ciated with the teat. This is termed complicated hare-lip. The portion of process projecting into the cleft is generally an intermaxillary formation, and holds the germs or developed incisor teeth. The correction of this defect implies a somewhat formidable operation. The first step consists in dissecting well the lip from its reflection over the process, should attachment exist. Next the gum is separated thoroughly from the projecting bone, which bone the third step in the operation removes down to the natural curvature of the parts, this last being effected either by means of revolving saw, chisel, or cutting forceps. If in this third step of the operation the anterior palatine artery be wounded, the resulting hemorrhage is controlled, either by taking up the vessel or by touching it with one of the astringents; or, if neither of these means suffices for the arrestation, the artery may be touched with a red-hot cauterant needle, or better, may be plugged with a point of pine stick. The bone removed, the flaps of gum are to be laid back in the cavity, where they will remain sufficiently approximated without the employment of sutures. The operation upon the lip may now be performed at once in any of the manners described; or, if the force of the patient be too much exhausted, it may be left for a future period.

These are the two principal forms of double hare-lip. An appreciation of the operations required for their cure will enable the surgeon to meet satisfactorily any modifications that may present on either of them; and these modifications, it is to be suggested, are constantly occurring. Let us, for a single moment, refer to an uncomplicated double hare-lip, where the centre piece, or teat, is found so large and square as fairly to divide the lip into three parts. Now, here the mesial line of the lip is found in the centre piece; it suggests itself, therefore, to any one, that either side of the cleft is to be treated as a separate hare-lip,—that is, the whole manipulation is to be done at the one sitting and there are to be symmetrical parings made of either cleft. In such a case, we have also to take into account the concavity made on either side of the fissure, as reference is had to the influence exerted on the free margin of the lip; for here of course no swell is required. Whether, again, in these really double cases, we would first operate on the one side, and, when that is cured, on the other, is a matter to be decided by the judgment of the operator. Many surgeons prefer to correct the whole deformity at once. If it be decided to do this, the operation deviates from the principles laid down, only as regard is had to approximating the parts. If the centre piece be small, it is found the most satisfactory practice to pass the pins, wire, or whatever suture material is used, directly from one lateral flap, on through the centre piece, to and through the other, thus uniting all the parts by a common suture. If, on the contrary, a centre piece be broad and well covered by skin, the greatest good is found in using two sets of ligatures. As regards the single or double operation, the author is influenced by the width of the middle piece, the tenseness or laxity of the tissue of the lip, and the endurance and condition of the patient.

A modification of the double hare-lip is one in which there is a projection, into the cleft, of the incisor teeth; the alveolar process itself being sufficiently normal to allow of non-interference with it. This modification is commonly met with in the adult, or at least after second dentition. The projection of the teeth is the natural result of the lack of external support from the labial deficiency; the tongue has actually pushed them outwardly. In a case of this kind, a preliminary operation is the removal of the teeth. If, now, six months be allowed to intervene before attempting the operation on the lip, the alveoli of the extracted organs will be found to have receded, through absorption, quite the eighth of an inch. The second operation is then to be done *secundum artem.* This waiting on the process of absorption will be found to conduce to a successful result.

A still better, though a more tedious, mode of correcting such deformity is by first bringing the projecting teeth back to their normal place in the arch, through the agency of elastic ligatures. This is a perfectly feasible operation, and not at all difficult of performance. By such a preliminary procedure we not only get the teeth out of the way, but save to the patient these valuable organs. To make and apply such a ligature, we have only to take a slip of common india-rubber and attach at each end a loop of silk. We next place these loops over certain of the molars; it is entirely immaterial which: the centre, or rubber part, is then stretched forward and laid over the labial faces of the teeth to be pulled back. It is astonishing how quickly and powerfully such a force acts upon them. In two or three weeks, at most, the organs are brought into their proper line. To secure them *in situ*, and prevent their being again pushed forward, we have only to keep them ligatured in any convenient manner until the operation on the lip is made, and union secured. (See *Correction of Irregularities.*)

Cleft of the lip, as previously remarked, is common to perhaps a majority of the cases of cleft of the hard palate. It has always been deemed very important in these cases that an operation on the lip be performed as early as possible; it favors approximation in the bony cleft. In these cases the manipulation differs from that suited to an ordinary one only when there is projection of one or both alveolar prominences into the break. (See *Cleft Palate.*) In such instances, if the intrusion be very marked—that is, so much so as to prevent the bringing together of the lips—we may perhaps be able to do nothing better than cut away the parts. This, however, is always to be avoided where possible: first, because thus we destroy the germs of the teeth; and, secondly, because, if by any means we can get union of the lip, the parts in their development will come mutually to accommodate themselves to each other. In such cases it is recommended by some authors that we endeavor to bend back these juttings of bone, turning them in toward the mesial line. Where this can be done, it answers a very admirable purpose. Still another mode—after the method suggested for the complete relief of

this character of cleft—consists in the employment of the fronto-occipito-labial elastic sling. This sling is so applied that it pulls from the occiput upon the projecting process. It will certainly fulfil the indications; but its employment is not unattended with trouble.

Cases of double hare-lip not infrequently occur where the centre slip is so associated with the septum of the nose as to make the parts seem as one: if there was not the loss of material from the lip, the septum would bear being described as in a state of hypertrophy. Again, the lost part from the lip is sometimes found attached to the very tip of the nose, giving to the patient somewhat the appearance of laboring under lipoma. These, together with all the anomalies in this direction, are first to be studied, as regards their cure, from the artistic stand-point. The surgeon knows where and what he can afford to cut; he judges what nature will do in the case; it only remains for him to consider well his incisions, where he shall make them, and what is to be the æsthetic result, before the operation is attempted.

A useful study is found in the examination of examples. If one familiarize himself with all kinds of cases, and if—what is commonly found more at command—he represent the morbid anatomy in india-rubber, and thus devises and tries experimental operations, he finds the subject of hare-lip grow simple enough.

Addendum.—In operating for hare-lip, always first dissect the lip well off from its attachment to the gum.

In paring the fissures, the young surgeon is much more apt to remove too little than too much.

In paring out the apex of the cleft, be sure to freshen perfectly the extreme point of such apex. This is oftentimes neglected; and an ugly pucker is the result.

The paring for hare-lip is, perhaps, best made on a wooden spatula.

Few instruments are really required in this operation. A bistoury and forceps, or tenaculum, together with such coaptating means as it is designed to employ, will answer the purpose well enough.

A mode of operating on the infant is for the surgeon to seat himself face to face with an assistant. The child being etherized, the surgeon lays its body over his own knees, the head being supported by the helper. On incision being made upon one side, the assistant grasps the lip between the thumb and finger, compressing the coronary artery. When the vessel of the opposite side is cut, he secures this. Both are steadily held until the operator is ready to coaptate the wound.

In operating on the adult, it is found convenient to stand behind the patient; such a chair being used, and the head being placed in such position, as recommended in the operation of staphyloraphy.

Another very convenient manner is to sit in front of the patient, the head being supported against the breast of an assistant.

When plaster is used to assist the ligatures, silk gauze and collodion are to be preferred; this leaves the wound exposed to inspection, and is a light and most effective dressing.

STUDIES IN COMPLICATED HARE-LIP.

Fig. 472 is a dissection showing the nature and character of an inter-maxillary projection. Where such bone interferes with the ability to obliterate a cleft, it is plainly proper practice to cut it away.

Fig. 472.

Figs. 473, 474, 475, 476, which are strictly true to cases constantly being met with, exhibit aspects of intermaxillary complication. Wherever such intermediate projections are found unyielding, and may not be utilized, the author pursues the practice of amputation; this converts the case at once into simple hare-lip, with the complication, however, of a very great loss of substance from the centre; this may not be helped; and if the parts be found too widely apart to be brought together, as directed in the ordinary cases, the surgeon is compelled to resort to the cheeks for the required material. (See *Making Upper Lip.*)

Fig. 473.

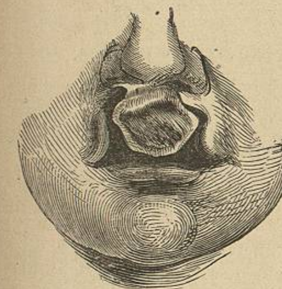


Fig. 474.

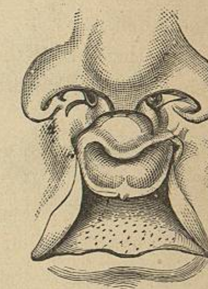


Fig. 477, being from life, represents the appearance of a child operated on by the author at one of his clinics. In this babe complete cleft existed not only in the lip but in both hard and soft palates, while pendent from the nasal septum was a mass half cartilage, half bone, which, as shown in the drawing, was the complete representation, in shape, of a door-knob.

In examining the case, it will be seen that the removal of the pendent mass is to be effected by section of the pedicle. This was done, exposing the cleft in the lip, which, as recognized, was very extensive. To make raw and bring the boundaries of the cleft in apposition was now the indication. This was met after the manner of utilizing the parings. The strain on the pins being very great, extra support was given by placing a delicate compress on

either side and dragging all the lateral aspect of the parts toward the mesial line by means of adhesive strips.

Fig. 475.

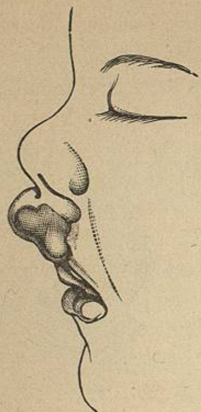
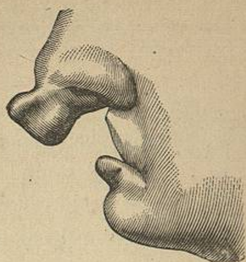
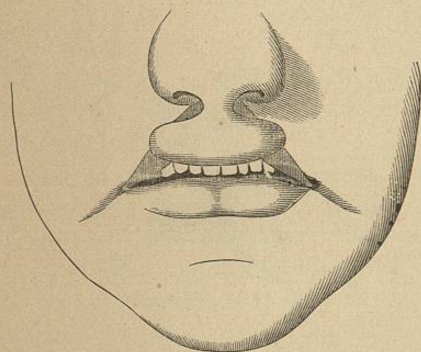


Fig. 476.



In this case traction on the pins necessitated their removal earlier than was desirable; but moderate union was found to have been secured at the free border of the lip,—that is, with the parings. Taking advantage of this, support was kept up by means of an extemporized Hainsby's compress, and after two weeks the cleft was found obliterated, having been filled up by granulation.

Fig. 477.



This case is selected as an example, because it is an instance where nothing better might have been done than the operation practised, the child not having force to endure a more complicated means of treatment. It was not desirable to have a cure by granulation; but it was better than taking risks overbalancing the good to be secured.

Fig. 3, Plate VI., exhibits the manner of placing a pin.

Fig. 5 exhibits three pins in place, the points being cut off, and the parts retained in apposition by means of the figure-of-8.

Fig. 6 exhibits the dressing of a simple, uncomplicated double hare-lip.

Pins.—Until very familiar with the operation, it is advised that in approximating flaps the ordinary steel or gold pin be used. Such means, while having the objections noticed, will yet be found of ready, easy, and convenient application.

In passing a pin, it is to be carried forward until within about three lines of the head.

In casting the figure-of-8, no more strain is to be employed than suffices to hold the denuded surfaces in contact; more than this is almost sure to result in strangulation of the compressed parts, a consequent ulceration marking the line of the pins. Cotton twine is to be used.

Pins are always to be removed as quickly as parts are found sufficiently self-supporting, their presence interfering necessarily with the process of union.

In withdrawing a pin, support is demanded by the lip. A rude removal is apt to tear asunder the delicate granulations.

Fig. 478.

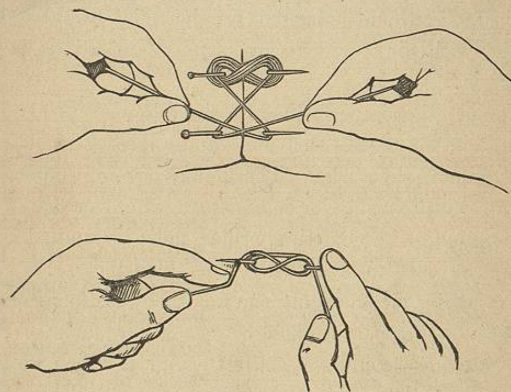


Fig. 478 exhibits the twisted or hare-lip suture, together with the manner of making it.