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FISSURE

OF THE

SOFT AND HARD PALATE.

(PALATOPLASTIE.)

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From the New England Quarterly Journal of Medicine and Surgery.

BOSTON:
D. CLAPP, JR., PRINTER, 184 WASHINGTON STREET.
1843.

OPERATIONS FOR FISSURE OF THE PALATE.

According to Malgaigne, the congenital fissures of the palate present themselves under three different forms. 1st. *In the simple state*, that is, where the soft palate is divided in the median line, without any loss of substance, and without any division of the palatine vault; under these circumstances, at the moment of deglutition, the two separated portions may be seen to come almost into perfect contact, by a muscular action which it is not very easy to explain. Sometimes the division is confined to only a part of the soft palate, this always being the most inferior portion. 2d. *With a partial division of the hard palate*, whether the ossa palati are alone divided, or where it extends in part into the maxillary bones; in both these cases there is a simple fissure, terminated by an angle in front. 3d. *With a complete division of the bony palate.* In this case there is a greater or less separation of the two halves of the palatine vault, and almost always a double fissure of the lip, and of the alveolar processes.*

Having thus offered a description of the different forms under which the fissures of the palate may present themselves, we proceed to take a slight sketch of the operations which have been proposed for their relief. In 1828 M. Roux performed the operation of staphaloraphy, or suture of the soft palate, on a young medical student; the operation was followed by complete success, and by the restoration of voice to the patient. Roux was soon succeeded by Graeffe, of Germany, who has since contested the priority of the invention with the former surgeon, and by Dr. Warren, of Boston, who not having seen the method of Roux described, made use of instruments of his own invention. This most valuable discovery at once took a

* Malgaigne Med. Op.

high rank in surgery, as being one of the most delicate to perform, and the most gratifying when successful of any of the operations in which life is not concerned, that the surgeon is called upon to practise. Thus far, however, the operation was alone limited to remedying fissures of the soft palate, rejecting by far the most numerous class of cases of this malformation, viz., those in which the jaws and hard palate are implicated. The following method, however, had been suggested by Roux, and more recently has been carried into practice by him, for operating on the soft palate where the above-named complications existed; this was to cut away the soft parts for the space of an inch on either side, from the arch of the palatine bones, stretch them across the fissure, and unite them by sutures, leaving the apertures which remained in the bones, in case union of the soft parts took place, to be covered by a metallic plate. It was in performing this operation that I was led to see the futility of attempting it excepting where the palatine bones were slightly separated, and which suggested to me certain modifications which I have since been fortunate enough to put into successful practice. This method which I propose to describe, if it does not always succeed in completely closing the fissures of both the soft and hard palate, more frequently results in the closure of the former, than the one recommended by Roux, and in some cases entirely obliterates the whole extent of the aperture both in the bones and soft parts.

The form of operation which I have practised will be best illustrated by the relation of the first case in which it was put into execution.

The patient was a young man, 25 years old, with a congenital fissure of the soft and hard palate, the bones being separated quite up to the alveolar processes, with a deviation to the left side. On looking into the mouth, the whole posterior fauces were exposed, with the openings of the eustachian tubes and the bottom of the nasal cavity of the left side distinctly visible. The speech of the patient was rendered so indistinct, by this misfortune, that it was with the greatest difficulty that he could make himself understood. Deglutition had always been imperfectly performed, liquids, particularly, being swallowed with much difficulty, and often regurgitated through the nose. At the first glance the soft parts were scarcely perceptible, being almost concealed in the sides of the throat from the action of the muscles. On being seized by a forceps they could be partially drawn out, though with great resistance. So far as any of the old methods were applicable to the relief of this extensive fissure,

the patient was beyond surgical aid. I determined, however, to put in practice the operation which had before appeared to me practicable.

The patient was placed in a strong light, his mouth widely opened, and the head well supported by an assistant; with a long, double-edged knife, curved on its flat side, I now carefully dissected up the membrane covering the hard palate, pursuing the dissection quite back to the root of the alveolar processes. By this process, which was not effected without considerable difficulty, the membrane seemed gradually to unfold itself, and could be easily drawn across the very wide fissure. A narrow slip was now removed from the edges of the soft palate, and with it the two halves of the uvula. By this means a continuous flap was obtained, beginning at the roots of the teeth and extending backwards to the edges of the velum palati. Finally, six sutures were introduced, on tying of which the whole fissure was obliterated. The patient was directed to maintain the most perfect quiet, and to abstain from making the slightest efforts to swallow even the mucus which collected in the throat, which was to be carefully sponged out as occasion required.

The following day he was doing well. He complained of some pain, or rather a sensation of excessive emptiness of the bowels, which was relieved by the use of a hot spirituous fomentation. On the third day, a slight hacking cough commenced, owing to the collection of thick ropy mucus in the throat and air-passages. The cough was temporarily relieved by an injection of a pint of oat-meal gruel into the rectum; during the night, however, it again increased so much as to tear away the upper and lower ligatures. I now allowed him to take liquid nourishment, which at once quieted the irritation in the throat. The other four ligatures were removed on the following days, the last being left until the 6th after the operation. This patient returned home into the country at the end of three weeks, a firm fleshy palate being formed behind, and half the fissure in the bony palate obliterated.

In the following spring I again operated on the remaining fissure in the hard palate, and succeeded in closing about half the extent of it, the tissues yielding with some difficulty, owing to the inflammation caused by the former operation. The small aperture which remained I directed to be closed by a gold plate. His speech was very much improved at once as well as the powers of deglutition,

and he will, no doubt, ultimately, as the soft parts become more flexible, to a great degree recover the natural intonations of the voice.

Since performing this operation, I have had occasion to repeat it in thirteen different cases, which with one exception have terminated successfully, either in the closure of the whole fissure, or of both hard and soft palate, or so far that the aperture which remained in the bones could be easily closed by an obturator fitted to the adjoining teeth. Some of these cases have been exceedingly interesting.

In one case, a female, 35 years old, the fissure implicated not only the soft and hard palate, but also was complicated with a hare lip and division through the alveolar processes, the teeth being separated for the space of an inch. In this patient the fissure in the mouth was first operated on. The side of the nose, which was stretched across the fissure and consequently much flattened, was then carefully dissected up, together with the lip which supported it, from its attachment to the jaw, drawn across the opening and confined by pins and sutures. I was assisted in this operation, which was a very tedious one, the deformity being the most serious that had ever come under my notice, by Drs. Warren, Cabot, Roby and Keep. The patient was directed to keep quiet in bed, and to have an injection of gruel every four hours. The operation was performed on the 23d of June, 1841. On the 28th the pins were removed from the lip, which had united by the first intention; two of the sutures of the throat were also cut away. Some faintness arising from exhaustion, and from placing her in the upright posture, she was allowed to take liquid nourishment. On the 20th the other sutures were removed, a perfect union having taken place throughout. She returned home well on the 1st of July, seven days from the time of the operation. The improvement in her speech and appearance can only be appreciated by those who saw the patient. Previous to returning home, it was found necessary to remove one of the incisor teeth, which projected so far forward as to press upon and cause a deep ulceration of the adjacent soft parts.

The last case to which we shall allude, was operated on in the month of December, 1842. The patient was a young man, 20 years old, from Cambridge, whose prospects in life were materially affected by the malformation under which he labored, a division of the hard and soft palates, the bony separation being about three quarters of an inch. His speech was very imperfect; the deglutition not much affected. I was assisted in the operation by Dr. Hayward, Jr.,

Dr. Wellington, of Cambridge, and Mr. Townsend. The cutting part was done as in the preceding case, followed by the introduction of sutures. The threads were all removed in 48 hours, the adhesion being perfect. A small aperture afterwards appeared at the upper angle of the fissure, from a slough where the threads had been too tightly drawn; by touching this with the nitrate of silver, it was obliterated in a fortnight, and his speech almost completely restored. He was seen by a number of medical gentlemen before leaving town. In this case the improvement of speech was at once more marked than in any previous case; as a reasonable amount of time must necessarily be supposed to elapse even in the most simple fissures, before the soft parts, stretched almost to the tightness of a drum-head, can be expected to regain their natural and healthy movements.

I shall now proceed to make some remarks on various interesting circumstances which have been presented, both in the forms of this affection, and in the method of operation.

1st. As regards the fissure itself. In all patients which have thus far come under my notice, the direction of the fissure has been towards the left side of the jaw; and with infants on whom I have been called to perform the operation of hare lip complicated with the above malformation, the jaw has been invariably divided to the left side of the median line. I have observed also, in simple hare lip, that the preference is to the left side of the face, and to this I have seen but a single exception. It will be generally found in those cases where the fissure of the maxillary bones is complete, that the bones forming the roof of the mouth are forced upwards, as it were, the palatine process of the superior maxillary bone of the right side being continuous with the vomer. This circumstance much increases the difficulty of the operation in this region, making the mucous membrane less accessible, which when detached and dragged into the horizontal line of course loses its support from the bones behind, at least this will be the case where the obliquity of the bones is considerable.

It would naturally be supposed, that from the want of protection to the mucous membrane lining the nostrils and posterior fauces, and the immediate contact of air and of foreign substances, the patient would be more liable to inflammatory affections of these parts; this, however, on inquiry, was not found to be the case, none of them being more than ordinarily liable to catarrhal attacks.

Operation.—The following is the method I have usually adopted. The patient is placed on a low seat, in a strong light, his head firmly supported on the breast of an assistant, who raises or depresses it as circumstances may require. He is directed to keep the jaws widely separated, to retain any blood which may collect as long as possible, so as not to embarrass the operator, and restrain all efforts at coughing. To do this will require constant warnings and encouragement on the part of the surgeon, as there is a natural tendency to close the mouth as soon as any pain is felt, or there arises any collection of blood or mucus in the fauces which interferes with respiration. The use of a speculum, as directed by some operators, is altogether inadmissible; it not only obscures the light, but also prevents the proper manœuvres of the instruments. The mucous membrane of the hard palate is now to be carefully separated from the bones with a long, double-edged bistoury, curved on its flat side, and is rather pealed than dissected off, from the difficulty of making any sawing motion with the knife in this confined situation, the obstacles always being greater in proportion to the obliquity of the palatine vault. As the dissection approaches to the connection of the soft parts with the edges of the ossa palati, where the muscles are attached and the union most intimate, great care must be taken or the mucous membrane will be perforated, and from these causes I have found this part of the operation to be the most embarrassing. As soon as this dissection is terminated, it will generally be found that by seizing the soft palate with a forceps it can be easily brought to the median line. If the fissure is wide, and this cannot be effected, I have found the following course to be invariably followed by success. The soft parts being forcibly stretched, a pair of long, powerful French scissors, curved on the flat side, are carried behind the anterior pillars of the palate; its attachments to the tonsil and to the posterior pillar are now to be carefully cut away, on which the anterior soft parts will at once be found to expand, and an ample flap be provided for all desirable purposes.

The edges of the palate may now be made into a raw surface by seizing them on either side with a hooked forceps and removing a slip with the scissors or a sharp-pointed bistoury. Our next object is to insert the ligatures, and for this purpose an immense armory of instruments have been invented. After the trial of nearly all of them I have found the most simple to be the most effectual. A small curved needle being armed with a strong silk thread, confined in a

forceps with a movable slide, is introduced to the upper edge of the fissure, the needle being carried from before backwards on the left side, and from behind forwards on the right, or vice versa. In this manner, three, four or more ligatures may be successively introduced. The patient is now requested to clear his throat of mucus and blood, the ligatures are wiped dry and waxed, and tied with deliberation, beginning at the upper and proceeding gradually downwards, waiting a little between each ligature, in order to allow the throat to accommodate itself to this sudden and almost insupportable tension of the soft parts. No forceps are required for holding the first knot while the second is tied ; the object is better effected by using the surgeon's knot, that is, by making two turns of the thread instead of one, and by enjoining perfect quiet on the patient for the moment, until the second knot is tied. It has been advised by some surgeons to wait a certain length of time, after the cutting part of the operation, before inserting the ligatures, five or six hours for instance, to allow all bleeding from the wound to cease. This appears to me a useless prolonging of the patient's suffering, and entirely unnecessary. I have never seen, in a single instance, either in the operations of surgeons abroad or in my own experience, any hemorrhage, that a little iced water, or the pressure for a short period with the finger, would not easily arrest. The after treatment will not here require any notice, as it has been sufficiently noted in the previous detail of the cases.

In all the operations of this kind which I have lately had occasion to perform, the ligatures have been removed at the end of 48 hours, or at the farthest three days, and to this circumstance may be partly attributed the successful termination. If the threads be allowed to remain until the 4th, 5th, or 6th day, as recommended and practised by Roux, the apertures left by them will be of such magnitude as almost to approach each other, and to weaken the parts so as to cause a separation on any untoward motion of the patient.

In the Gazette Medicale for August, 1842, a resumé has been given of the cases operated on by Roux, and the average success declared to be as follows. Of simple fissure of the palate, a success of two out of three. When complicated with fissure in the hard palate, one only out of three succeeds. In this latter class of cases Roux still continues the practice of cutting away the soft palate transversely from the palatine bones, and stretching the flaps across the chasm, always leaving in this way, as will at once be perceived,

an aperture in the bones to be artificially covered. The operation also must frequently fail from the want of a free vascular connection between the flap and the surrounding textures.

By the method which has been proposed above, it has been already stated, that rejecting the first operation, in which the course directed by Roux was adopted, 13 out of 14 were followed by success, and the case which terminated unfortunately may perhaps be of sufficient interest to be related. I stated to this patient, before the operation, the possibility of a failure, owing to the great deficiency of soft parts. Notwithstanding the extreme tension after the operation, a union took place, and the flaps held together until the 7th day, when the adhesions were gradually destroyed; the inflammation of the throat during this time being great, and the sufferings of the patient from the sense of dragging at the sides of the throat and under the ears extreme. The patient, who supported this trying and protracted operation with the most manly fortitude, was partially repaid for his disappointment by a subsequent successful operation on the lip, where the teeth were exposed, and the mouth and nose communicated, from an operation which terminated unfortunately, having been performed when an infant.

In addition to these remarks on the treatment of congenital fissure of the hard and soft palate in the adult, it may not be amiss to consider what is the best plan to be pursued when we are called upon to advise upon the affection at the time of birth. At this early period, nothing of course can be done in the way of a surgical operation on the palate; much, however, may be effected by a judicious plan of treatment, to reduce and even close the aperture in the bones, and reduce the fissure of the soft palate to a simple state, and thus give the patient a better chance for recovering his voice as he advances in life. Our object may be effected in two ways: 1st, by the early operation of the hare lip, with which the fissure of the bones is generally complicated; 2d, by the use of mechanical means.

For some years I have been accustomed, even in cases of simple hare lip, to recommend the operation to be done earlier than is usually laid down by surgical writers, and lately, since the attention of the profession has been called to the subject by the excellent paper of Dr. Peirson, of Salem, have performed it as soon after birth as possible. The advantages of this early operation will be at once seen—the pins may be removed in 48 hours, and the child is able to nurse as soon as the mother is ready to receive it at the

breast. If the palate is fissured the advantages are doubled, and it is surprising with what rapidity the edges of the bones are approximated when muscular action of the lips is brought to bear on them. It is also a question to determine whether the teeth would ever approximate if the hare lip was allowed to remain. In the case already stated above, in a patient 35 years old, the fissure had rather increased than diminished by time.

I shall terminate this paper by giving two cases in point. On the 15th Sept., 1841, I was requested by my friend, Dr. Shattuck, Jr., to see a child who had been born a day or two before with a hare lip and extensive fissure of the maxillary bone and palate. I advised an immediate operation, but in accordance with the wishes of the parents it was deferred for a week. The lip and the alæ nasi were extensively dissected from their adhesions on both sides the fissure, and being drawn together were confined by two pins. The prostomion was then accurately adjusted by a suture made on the inside of the mouth with a fine cambric needle. These were all removed by the third day. The mother was now directed to make a pressure on the maxillary bone with the thumb and forefinger when the child was lying asleep in her lap, and to have a spring made with pads at each extremity, somewhat similar to a double truss, which was to be kept on a part of every day, and by the lateral pressure on the jaw assist in obliterating the fissure. This has been done with so much effect, that at the present time nearly half of the aperture is destroyed, and the bones at some parts are nearly in contact.

I have lately operated on an infant, directed to me by Dr. Bowditch, with the same deformity as that just related.

The child was 48 hours old, and the operation immediately performed. The sutures were removed in two days, and the child placed to the breast a few days after. It is hoped that by pursuing the same plan as in the last case, the result will be as satisfactory.

In the foregoing remarks, I have omitted to allude, from want of space, to the various improvements in the way of instruments, &c., which have been added to the operation of staphaloraphy. A number of valuable papers have been written on the subject by surgeons of this country—by Drs. Warren, Hosack, Bush, and lately a very interesting communication from Dr. Mutter, of Philadelphia, who has described an ingenious operation of his own for closing apertures existing in the bony palate.

March, 1843.