

2005-9
25-

THE

BOSTON MEDICAL AND SURGICAL JOURNAL.

NEW SERIES.]

THURSDAY, FEBRUARY 4, 1869.

[VOL. III.—No. 1.]

Original Communications.

CLEFT PALATE.

EXTRACT FROM A CLINICAL LECTURE DELIVERED AT
THE MASSACHUSETTS MEDICAL COLLEGE, HARVARD
UNIVERSITY, DEC. 21, 1868.

By HENRY J. BIGELOW, M.D., Professor of Surgery.

[Reported by HENRY H. A. BRACH, M.D.]

IN showing a plaster cast of a cleft palate recently operated upon, I would direct attention to a mechanical expedient for aiding union of the palate in the operation of staphylorrhaphy, first employed, so far as I know, in this case. Before doing so, it may be well briefly to review this deformity and the operation for its relief. The cleft may be median or lateral. It is either a continuation of a hare-lip, or exists independently. In the latter case it may involve both the hard and soft palate; or only the soft palate may be affected—and in cases very favorable for operation, to an inconsiderable degree. The result of this deformity is chiefly noticed in the nasal intonation of the voice, to correct which various expedients have been proposed. The name of the late Dr. J. Mason Warren is associated in this community with many of our earlier operations, and I think that to him is fairly due the original suggestion of freely liberating the soft palate by dissecting it from its upper attachments, before drawing together the margins thus liberated. This is perhaps the great improvement of the modern operation.

I am not aware that Dr. Warren described the anatomy of the parts thus detached. This was afterwards done by Mr., now Sir Wm. Fergusson, who, examining the cleft palate of a dead child, showed that this malformation involved a contraction of the levator palati, and sometimes other muscles. I do not know that this distinguished surgeon detached the flaps in a way which practically differed from that repeatedly accomplished by Dr. Warren, but having described anatomically the parts thus dissected, his name is associated with this feature of the modern

operation. The late Dr. Warren was impressed with the belief that a large majority if not all the subjects of this operation were materially improved, if not cured, of their nasal voice. A case of my own, fifteen or more years ago, led me to scrutinize this point more narrowly, and I was led to the conviction that although a patient occasionally shows a remarkable improvement in speech, the rule is the other way. Neither can improvement be always expected at once, but only after a lapse of sufficient time to allow the parts to become flexible. The case I have just alluded to was that of a young lady, in whom the nasal intonation was very marked, and in whom the only apparent deformity of the palate was a partial cleft of the uvula alone. The palate was ample, and to appearance well under muscular control, and yet this congenital deformity of a bifid uvula was associated with some imperfection in the mechanism of articulation, which months of efforts on her part, even after the fissure was closed by the operation, failed to overcome. This case established the fact that something is wanting for perfect articulation beyond a palate of normal size and appearance; and that although the lateral flaps of a cleft in the soft palate may be attached to each other, often with a result beautiful in appearance, it does not therefore follow that the nervous and muscular action will be perfectly restored. In the case of a wide fissure extending well forward through the bone, the parts are actually insufficient to restore the palate, and then the usual result of the common operation is a band of greater or less width tightly stretched by cicatricial contraction across the palate, bounded behind by a naso-pharyngeal chasm which it is insufficient to close, and in front by a fissure in the bone which still remains. It is difficult to say that the phonation of such patients is not improved a little; they are, indeed, generally inclined to flatter themselves with this belief after an obturator has been adjusted to the bony opening. A patient with palatine fissure, in articulating the words *bad man*, says *man man*, vainly trying to say *man*. [WHOLE No. 2136.]

VOL. III.—No. 1

ing by facial distortion to occlude the anterior nares; while a patient with nares occluded by a tumor, or a cold in the head, says *bad bad*, or *beautiful bood*, as in the familiar poetry of *Punch*. Between the nasals *m*, *n*, and *ng*, on the one hand, and the labials *p*, *b*, the linguals *t*, *d*, and the gutturals (improperly so called) *k* and *g* hard, made with the the occluded nares, on the other hand, there is a wide difference; and perfect articulation requires the machinery for enunciating, at will, both sets of consonants. This the healthy palate supplies in opening and hermetically closing the posterior nares. Yet there are persons with sound palates who habitually talk through the nose, as the conventional Yankee is said to do. Such persons do not make efficient use of their levator palati and superior constrictor of the pharynx. While we may hope to approximate our patients to the normal condition of such persons, it should be remembered that a very small communication with the nasal fossæ may materially modify the intonation. The nasal quack of the duck, for example, is produced by the reverberation of a comparatively small elastic cavity; and a hole in the human palate a quarter of an inch or even less in diameter, may produce the same result. It cannot be denied, however, that a very marked improvement now and then results from this operation, especially in a favorable case; and in view of this possibility it is certain that patients will continue to demand it at the hands of the surgeon.

The expedient to facilitate union, before alluded to, consists in the employment of a temporary artificial palate, in this instance of hard rubber, to protect the parts during cicatrization. Its use was suggested to me by Dr. Beach as a means of shielding the tongue from metallic sutures, and thereby enabling the surgeon to employ them conveniently during this operation. It also occurred to me that this arrangement would protect the palate from the peristaltic action of the tongue in swallowing, and other involuntary movements which endanger union. It is pretty well established that the success of the modern operation for vesico-vaginal fistula mainly depends upon the use of metallic sutures planted close together, so as to insure close contact of the wound, with an irritation so inconsiderable that they can be left in place from one to two weeks. Similar advantage ought to accrue from their use in the palate. The hard rubber palate here shown was made by Dr. Sheppard, Adjunct Professor in the

Dental School of this University, and fitted so as to cover the whole region occupied by the palate after the operation. It conforms with the arch of the normal palate, leaving an interval of about a quarter of an inch between it and the mucous membrane. Behind, it bends down just far enough not to incommode the tongue, while in front it was in this case keyed in the interstice of the incisors left by the former hare-lip, and laterally attached by a string to a tooth on each side. The whole is made as accurately as if it were a plate for false teeth. A hole near the front admits the nose of a small syringe, by which the interval between the plate and palate was syringed with warm water twice daily. In this case, I cannot doubt that this contrivance was of service. The fissure was wide, reaching forward to the incisors. The flaps were detached well forward from the bone, and seven fine silver stitches were inserted. The plate was not removed for the examination of the parts until the eighth day, when every stitch was found in place and was removed, the union being perfect. During the succeeding week the contracting cicatrices at the margin of the wide fissure of the bony palate drew apart a quarter of an inch of the anterior extremity of the wound, which is less than usual in these cases. The width of the remaining band was about one inch and a quarter, which, considering the size of the palate, is more than we could have expected. I cannot but think that whatever be the operation upon the palate, a more perfect union will be secured by silver sutures thus protected than by the ordinary method.

It remains to notice some of the expedients which have been of late years adopted in connection with this operation. One of the most valuable of these is the so-called "gag" of Mr. T. Smith, of London, a steel instrument by which the jaws are admirably kept open, and the tongue at the same time depressed, so that the parts are fully exposed, and the operation can be performed with great facility under ether, even in young subjects. This one, imported by Dr. Hodges, has been fully tested in the operations of staphylorrhaphy, excision of tonsils, &c., with ether, during the past few months at the Massachusetts General Hospital, and the operation above alluded to was done with its assistance.

Much attention has been directed to the different methods of closing the openings behind and in front of the transverse band of varying width which results from the union of the soft palate in large fissures. This

has been usually effected with an obturator. I have not met with as good results as many writers claim to have obtained, by an operation which consists in simply detaching the soft tissue from the bony margins of the anterior fissure. Of this tissue Langenbeck says that it is "more fragile and more adherent to the periosteum as we approach the gums; in fact, you can only borrow auto-plastic flaps with a chance of success from the posterior part of the mucous membrane, the thickest and least adherent, especially that which covers the horizontal plates of the palatine bones." But there can be little doubt that by detaching this flap we secure a union of the soft palate to a point a little further forward than might otherwise be possible, and so facilitate the subsequent use of an obturator. A later operation, usually attributed to Langenbeck, is said to be much more effectual in closing the anterior fissure. It consists in denuding the whole horizontal bony palate, and uniting the soft tissue thus detached upon the median line. A good idea of this operation may be obtained by supposing two large lateral flaps to be thus formed, from the whole soft and hard palate combined. The tissue is best detached from the bony palate by square or spade-pointed blades inclined to their handles, by which the tough tissue is cleanly dug or hoed from the bone. After starting it, blunt instruments work best. Such flaps are still insufficient, anteriorly, and a lateral incision is therefore made on each side, close to the alveolar processes from the second incisor nearly to the last molar. These incisions stop in front, at the incisors, and behind near the hamular processes, in both cases before reaching the bony canals of the arteries. Thus the arteries of the flaps are preserved, before and behind, and the flaps are wholly detached from the horizontal bone, except at these three points; the anterior attachment being a pedicle. These incisions are usually made first, and the process of detaching the soft parts is there begun and continued inward toward the median line. When the fissure is wide, and one or both sides of the bony palate vertical, the lateral incisions may not be needed. The anterior fissure thus occluded by obturator or membrane, can have no immediate influence in bad cases upon the pharyngeal opening; although it is quite probable that after a lapse of time the flexible membrane will insure a more flexible soft palate and a better phonation than an unyielding obturator.

M. Passavant, of Frankfort, in a paper

on the means of obviating the nasal intonation in congenital fissures of the bony and membranous palate, &c. (*Arch. Gén. de Méd.*, 1865), after alluding to the inefficiency of present operations to attain this result in a majority of cases, cites a case of much improvement after an operation in which the posterior border of the soft palate was attached to the pharynx behind it, the surfaces being first denuded and then placed firmly in contact by means of sutures. This result, however, was only attained at the expense of a transverse incision of the soft palate, by the gaping of which the palate was brought into contact with the pharynx. I ought here to add that, within a few months, I have attempted this operation in one instance without liberating the soft palate by a transverse incision, and that in this instance the pharyngeal border failed to unite. But it seems not improbable that these and other comparatively recent investigations will lead to some operation to be performed under ether (with the invaluable aid of the dilator above mentioned), which may so far occlude the nasal cavity or shut it off from that of the mouth by a flexible septum, as to insure in bad cases an improvement of the voice, which now only occasionally results from the operation in such cases. It is probable that the hard and soft rubber palate, alleged to afford relief in these cases without operation, would be even more efficient as the results of surgical interference become more complete.

It remains only to describe the common operation. If ether is not to be used, the patient should educate the soft palate to insensibility for a few days by frequently tickling it with a feather. The best way to hold the soft palate for dissection is with double hooks terminating in firm single points, meeting and crossing a little. A single puncture is thus made. Forceps slip, tear and bruise the parts. I divide the muscles until the flaps are free, with scissors doubly curved, on the edge and flat, one for each side, passing the finger occasionally behind the flap, to find what is most tense and unyielding. The edges are now to be pared; this incision bleeds less, and is therefore perhaps best done first. The whole thickness of the edges of the palate should be denuded, and if there be doubt upon this point, owing to the discoloration of the parts, the detached sliver may be floated in water to see if it is of uniform width. Further dissection may be made before or behind at discretion, and the parts brought together by common

small curved needles threaded with silk or wire; then each suture, to facilitate finding it again, has its ends united, and each is drawn in succession through the fissures of a plate of cork, cut like a comb and held on the forehead of the patient. The best needle-holder should have jaws not a quarter of an inch wide, that they may not straighten a curved needle, and not extending half an inch beyond the pivot, that the long handles may secure a firm grip of the needle. The best needles are the smaller sizes of glovers' needle, curved with different bends, the temper being then partially restored and their convex surface flattened by grinding or honing, to prevent them from turning in the forceps. The silk sutures are now tied with common knots; or the wires with a half knot and then a twist, and are to be left in place until union, or as long as they are of any service.

AN IMPROVISED FRACTURE BED.

By ALBERT SMITH, M.D., Peterborough, N. H.

THE following suggestions, which are only the application of a well-known principle, seem to me to embody an important improvement in the treatment of fractures of the lower limbs, or indeed of any bed-cases. The apparatus is so cheap and easy of construction, as to be within the means of any one; and may be improvised at once, under almost any circumstances in which a patient may be placed. I herewith send you the plan proposed and the mode of using it.

I was called in consultation with Dr. W. D. Chase, of this town, to Mr. Miles Robinson, of Bennington, who had fractured his thigh near the trochanter major, by a fall from his haymow. After the bed had been prepared and the fracture adjusted, and extension applied by a weight over a pulley, I suggested that an apparatus should be constructed for the purpose of raising him from the bed, without injury to the fracture. Those who have the means can procure appliances of this kind, such as Dr. Josiah Crosby's fracture bed, or Dr. W. D. Buck's modification, or others; but the patient was poor, and must have gone without them, unless some cheaper arrangement could have been suggested.

We adopted the following plan:—We directed a frame to be made of the length of the bed and about three feet wide, composed of four pieces of plank, say 3x2 inches in thickness, if of soft wood, secured at the corners, by a mortise or a bolt. Across this frame, from one side to the other, bands of

some strong material, which might be webbing, or bed-ticking, or any other strong cloth, about six inches wide, were carried under the body of the patient, but over the sheet on which he lay, and were fastened securely to the frame on each side, the bands being arranged about six or eight inches apart. This apparatus might remain in its place without any inconvenience, when not used. In order to raise it with the patient on it, a staple was driven into the ceiling over the centre of the bed; a small tackle was hooked upon the staple, and a cord from each corner of the frame was attached to the lower block of the tackle. Assisted by the rope of this tackle the patient can now, with little effort, raise himself as often as may be necessary or desirable.

In this case, the patient had been suffering for years with a painful sciatica of the thigh that was broken, and seemed a most unpromising subject for such a grave injury. But with this apparatus, he is quite free from pain, and seems to be doing as well as any one could at his age (66), it being now nearly four weeks since the accident occurred. In the meanwhile, extension has been kept up without any inconvenience or pain, and there is every prospect of a useful limb, with very little shortening.

This is the second case in which I have used this apparatus with complete success. In the former case, a compound fracture of the tibia, with extensive lacerations of the soft parts, the patient had lain more than forty days on his back, with much suffering and uneasiness. The application of this apparatus surprised and delighted him with the great comfort it afforded, and the ease with which it was used. It was a complete relief to his restlessness; it quieted and soothed him, it gave an opportunity to ventilate and make up his bed as often as desired, it answered all purposes of defecation, and prevented anything like bed-sores, so likely to occur when a patient is long confined to one position.

This may seem a small improvement to suggest to the profession, but it is by such as these that the way is opened to greater and more valuable discoveries. My experience with the mode here suggested has been so successful, that I could not withhold it, however trifling its importance may seem. I hope it will be tried, since the apparatus can be made at so little expense, can be improvised at once, under any circumstances, and is as useful and comfortable as a more expensive apparatus.