow (fig. 1a), on the cleft side (fig. 1b), or higher up under
the nose so as to drop the Cupid’s bow down into a more normal
position. The resulting triangular defect on the medial side is then
filled by fashioning a flap of corresponding shape on the lateral side of
the lip. These methods usually make it possible to preserve the Cupid’s
bow and also to give a lip of good contour which is relatively lax and
pouting at the margin of the lip. Some improvement in the deformity
of the nose occurs as a result of the primary lip repair, but it is very
rarely possible to gain a complete correction of the nose tip. There is
always distortion of the nasal septum and it is not possible to correct
this at the primary operation. An important feature in the lip repair is
that the continuity of the muscle of the lip is restored and the tension
of the repaired muscle gradually moulds the distorted segments of the
upper jaw into a more normal shape. In bilateral clefts (fig. 3) con-
ditions are more difficult because the central portion of the lip—the
prolabium—contains no muscle. It is hardly ever possible in the primary
repair of a bilateral cleft lip to re-establish muscle continuity
and a second operation, usually at the age of 4½, is almost always
necessary.

PALATE

The object of the palatal repair is to obtain a watertight part-
tion between the oral and nasal cavities and to obtain a long
and mobile soft palate by the time the child begins to speak.
Preoperative assessment should be the same as described above
for repair of the cleft lip and should include bacteriological
culture of a throat swab and haemoglobin estimation. The
dissection necessary to mobilize the palate adequately so that it
can be sutured without tension is extensive, and haemolytic
streptococcal infection is even more damaging in the case of the
soft palate than of the lip. If the hard palate has been repaired
very far back at the time of the repair of the lip then the so-called
V to Y operation will suffice. Otherwise, the four-flap operation
as described by Wardill can be used to obtain closure of the hard
palate and the soft palate at the same time.

EARS

It has been known for many years that children with cleft
palates are more likely to develop middle ear trouble than
normal children. In the past this was explained on the grounds
that the orifices of the Eustachian tubes were exposed to food
and secretions from the mouth. But it now seems that this was
an unduly simplified explanation and probably the trouble is due
to dysfunction of the palatal muscles—particularly the tensor
palati. The tensor palati arises from the Eustachian tube and in,
addition to its effect on the palate, it also acts as an opener of
the Eustachian tube. When the palate is cleft, however, the
tensor has no medial fixed point and cannot act on the
Eustachian tube. It is our present practice that, when the child’s
palate is repaired at the age of 1 year, the ears are inspected
under the same anaesthetic with the microscope by one of our
E.N.T. colleagues. The findings are similar to those of the
“glue-ear” of other children without palatal defects and, if
necessary, myringotomy and insertion of grommets are carried
out. Fortunately, most children appear to grow out of this
trouble after the palate has been repaired and by the age of 8 or
9 the ears are usually in stable condition and need no further
treatment.

FOLLOW-UP

If the child has had insertion of grommets he is followed up at
fairly short intervals. In any case he is reviewed at yearly inter-
vals by a team consisting of a plastic surgeon, an E.N.T.
surgeon, an orthodontist, and a speech therapist.

SPEECH

Occasionally speech therapy may be advisable before the child
attends school but it is usually much more satisfactory to
arrange this at school. In the past most speech therapy services
have been provided satisfactorily by the education authorities,
but in future all speech therapy services will come under the
National Health Service. By the age of 7, when the child has
been at school for two years and has had some speech therapy,
it should be possible to tell if his speech is acceptable or is likely
to become acceptable with further speech therapy. If it is
thought that the speech will not be acceptable, then further
investigation should be carried out to see if further surgical
treatment is advisable. It is possible to demonstrate by radio-
logical methods the movement of the soft palate and to deter-
mine if the palate is long enough to close the pharynx com-
pletely. If the investigation shows that the length of the palate
is inadequate then some form of pharyngoplasty is necessary.

ORTHODONTICS

 Particularly in the region of the cleft, the milk teeth will usually
be distorted, but orthodontic treatment is not carried out on
these teeth. It is important that the milk teeth should not be lost
before the appropriate time and the children and their parents
must constantly be encouraged to maintain high standards of
routine dental care. This is especially important after the second
dentition has erupted, because not only does the orthodontist
require healthy teeth to support his apparatus, but orthodontic
appliances themselves have an adverse effect on teeth and these
may decay prematurely if they are not well maintained.
If the incisor teeth are badly distorted the orthodontist may wish to carry out a short period of treatment at about 7 or 8 years, but the main orthodontic treatment will be carried out from the age of 12 onwards, when most of the permanent teeth have appeared. The tooth in the line of the cleft, the lateral incisor, is often deformed, sometimes split into two, so that it is represented by two small teeth, one on each side of the cleft, and very rarely of any functional value. If the size of the upper arch is satisfactory, it may be reasonable to extract the remnants of this tooth and to allow the other teeth to approximate so that the size of the dental arch is slightly smaller than normal. In other cases in which the teeth can be brought into good occlusion the resulting gap can be filled either by a single tooth on a denture or by a tooth carried on a fixed bridge.

**LATER SURGICAL TREATMENT**

Unless there are strong reasons to the contrary final surgical corrections are best delayed until orthodontic treatment has been completed and this usually brings the patient up to 15 or 16 years of age. At this time it is often possible to improve the result by several small corrections:

**Nose.**—The nasal septum is invariably distorted to a greater or lesser extent and it may be necessary to straighten the septum and also correct the tip of the nose which is often asymmetrical.

**Lip.**—Minor corrections of the lip can be carried out at any suitable time and with modern operations it is usually possible to give a lip of good contour.

**Jaw.**—In spite of adequate early correction some patients still develop deviations in the dental occlusion which are too great to be corrected by orthodontic methods. In the past the usual practice was to accept the basic bony pattern and to disguise the defect by the use of specially constructed dentures. Nevertheless, recent experience has shown that it is possible to carry out osteotomies of the maxilla (either as a whole or in two parts) and of the mandible, and to shift the segments around into a more acceptable occlusion and such procedures have now become part of the standard management of these deformities.

**Summary**

A complete programme of the treatment that might be necessary is presented:

<table>
<thead>
<tr>
<th>Age</th>
<th>Procedure</th>
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<tbody>
<tr>
<td>3 months</td>
<td>repair of lip</td>
</tr>
<tr>
<td>1 year</td>
<td>repair of palate</td>
</tr>
<tr>
<td>41 years</td>
<td>secondary correction of lip and nose tip if deformity is severe (particularly in bilateral clefts)</td>
</tr>
<tr>
<td>5-6 years</td>
<td>speech therapy at school</td>
</tr>
<tr>
<td>7 years</td>
<td>review speech—consider pharyngoplasty if necessary</td>
</tr>
<tr>
<td>8 years</td>
<td>if nasal obstruction is severe, straighten nasal septum. Otherwise leave till later</td>
</tr>
<tr>
<td>12 years</td>
<td>orthodontic treatment</td>
</tr>
<tr>
<td>15-17 years</td>
<td>orthodontic treatment of mandible, osteotomy of mandible, final work on nose tip, and on nasal septum.</td>
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I am grateful to Miss M. Dobson for the photographs and to Mr. E. Smith for the drawings. They are both in the Department of Medical Illustration, University of Aberdeen.

**References**


**Conversations on the Social Services**

**A Paediatric Opinion**

*Dr. R. is a consultant paediatrician in a provincial teaching centre.*

**FROM A SPECIAL CORRESPONDENT**

*British Medical Journal, 1974, 3, 164-165*

"In the past my contacts with the local authority social services were largely confined to members of the then children's department—and it was easy to maintain personal links with those who accompanied children in care to outpatients or who were involved in the occasional 'battered baby' cases or a difficult adoption problem. The children's department could always be relied on to supply continuity of care in long-term cases and the necessary expertise when complicated problems arose.

"The increased incidence or awareness of what we now call non-accidental injury and the implementation of the Seebohm recommendations changed this comfortable relationship, though I was relieved to see that in most instances the ex-childen's department workers continued to come up to outpatients with the children in care whom they had previously supervised—so that continuity wasn't lost, as I had feared. Even so, Seebohm caused us a lot of difficulties, some of which are now being slowly resolved. From the beginning it seemed clear that the many and varied problems which the generic social workers might be called on to deal with were far too complex to be handled in this way, and that the worker who was inexperienced in a particular field would either make a bad decision or be unable to make a decision at all—and would have to refer back to a senior member of the department. In fact, both these fears were realized, with results that were dangerous or frustrating according to the circumstances. There was a fairly prolonged settling-in period, when even the senior people previously expert in a restricted field were completely at a loss outside that field, but the situation has now improved."