AN OPERATION
FOR THE
CURE OF CLEFT OF THE HARD AND
SOFT PALATE.

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Received April 19th—Read April 24th, 1894.

For many years past I have been in the habit of operating in some cases of cleft palate by carrying a triangular flap cut from one side of the hard palate across the cleft, and attaching it to the other side. More than three years ago I published a description of my method in the 'British Medical Journal,' and I then stated that my operation was applicable (1) in infants, (2) in cases in which the ordinary operation had failed, and (3) in cases in which the cleft of the hard palate was too wide to be bridged over by the ordinary operation.

Last year it occurred to me to modify and extend my original operation; and the success which I have obtained in the six cases in which I have adopted my new method emboldens me to bring it before your Society, and to recommend it as applicable to all cases of cleft of the hard and soft palate.

The method is somewhat complicated, but I think that by the help of diagrams I can make my description of it generally intelligible. It may be divided into three stages.

First Stage : that of Incision and Separation of the Muco-periosteum.

The patient being under an anæsthetic, and the jaws held open by Smith's gag :

(a) An incision, *a b*, is made from before backwards, about an inch long, with its centre just internal to the last molar tooth. It should go down to the bone in front, and behind it should pierce the soft palate. Through this incision a raspatory is introduced, and the soft parts separated inwards from the posterior half of the hard palate, much as in the ordinary operation, but not to such an extent.

(b) An incision, *c d*, is carried on the same side from just in front of the cleft, and at a distance of about a quarter of an inch from its margin, backwards to the junction of the hard and soft palate. As it approaches the soft palate the incision should converge to the edge of the cleft, and it should be continued along the edge of the soft palate in such a way as to split that structure to the depth of about three eighths of an inch. For this purpose the knife should be lateralised, and as the knife approaches the uvula a forceps will be required to hold the uvula steady while it is being divided. At this part the incision must be not quite so deep, in order to avoid the complete division of the lateral half of the uvula. The soft palate near the cleft will now consist of two planes,—a lower one which is continuous with the band of muco-periosteum between the two incisions, *a b* and *c d*, and an upper one attached to the back of the hard palate. The muco-periosteum internal to the incision, *c d*, should be separated *inwards* from the bone until it is left attached by the soft tissue which covers the margin of the cleft of the hard palate.

(c) A large flap, *e f g*, of somewhat triangular shape, but with the front angle rounded, should be taken from the other side of the palate.

One side of the flap, *e f*, runs parallel to and a sixth of

an inch from the insertions of the teeth from the last molar to the median incisor; the other, *f g*, runs backwards at a distance of a sixth of an inch from the margin

FIG. 1.

Shading indicates, in hard palate, stripping up periosteum; in soft palate, splitting into two planes. The lower figure represents diagrammatically a transverse vertical section through the hard palate along the line *x y* in the upper figure.

of the cleft of the hard palate, and is continuous with a splitting of the soft palate similar to that upon the other side, and reaching as far back as the tip of the uvula. The muco-periosteum of the triangular flap should also be separated from the hard palate by means of the ras-

patory, and finally that which lies internal to fg should be separated inwards, until it is only attached to the margin of the cleft.

Second Stage : the Union of the Mesial Flaps and the Upper Planes of the Soft Palate.

By means of an ordinary palate needle, with the curve at the end in a plane at right angles to the stem, fine

FIG. 2.

The lower part of the diagram represents a transverse vertical section through the hard palate along the line xy , in the upper part of the diagram. The arrows indicate the direction in which the muco-periosteum of the margins of the cleft is reflected inwards.

sutures of silk or catgut are passed through the edges of the flaps internal to *c d* and *f g*, care being taken to turn the flaps inwards, so that their mucous covering looks upwards, and their raw surface downwards. Continuously with this union the edges of the upper plane of the soft palate on either side must be brought together in the same way. From four to six sutures are necessary for this stage. When it is completed the whole cleft of the hard and soft palate should be bridged over by a layer of muco-periosteum and soft palate tissue, with the raw surface looking downwards.

Third Stage : Union of the Triangular Flap and the Lower Planes of the Soft Palate.

With the same needle sutures of soft silver wire are now passed in the usual way, so as to draw over the margin *f g* of the triangular flap to the outer edge of the incision *c d* on the other side. At the same time the margins of the lower planes of the split soft palate are brought together in the same way. About six wire sutures are necessary, and two silk or horsehair sutures may be used for the approximation of the uvula and the adjacent parts of the soft palate. There will now be a second complete bridge across the cleft, but in this bridge the mucous surface will look downwards, while the raw surface will look upwards, and be in contact with the raw surface of the first bridge. The incision *a b* gapes widely, and may have to be increased in size, especially at the expense of the muscular tissue of the soft palate, in order to allow the edges to come together without tension.

The after treatment is similar to that which is usual after the ordinary operation. I have generally allowed an interval of at least three weeks, and sometimes as many as six weeks, before removing the sutures of the third stage, while those of the second stage have to be left to come away as they can, or to be absorbed.

There is so little tension, that if primary union should fail, secondary union would probably take its place. For a short time a raw surface is left in the opening made by

FIG. 3.

The lower part of the diagram represents a transverse vertical section through the hard palate along the line *x y* in the upper part of the diagram.

the gaping of the incision *a b*, and on the other side over the space previously covered by the triangular flap ; but these surfaces soon get covered with granulations, and give rise to no trouble or deformity.

The advantages I claim for this method of operation are—

1. No tissue has to be pared away.
2. A much larger extent of raw surface is brought into close contact than in the ordinary operation.
3. The tension, at any rate in the lower bridge uniting the sides of the hard palate, is much less.
4. Whereas in the ordinary operation the pressure of the tongue tends to tear apart the slender line of raw surface which has to unite, in this operation the pressure is beneficial, as it keeps the raw surfaces of the two bridges in close contact.
5. In cases in which only a part of the hard palate is cleft, some advantage is gained by using the muco-periosteum from one side of the undivided part of the hard palate to make good the deficiency in the posterior or divided part.

No special instruments are required for the operation, but I have found a metal ring at the end of a stem of considerable help in passing sutures. This ring is held at one side of the muco-periosteal flap, while the needle is thrust through from the other side. I have also occasionally used a double-edged scalpel, with the blade at an angle with the handle, for splitting the edge of the cleft soft palate.

The disadvantages which occur to me are—

(1) The operation takes about half as long again as the ordinary operation, because of the number of sutures to be inserted.

(2) In some of my earlier cases, in which I operated on the hard palate only, a small gap was left in the front of the bridge.

This, however, has not been the case lately ; and if it should occur, it could be easily remedied by carrying a triangular flap across from the other side in a subsequent operation.

It may perhaps be thought that there is danger of sloughing when so large a flap has been so freely detached. I have never known this to occur ; I suppose because

there is such a free supply of blood to the base of the flap from the posterior palatine artery. As yet I have not had the opportunity of operating upon an infant by this method; but I have had such good success in uniting the hard palate by my flap operation in infants as young as fourteen months, that I shall have great confidence in adopting my new method even at that early age.

In conclusion, I append a short account of the six cases upon which I have already operated in this way.

I think the success obtained will bear comparison with any which has followed a similar series of cases operated on by the ordinary method. At any rate, it is much greater than the success which I have ever obtained by any other method of operation.

Appendix to Paper describing a Mode of operating upon Cleft of the Hard and Soft Palate, by N. Davies-Colley.

CASE 1.—Samuel C—, æt. 21. Congenital cleft of the whole of the soft and half the hard palate. Operation under ether, May 19th, 1893.

On June 14th there was complete union, with the exception of a narrow gap, a quarter of an inch long, at the anterior extremity of the cleft.

CASE 2.—Hilda M. T—, æt. 6. Congenital cleft of all the soft and three quarters of the hard palate. Cleft in front half an inch wide, behind three quarters of an inch. Operation July 15th, 1893.

September 22nd.—Sutures removed, union good. The next day the child had scarlet fever.

December 1st, 1894.—Union complete with the exception of an opening one eighth of an inch in diameter at the junction of the hard and soft palate.

CASE 3.—Walter P—, æt. 20. Cleft of all the soft palate and a small part of the hard palate. Operation September 26th, 1893, under chloroform. All united except about half of the uvula, which remained bifid.

CASE 4.—Mostyn B—, æt. 8. Complete cleft of the hard and soft palate, but with the two portions of the alveolar process in apposition. Operation October 24th, 1893.

December 14th.—Good union, with the exception of the posterior half of the soft palate.

CASE 5.—Helen C. M—, æt. 9. Cleft of all the soft and half an inch of the hard palate. She had been operated upon by the ordinary method at another hospital three months before. The left side of the soft palate was shorter than the right, and the left half of the uvula somewhat small and contracted. Operation under chloroform January 10th, 1894.

February 26th.—Good union, with the exception that the left half of the uvula has disappeared. She can talk better.

CASE 6.—Henry H—, æt. 15. Double harelip with complete cleft of the hard and soft palate, the cleft extending forwards between the premaxillary bone and the alveolar process of the left maxilla. Operation under chloroform January 26th, 1894.

February 22nd.—All the sutures were removed. Union complete, with the exception of the alveolar process. The union extended forwards to half an inch behind the insertion of the left canine tooth.

28th.—The double harelip was successfully operated on. It is probable that the pressure of the upper lip will in time bring the premaxillary bone into proper relation with the alveolar process of the left maxilla, and so close the remainder of the cleft.

(For report of the discussion on this paper, see 'Proceedings of the Royal Medical and Chirurgical Society,' Third Series, vol. vi, p. 94.)