OBSERVATIONS ON HARE-LIP AND CLEFT PALATE.

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IT is now more than thirty years since I proposed the application of the practice of myotomy in the operation for cleft palate. Excepting in a few instances, objection has never been taken to the theory. There are instances where division of the levator palati muscles need not be resorted to, and union may with confidence be anticipated, but these are the exceptions; and doubtless it is owing to this preliminary step, that I can boast of a success well nigh equivalent to the usual result in hare-lip operations. Half-a-dozen instances of non-union are all that I can number in between two hundred and three hundred operations. The result contrasts favourably with that of Roux, who, as is recorded, was well content with success in two out of every three cases on which he operated—amounting to about one hundred and twenty operations in all. My theory, I maintain, is as sound as that in the operation for strabismus; yet I congratulate those who have succeeded without its application, and I freely admit that there are instances where the operation may, and does, succeed without this preliminary to the ordinary process. Since the above date, when I drew attention to the remarkable success of Dr. Mason Warren and some other American surgeons in this operation, particularly that of Warren, in dealing with cleft in the hard palate, I am not aware of any material modification in regard to the mechanical process of closing the cleft in the soft palate, but in cleft in the hard palate there have been many; and, in other matters respecting the operation, I know of no more interesting story than that of the gradual steps of improvement which have taken place, in regard to this operation, within my own experience of professional practice.

In early days, more than forty years ago, I believe it was the custom, in all cases, for the surgeon to sit or stand in front of the patient, with a light on the palate as favourable as could be secured. The strain on the surgeon's neck, back, and hands, was considerable; but, worst of all, he usually got his face so bespattered with blood that his features could scarcely be recognised. In the course of time, the operator gradually edged to the side, until, like the dentist, he came to do his work standing on the patient's right side, whereby he avoided the splutter incidental to such a spasmodic ordeal as the patient was of necessity subjected to. In my own practice, I soon preferred the recumbent position for the patient, whilst standing on his right hand. Every facility was given to sit up, spit, and gargle with cold water. The necessities for both these means of relief seemed urgent; more so, perhaps, in the operation which I myself practised—viz., the division of the levator palati muscles—a step which induced a more free escape of blood than simply paring the edges of the gap. Then came two inestimable advantages—introduced by Mr. Smith of St. Bartholomew's Hospital—the gag and chloroform.* The association of these two agents seems imperative; and, by their aid, Mr. Smith proved that the operations on the palate could be performed in childhood as readily as after puberty. With such adjuncts, I have myself operated at all ages, from one year up to adult life. Chloroform without the gag would be worse than useless; the gag, without chloroform, would, in my opinion, add to the sufferings and miseries of the patient. Until I recognised the advantages of the gag, I supposed that the operation under chloroform would be specially hazardous; but when I found that, with the use of the gag, the blood could be readily sponged away, and the proceedings otherwise much facilitated, I fancied that the operation had reached a stage of perfection which left little to be desired as regarded art and science. With good assistants, skilled in chloroform, the use of sponges, and otherwise, it seemed to me that little was left for the surgeon to devise in regard to this difficult and formerly painful proceeding.

I claim to be the first in this country to have drawn special attention to Dr. Mason Warren's method of dealing with fissure in the hard palate. The proposal of that surgeon to peel the soft tissue off the bone on each side of the fissure in the hard palate has been extensively acted upon with varied modifications, but with very indifferent success. For myself, I may say that I have tried perhaps every plan that has been suggested, but I have been sorely mortified with the results. Some cases, after one or more operations, have turned out admirably; but in a large number the result has been such as to have made me despair of

closing these openings by operative means. There are instances where such hopes should never be entertained, owing to the wideness of the gap and configuration of the parts; but there are probably as many as one half of the cases amenable to operation which have such slight deficiencies in the hard palate, that I have always acted on the idea that closure in the mesial line would or might be effected here as in the soft palate. Experience led me to give up the plan of Mason Warren of trying to close the gap in both soft and hard parts at the same time, even in instances where the defect in bone was but slight. For many years latterly I have ceased to meddle with the front part of the gap where the bones have been implicated, reserving the attempt for a subsequent operation; but, to facilitate the approximation of the margins of the soft palate, I have often followed the plan practised by Roux, of making transverse incisions, so as to divide the soft parts from the posterior margin of the osseous palate. Whilst I have had reason to feel satisfied with this step, I have in no way found my efforts to close the hole in the hard vault more successful. From time to time, on subsequent operations for the express purpose of closing such openings, I have been highly satisfied with Mason Warren's plan of separation—that of paring the soft tissue from the hard, by working from the margins outwards to the alveoli, sometimes, in addition, making the lateral incisions proposed by Mr. Field of Brighton, or by making these lateral incisions first, and separating the soft tissues towards the mesial line. In some instances, I have had good results from a sort of gliding process, facilitated by separating the front end of one of the flaps from its connections; but, altogether, the success of these operations has not been equal to my anticipations or desires. Since using chloroform, I have been solicited by patients, again and again, to try further operations, but the results have led me to give little encouragement to such proceedings. Latterly, however, a dawn has opened on my hazy views in this respect; and my chief object in putting these observations on cleft palate together is to draw attention to my latest experience on the subject.

My impression is, that the frequent failure in this latter kind of operation is induced by the contraction of granulations, whereby the lateral portions are so drawn towards their original position, that the union in the central line is either prevented or broken, and thus the gap remains when the side-flaps have resumed their original positions. An idea came into my mind years ago which, however, I thought so wild, that I could not dare to bring it into practice. Repeated failures, however, by usual methods, brought it more forcibly into my thoughts, and at last I resolved to put it into execution. My project was that, instead of making the separation between the soft tissue and bony palate, for a quarter of an inch or so, I should divide the palate, soft tissue, and bone, about a quarter of an inch from the margin of the gap on each side, cutting the soft tissue in the roof of the mouth with a scalpel, and the bone, with mucous membrane above in nostrils, with a chisel, by means of which I could push the margins towards the mesial line; so that, having been previously made raw by removing the mucous membrane, they might be brought into apposition and held so by stitches.

This project was carried into execution in King's College Hospital on November 22nd, 1873, in the following manner.

J. H., aged 18, had the soft palate closed two years ago; a small aperture remained in the hard, which had been twice operated on unsuccessfully by the ordinary proceeding. The patient was placed under the influence of chloroform, and the mouth held open by Wood's gag. The aperture was about this size (1); the edges were made bare by dissecting off the mucous membrane; then, by means (2) of a small scalpel, an incision was made on each side to this extent (2). The back part of these wounds penetrated the soft palate, and in front they were close to the bone. Then the point of a chisel, like this (3), was forcibly, but carefully, pushed upwards through the bone into the nostril through each wound, and, by slight lateral movements of the blade, each lateral portion could be readily made to meet the other in the mesial line, whereby the raw margins made at first could be placed in apposition. The parts were then held together by a single stitch introduced in the usual way, passing, on each side, through the soft tissue, so that it might remain steadily in one place. At the conclusion, the conditions seemed

(3)

much as after the operations formerly effected. Subsequently, granulations filled the lateral gaps as on previous occasions; but, when the stitch was removed, union in the centre seemed firm, and was not disturbed by any dragging power, such as I supposed had, in earlier operations, drawn the flaps upwards and outwards towards the bone. The

* An admirable paper on these adjuncts was written by Mr. Smith in 1869, and published in the 51st volume of the *Medico-Chirurgical Transactions*.

result was perfect, and I have heard nothing to the contrary since the patient left the hospital. On the same day, I repeated similar proceedings on a patient who had had a successful operation on the soft palate, but on whom I had been unable, after four different attempts to close a fissure in the hard. Here the opening was larger, being about this size (4). Similar steps were followed, and, to all appearance, during the first eight days, with similar results. Two stitches were employed, but, on removal, the edges, where one had been, seemed to fall asunder. Two days afterwards, a new

(4) stitch was put in, by means of an ordinary aneurism-needle, and the margins made raw by a gentle scrape. The hole was thus closed; and, on removal of the stitch, eight or ten days later, union was perfect. Since this patient left the house, a small separation has taken place, which has left an opening a little larger than the point of a probe. I have recently had made, by Matthews Brothers, a modification of a most ingenious needle suggested long ago by my friend Mr. Brooke of Westminster Hospital, for introducing stitches into the soft palate in operations on cleft in that part. The point of his needle was sharp; and I have often used it with much satisfaction. The point here, it will be observed by the figure (5), is blunt, like that of a common aneurism-needle. The dotted lines indicate the course of the point, as the projecting handle at the side of the shank is pressed.

Soon afterwards, a third case came under notice in private practice, wherein, after closing the soft palate, I had failed to succeed with the hard, by the ordinary proceeding. Here the opening was midway in size between the cases above related. The steps were much the same as in the first, excepting that I passed the threads through the lateral apertures without fixing it in the soft tissue. After the knots were tied, they never slipped from their position. These were left some days longer *in situ* than in the previous cases, and on removal, union in the mesial line was perfect. This union, I have recently heard, remains perfect.

A fourth case has recently come under my care at King's College Hospital. The gap here was larger than in the three preceding cases. It was an inch long, by more than a quarter of an inch wide. The lateral incisions were of proportionate length, and when the parts were brought together, a gap into each nostril was visible. Here three stitches were used, and, as in the case last related, they were passed through the side incisions, without piercing the soft tissue.

A fifth case is now under notice. Here the ordinary operation was performed on the soft palate in June 1873; and the front part, which involved a small portion of the hard palate, was left untouched, in the conviction that it would be better to leave it alone until a future date. The aperture left was at the end of the healing process, of this size. Here the scalpel and chisel were used as above described, and the parts were satisfactorily placed for union in the mesial line.

From the experience already obtained, as also from careful consideration of the subject, I feel justified in calling attention to this addition to what is already more or less familiarly known to those who have studied this complicated subject. At first thought, several strong seeming objections arise. It might be doubted if the osseous palate could be cut and moved in the way described. If an experiment were made on a roof of bone in the natural condition, it would be impossible; for, if the chisel were pushed through the bone a little on each side of the mesial line, it would be impossible to move the intervening portion towards the middle line, because the space is already filled up. This objection does not hold, however, in the malformation; for the space is not filled up, and the vacancy permits the osseous margins to be approximated. Then, division of bone on the two sides, and breaking the front part of each, seems so rude, rough, and destructive, that the idea arises that caries or necrosis might ensue. But in reality the process is, in my opinion, less hazardous than when the flaps of soft parts are dissected or forcibly pushed or drawn off the bone. Besides the fact that these parts do not always unite, one flap or both will occasionally slough, and so things are rendered worse than ever.

In favour of the proceeding about which I now write, I can state from experience that the loss of blood is much less; and on that account there is less trouble in mopping out the pharynx, and consequently less hazard in the use of chloroform; that the tissues on the

lower surface of the bones are not so much disturbed or divided as by the older process; that the periosteum and their tissues below are less disturbed than otherwise; and that, from all these circumstances, there seems less risk of sloughing of the semi-detached parts.

As to the healing of the lateral wounds, I am of opinion that the gap will invariably be closed, and that in the bond of union there will be a firm cicatrix of soft tissue, and possibly bone; that the vault of the mouth will be as firm as in a normal condition, and probably firmer than where a fortunate result has followed the process of Warren, Field, or Langenbeck.

These observations apply solely to instances where the surgeon, in a first operation, has not attempted to close the gap, or has failed in a design to secure union throughout. They will apply, however, with equal, even greater, effect to instances where heretofore, in my own experience, I have left the front part of the cleft untouched. I remember scores of instances of the kind, wherein I now feel confident the whole gap could have been closed by the process above described, with, as I imagine, as much success as attended the operation on the soft palate. In cases of defective hard palate, after the usual preliminaries, and having bared the edges of the gap in the front, in hard as well as in soft, I would now make the additional wounds with scalpel and chisel, as above recommended, thereby hoping to avoid a second operation by doing all at once, under the beneficial influence of chloroform.

Since the above was written, I have had an opportunity of putting these latter views into execution. A youth of eleven years of age, on whom I had operated soon after birth for wide hare-lip, was brought under my notice, with a fissure extending from the lip to the uvula. A year ago, I had advised delay of a proposed operation on the gap in the soft palate, which was very wide. Now, I thought I should venture to test the proposal in an unusually severe case. Under chloroform, the usual incisions for dividing the levator palati on each side were first made; then the edges of the gap were pared as far forwards as to within half an inch of the front; next the scalpel and chisel were used in the way described; and, finally, six stitches were introduced—two through the hard part, without piercing the tissue; and four through the soft parts, in the usual way.

This diagram (6) in part illustrates the proceeding. The little dot on

each margin shows where the soft palate and bone join, and the line at each side indicates where the scalpel was applied, and, it may be supposed, before the chisel was introduced to prise the parts towards the mid-line. Unfortunately, the first two stitches slid together, so that practically they acted only as a single one. The effect was, however, highly satisfactory. There was no tension in the front of the gap in the soft palate. The approximation of the bones took off all drag, such as is common under ordinary circumstances; and the result has been equal to my anticipations. The whole of the gap in the soft palate has united, and even a considerable part in the hard. With another operation in front—a repetition of this new process—I am convinced

that the gap may be closed up to the alveolar ridge. I have no doubt whatever that, in instances where there is only a slight fissure in the hard palate, the surgeon, by use of the chisel, will thus be enabled to close it, and that in the soft with a certainty hitherto very questionable.

In my anatomical knowledge of such malformations, there is one condition which I fancy might prevent these views being carried into effect. In the generality of severe cleft in the hard roof, the lower and back part of the vomer is incomplete; but in some cases the vomer is entire, although perhaps swayed to one side; and it remains attached by its lower margin to one side of the hard palate throughout. Here would be a difficulty which might puzzle; for, although the chisel might permit the approximation of the edges, it would be difficult to introduce stitches; but even here there would be a redeeming quality in the new process, for pushing the parts to the mid-line might lay them so together that, though union should not occur, they would lie so close that a fissure might elude ordinary observation. In one of the cases above recorded, I have found that entire union in the mid-line has really not taken place. The margins are, however, in such close approximation, that the want of union can be ascertained only by slipping the point of a probe through the suspicious-looking part.

With these remarks, I leave the subject for the present, under conviction that I have touched new ground in a most complicated field of anatomy and surgery, and in sincere hope that I have added to, if not completed, the power of surgery in such cases of malformation.