comes from the moment of closure of the wound, only a simple one.

4. Wedge-shaped osteotomy is seldom necessary, even in exaggerated deformities, as a simple section is all that is necessary, the gap resulting from straightening being readily filled in with callus.

5. Plaster-of-Paris makes the best subsequent fixation splint.

DETAIL IN CLEFT PALATE OPERATIONS*.

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The object of this paper is to describe some new instruments and to call attention to some already in use, as well as to describe the accepted methods of operation for congenital defects of the hard and soft palate.

In all operations on the mouth or face the patient should be placed in the Murphy position, the operator sitting above the head. The Murphy position is best secured by the use of the head-rest of an ordinary operating-table, or by an extra head-rest with a body portion passed under the patient—the head-piece being placed at an angle of 45 degrees to the plane of the body. (See Fig. 10.)

Fillebrown's method of producing anesthesia is of advantage in all operations on the face and mouth. It is practically the same method as that introduced by Dr. Hayes, a dentist of Pittsburg, about fifteen years ago.

Davies-Colley operation.

It consists in delivering the anesthetic to the point through a small tube near the mouth, or as Fillebrown suggests, resting on the upper teeth. The anesthetic is forced through the tube by a foot bellows. With the patient in position, the Fillebrown mouth-piece can not be used as he suggests. When possible, the Davies Colley operation is to be preferred, since it furnishes normal mucous surface for the floor of the nasal cavity, and for the roof of the mouth as well, thus avoiding the exposure of raw surface. He describes the steps of the operation as follows:

The operation might be divided into three stages: Stage 1. Fig. 1. (a). An incision A B is made down to the hard palate in front, and behind through the soft palate, with its center just internal to the last molar. With a raspator, the muco-periosteum is separated from A B inward. (b). An incision C D is made about a quarter of an inch from the cleft in front. It runs parallel to the cleft backward, and is continued to the tip of the uvula, splitting the soft palate to the depth of about three-eighths of an inch in front, and a less

amount behind. The muco-periosteum between C D and the cleft of the hard plate is separated inward with the raspator as far as the edge of the bone. (c). A triangular flap E F G is raised from the other side of the plate, in such a way that the anterior extremity is free, and the inner margin runs parallel to the edge of the cleft at a distance of one-sixth of an inch. In the soft plate the incision is continued backward so as to split that structure in the same way as on the other side. The muco-periosteum of the hard palate internal to F G is separated inward and left attached to the edge of the bone.

Stage 2. Fig. 2. The mesial flaps, namely, those internal to C D and F G, are united by fine silk or catgut sutures; and continuously with this union the upper planes of the split soft palate are brought together. A bridge is thus formed across the whole cleft with a mucous surface directed upward, and a raw surface downward.

Stage 3. Fig. 3. The edge F G of the triangular flap in front, and of the lower plane of the soft palate behind, is united by silver wires and one or two silk sutures, to the edge C D of the hard and soft palate of the other side. A second bridge is thus formed across the whole cleft, with a raw surface looking upward and a mucous surface downward. The after-treatment was that of the ordinary operation, except that as there was no tension in the hard palate, and very little in the soft, the sutures might be left in from three to six weeks. The advantages claimed for this operation were: 1, no tissue has to be pared away; 2, a much larger extent

Fillebrown.

of raw surface is brought into closer contact than in the ordinary operation; 3, the tension is small; 4, the upward pressure of the tongue is beneficial, as it presses the lower against the upper bridge; 5, some advantage is gained by using the muco-periosteum of one side in front of the cleft to help in bridging the gap of the hard palate. He says, "I commence my incision at a, a, Fig. 4, and with a hoe-shaped periosteum knife dissected off the tissue from the hard palate to the dotted lines b, b, Fig. 4. After paring the edges of the flaps I inserted silver sutures running above the flaps, and passed them through the palate and through pure silver disks c, c, c, Fig. 5, twisting the ends and making tension which fully approximated the edges. To fully relieve the strain upon the soft palate, and also to allow contraction of the arch, I made the incision e, Fig. 5, from the tuberosity to opposite the under molar. I cut through the mucous membrane with a scalpel and then separated the deeper tissues with a smooth dissector, in order to avoid injuring important vessels. The edges of the cleft now held in close approximation were brought more accurately together by fine silk sutures d, as shown in Fig. 5. I thus avoided the lateral incision in the hard palate, the separating of the tensor muscles, the cutting

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of the pillars of the fauces, and approximated the tonsils so as to lessen the arch and allow the soft palate to retract to a considerable extent. This increases the length of the flap. If the flap is short near the fauces an incision is made through the mucous membrane near the anterior pillars. Deep wire sutures and head plates are used by the operator to relieve tension on the flaps as well as marginal sutures."

Dr. Truman W. Brophy, Chicago, recommends that the maxillary bones be approximated by twisting silver wire which has been passed through alveolar ridges.

In every operation on congenital deformities the preservation of material must be the first consideration. The least amount of tissue must not be severed. In the Davies Colley operation this is carried out throughout.

Fig. 6. Original.

Fig. 7. Original.

Fig. 8. Fillebrown.

In Fillebrown's operation, a skilful step toward economy of tissue is observed. The instrument shown in Fig 8, is a steel hoe with cutting edge on the tip and both sides. It was devised for the purpose of cutting through the soft tissues well up around the margin of the cleft, indeed, far enough to so do that when the flaps are hoed from the bone they reach across the chasm. With the cutting sides it is drawn forward to the anterior angle and backward along the margin of the soft palate, as well as hard—the uvula being very readily split to its tip. With care, a considerable cleft may be closed in this manner, without resorting to bone operation, as Brophy suggests.

Fillebrown operation.

To use a needle without an ordinary needle-holder, requires a very small needle and skilful manipulation, and much time is consumed. The cervix needles, which have the eye near the point, and are bent with a curve at right angles to the staff, answer quite well through the uvula, but are most difficult to handle between the bony cleft. The usual staphylorrhaphy needle is bent with a slight curve at right-angles to the staff, with a very slight curve of the point back toward the handle.

To overcome this difficulty the needle herewith illustrated was devised. (Fig. 6.) It has a curve which brings the point back toward the handle, the curve being

just great enough to carry the puncture back sufficiently far from the edge of the flap. The instrument here shown (Fig. 7) is necessary to complete the introduction of the suture skilfully. It has a ring on one end, bent at right-angles to the staff, and with an opening large enough to admit the threaded needle. On the other end is a hook. The needle, after being loaded with the desired suture material, is passed through back of the flap into the nasal cavity. It is then pushed through the flap from the nasal into the oral cavity. The ring end of the instrument containing the hook and ring above described is pressed against the flap to support it and prevent laceration. After the needle and suture passes through the flap, the hook is made to engage the suture on the side of the needle from the

staff (Fig. 9, A), and with traction the free end is drawn through into the oral cavity as the needle is pushed back into the nasal cavity (B). The needle, with the thread still in position, is turned around to the opposite side, and passed through the flap as above described (C). As the thread is hooked up on the inside of the needle, the salient end on the same side is let go, and the one on the opposite side held—otherwise the needle would be unthreaded. The hook is again passed around the suture on the outside of the needle as before (D), and as it is drawn through into the oral cavity, the needle is pushed back into the nasal cavity and drawn out between the flaps unthreaded (E). This method permits the intro-

Fig. 9.—Original. Method of entering suture.

duction of sutures at the extreme anterior angle. It is done quickly and no undue violence is done to the flaps. An important detail is that the hook must be passed around the suture on the side of the needle next the staff, on both sides, or when it is withdrawn, instead of it unthreading itself, it remains threaded and the two ends are through the flaps on the two sides of the cleft (F). The thread may be drawn from the inside of the needle, on both sides, and the steps are just the same.

A self-retaining mouth gag adds greatly to the convenience, and greatly assists in expediting the operation. For this purpose, the instrument herewith shown was de-

vised (Fig. 10). It is made as an ordinary gag, except that it has a plate extending from the end of the upper arm of the gag, about the side of the head, above and around the ear. The plate which passes about the side of the head is made of malleable metal, so that it can be accurately adjusted to the side of the head without tilting the mouth gag from the teeth. This is held in position by a head band, which may be an ordinary sterilized gauze bandage. With this simple device the assistant is free to render double service. A self-retaining tongue depressor is attached to the gag, as shown. The

Fig. 10.—Original.

tongue can be thrown up to any desired position by moving the lever, which is pivoted on the lower arm of the gag. The outer lever of the tongue plate is bent along the lower bar of the gag to near the end, where it is turned up at right-angles, this part passing through an opening on the lower arm of the gag. It is secured by a ratchet or thumb-screw, as may be desired. As the gag is closed, the pressure made by the tongue plate is relieved, and as it is opened the tongue is thrown up out of the field of operation.

DISCUSSION.

DR. H. M. VANCE, Louisville, Ky.—I simply rise to indorse the use of this needle. I first knew of it as having been devised by M. F. Coomes of Kentucky, and used since 1882. It is the best staphylorrhaphy needle I know. As the Doctor described, the difficulty is in unthreading it. After introducing the needle with the suture through the flap, if you unthread it wrong, you have to go over your work. The question in my mind about staphylorrhaphy is whether we should do anything with hard-palate clefts; whether the dentist can not do better work where the cleft goes through the hard palate.

DR. A. J. OCHSNER, Chicago—The last speaker has brought out difficulties one encounters in operating on cleft hard palates. I would simply make a short statement about this, because I have operated on a large number—over thirty—of these hard-palate cases, and with results that can not be questioned.

The operation performed is the one described and recommended by Julius Wolff of Berlin; it consists in chiseling off the hard palate along the alveolar process on each side and leaving these flaps raw for a week or so, for the purpose of establishing good circulation. The secret of success consists in making the flaps so loose that it requires no tension to hold them in place. The depth to which you can carry your incision can be measured by passing the little finger beneath the palate. The point Dr. Porter of Harvard Medical College has suggested in the treatment of cleft palate is of great importance, and should be employed in all patients who are old enough. It consists in the use of a rubber plate made by a dentist and fitted far enough back that the tongue can not press against the newly-made palate. It is usually the pressure of the tongue which

tears out the stitches, if this occurs. The position used by the author was first described by Rose, about 1850, and should not have been mentioned as the "Murphy position."

There is one important observation about teaching the child to talk normally after this operation, which I made several years ago. A child 5 years of age, who talked only English before the operation, removed to Milwaukee directly after, where the German language was spoken, so that the child learned to speak German, and spoke German only for two years. She learned to speak it without any nasal twang, in fact, her speech was perfectly normal. She then moved to California and began to speak English again, and the English she learned after that was perfectly clear, while the English words she had learned before the operation continued to have the nasal twang. Therefore, I have since frequently made use of this plan: If there is a possibility of the child being taught a different language from the one learned before the operation, this is done; otherwise, the child receives instructions daily from some particular member of the family in the use of the various organs of speech. In this manner most excellent functional results have been obtained.

DR. J. B. BULLITT, Louisville, Ky.—The only one thing I have to say is concerning combining the mouth-gag with the tongue-depressor. I believe that, in practical work, it will be found by most gentlemen that it is not desirable to have this combination used in this way. The fact of the matter is, there is very little necessity for depressing the tongue, as the operation is on the roof of the mouth rather than on the floor, and the tongue comes very little in the way. The depression of the tongue caused by the tongue-depressor embarrasses the respiration of the child and tends to permit more fluid getting into the larynx than there is necessity for. By simply passing a strong ligature through the tongue, the tongue can be absolutely controlled, and the free use of sponges keeps the blood from reaching a high enough level to enable it to enter the glottis.

DR. B. M. RICKETTS, Cincinnati, Ohio—There is one thing here that has not been spoken of, and that is with reference to advancing the jaws. There was a paper written eight or nine years ago by Dr. Wyeth, in which he spoke of advancing the jaws. During November, 1885, I performed that operation at Portsmouth, Ohio, but had not reported it. That was in a case of complete cleft, in a girl 8 or 9 years of age. Of course, the operation spoken of here by Dr. Ochsner has its advantages, and so has the operation of advancing the jaws; but I think the dentist is better prepared and can do better work than any surgeon, where the clefts are of this nature.

DR. S. L. McCURDY, Pittsburg, Pa.—I just want to reply to Dr. Bullitt. He says that the tongue drops out of the way. This is quite true if you have the head erect, but in the position described, which, according to my notion, is the most perfect position, and blood does not interfere with the operation or pass into the stomach so as to interfere with respiration, the tongue is above and not below.

INFECTIVE SINUS THROMBOSIS.

DETERMINING FACTORS IN ITS SYMPTOMATOLOGY AND DIAGNOSIS.*

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In a casual survey of the contents of medical periodicals in general, and journals of otology in particular, the attention of the reader will be speedily attracted to the prominence allotted the literature of intracranial infective diseases, and careful perusal of such contributions will reveal a gratifying change in the subject-matter as now presented, in striking contrast with similar descriptions of a by no means remote otologic period. The time was, and that within the memory of the youngest of us, when the account was restricted to a brief and deplorably incomplete clinical history, with a doleful and verbose report of autopsy appended, the whole concluding with a mournful dissertation on the utter inadequacy of surgical methods for successful resistance against the inroads of a malady which, with the seeming co-operation of a malignant fate, defied and mocked at every resource of medical science.

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