CASE
OF
MALIGNANT DISEASE
OCCUPYING ONE HALF OF
THE TONGUE,
IN WHICH
A LIGATURE WAS APPLIED FROM BENEATH THE JAW.
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WHEN malignant disease has attacked the tongue, and the situation of the part affected has permitted it, this has sometimes been removed by excision—sometimes by the employment of the ligature. The latter method has usually been preferred when the extent of disease has been at all considerable; and by means of the ligature applied in the ordinary way through the *mouth*, the whole of the anterior or moveable portion of the organ may be removed. But when the morbid affection has extended further back, and encroached upon the basis of the organ, this mode is no longer available; and, under such circumstances, the disease has generally been regarded as incurable, and the patient left to his fate.

Yet, by a different manner of proceeding, some cases of this description are still within the reach of surgery, and therefore some account of this, as exhibited in the following instance, may not be devoid of interest to the Fellows of the Society.

Hannah Hayward, fifteen years of age, was admitted into the Middlesex Hospital on the 8th of May 1838: the right half of the tongue was occupied by a tumour which projected from its upper and under surface, extended from nearly half an inch of the apex to the isthmus faucium, protruded at the edge between the teeth, and in the mesial aspect overstepped this line, and by compression had considerably reduced the width of the left or sound half of the organ. The bulk and form, generally, of the swelling, were those of a pullet's egg, but with irregular outline. The prevailing colour was purple; in parts, however, yellowish grey, apparently from effusion of lymph underneath the cuticular covering. Posteriorly, the upper surface was covered by warty excrescences: anteriorly, it presented a vesicular appearance, from serous effusion into the papillary structure. The substance of the tumour was firm, solid, and unyielding to compression. Soreness of the part was complained of, and pain was felt in the ear. Trifling bleeding had occasionally taken place from the part, and was readily excited by rough handling, but soon ceased. There was no enlargement of the neighbouring lymphatic glands, and the patient looked well. She had never menstruated.

From the statement of the girl's mother, and her own, it appeared that nine years ago, a blue swelling, the size of the tip of the finger, was first observed on the upper surface of the tongue; that this remained stationary until six weeks previously, when, while she was under the influence of some pills which she had taken for fits, with which she had been attacked, the tumour rapidly increased, and had continued to do so. There was *now* no evidence of her having been affected by mercury.

After clearing the bowels, the iodide of potassium was exhibited internally for above a fortnight, but without benefit; subsequently, the extract of hyoscyamus, as recommended by the late Mr. Earle in some cases of tumour of the tongue, but with no better result. Locally soothing the parts and keeping them quiet were first tried; afterwards, astringent lotions and the solid nitrate of silver. This latter application so greatly relieved the soreness, that the patient repeatedly requested its renewal; but it had no effect upon the size of the swelling. The potassæ hydras was used twice, but it excited bleeding and irritation.

The disease then did not seem to admit of relief by medicine, from which indeed little had been expected; and, in the mean time, I had considered and decided on the operation I should adopt. The size of the swelling had now materially increased, filling the concavity of the palate, and the sublingual space; it measured $2\frac{1}{2}$ inches in length, — $1\frac{1}{4}$ in breadth, — and $1\frac{1}{2}$ in thickness, — reducing

the left half of the tongue to a narrow strip. In the ordinary situation of the parts, the limits of the disease could not be seen; but by causing the tongue to be protruded, and drawing it forcibly over to the left side, the boundaries of the tumour could be traced by the finger passed along its outer edge, under the arch of the palate, where sound structure could be felt beyond. On the mesial aspect and superior surface the warty excrescences previously mentioned, had so overlapped the left half of the organ, as to render it impossible to trace the sulcus naturally existing in this situation. The presence of these growths, and more especially the prominence in this direction of the swelling itself, rendered it more difficult to distinguish the boundaries of the disease on the upper surface posteriorly, which were, however, satisfactorily made out. Inferiorly, in the corresponding situation, this, of course, from the attachment of the parts, could not be done, but from the examination, as far as it could be carried, and the degree of persistent mobility of the organ, it was inferred that the disease did not include the whole of the basis below. Although the patient had menstruated during this period, her general health had become impaired; she was pale, and had an expression of anxiety as well as of suffering on her countenance.

On the 6th of June, the following operation was performed: The patient being seated, the head slightly extended, and the os hyoides felt, an incision

was made from over it upwards and forwards, an inch and a half in length in the mesial line, through the skin, cellular substance, and raphe, of the mylohyoid muscles. With the edge of the knife, but chiefly by its handle, way was made for the finger between the two genio hyoid and the two genio glossi muscles. A tenaculum was next passed through the apex of the tongue, by means of which it was drawn out of the mouth and held so, during the subsequent part of the operation by Mr. Mayo (Mr. Tuson, Dr. Warren of Boston, U. S., and Mr. B. Phillips, being likewise present). Into the wound in the neck, a strong needle with an eye at the point in a fixed handle, was now conducted and passed through the basis of the tongue into the pharynx, a little to the left of the mesial line: the loop of ligature which it carried was then, by means of a blunt hook, drawn forwards out of the mouth, and the needle withdrawn from the wound over one of the ends. The loop being cut, two ligatures were obtained; one of these was placed along the upper surface of the tongue, so as to bound the disease on its left side, and carried through the apex of the tongue from above downwards by means of a large curved needle, through which the oral end of the other ligature was *now* also passed. Fixed in a porte-aiguille, this needle was next carried through the floor of the mouth immediately behind the last molar tooth, on the right side, directed at first, and for the greater part of its course, perpendicularly

downwards, then inclined mesial, and brought out at the incision in the neck. There were thus two ligatures, the four ends of which hung out of this wound: one of the loops was so disposed as to encircle the right half of the tongue at its basis beyond the tumour (*aa*, Plate II.); the other (*bb*) was placed longitudinally on the upper surface of the tongue, longitudinally and obliquely below. Being tied, (and this was done as tightly as possible,) the diseased mass was circumscribed posteriorly, laterally, and, in some measure, inferiorly. A third ligature (*c*) was now passed through the fore-part of the tongue, so as to isolate at this point the diseased from the healthy structure.

The patient endured the operation remarkably well, and no retching occurred to interrupt its progress, the pain experienced on tightening the ligatures was, no doubt, very considerable, but not so much so as had been anticipated.

The effects of tying these, independent of the pain, were, that in a few seconds, the included part became of a deep livid colour; that by the action of the second mentioned, or longitudinally disposed ligature, the diseased mass was turned more prominently upwards, and the narrow sound part drawn so much downwards as to be now scarcely perceptible; that the tongue became fixed in the mouth; and that the patient was unable to articulate or to swallow.

An opiate enema was given immediately on her

removal to bed. In the evening the severity of the pain had somewhat remitted: she complained of it chiefly in the right ear, and jaw, and this had been in some degree relieved by warm opiate fomentations.

The sound half of the tongue was now beginning to swell, and its surface was dry. She complained much of thirst, which was mitigated by frequently pouring cold water over the parts in the mouth from a feeder, allowing it again to flow out of the mouth; but was most effectually relieved by half a pint of milk and water being conveyed into the stomach through an elastic gum catheter, introduced along the left side of the mouth into the œsophagus. Through this, for the next fortnight, all food and medicine were administered. During the night the patient had two hours sleep, and in the morning was in less pain. Without entering into minuter details of the case, it will be sufficient to state that the febrile disturbance, the tumefaction of the sound parts of the tongue, and the salivation which ensued, were moderated by active purging, and that a blush of redness with swelling, which took place on the outside of the neck under the angle of the jaw, were removed by the same remedies and fomentations, and that the foetor arising from the state of the parts within the mouth was corrected by a weak chloride of lime wash.

On the second day after the application of the ligatures, the circumscribed portion of the tongue

was black and pulpy, and portions of it began to separate. This continued until the fifth day, when, on removing some of these, I discovered that the sloughing was confined to the surface, and that the more solid body of the tumour underneath was still alive, as it bled on being scratched. I endeavoured to complete the strangulation by carrying a canula over the ligatures, hanging out at the wound of the neck up towards the root of the tongue, and tightening these, afterwards by twisting and maintaining them so, but without a successful result.

On the eleventh day the condition of the parts was as follows: the *diseased* was completely separated from the *sound* half of the tongue by a deep trench, so as to give it a truly bifid character, and the trench was continued across the basis, seeming to extend through the whole thickness of the part. The tumour was lessened in size by the sloughing or its surface,—it had wholly lost its vesicular and warty character, was of a pale red colour,—felt firm and resisting generally, and hard posteriorly. About the middle of its dental edge its colour was livid, and close to this on the upper surface the latter was irregular and ulcerated. Reunion by granulation had commenced between the diseased and sound portions of the tongue, but this was easily broken down by the probe. It was now evident that the former part derived some vascular supply from below, and the following method was employed to cut this off.—A loop of silver wire, properly bent, was passed

over it, from the mouth, carried and depressed into the trench already mentioned as surrounding it, and being drawn forwards, the diseased part was found to be placed completely above the level of the loop. The two ends of the wire were next passed through a double polypus canula, and this being carried home under the tumour, to what may now be considered as its neck, the ligatures were tightened, the death of the part effected, separation ensuing on the fifth day (the seventeenth from the first operation).

The process of cicatrization proceeded favourably, and on the 10th of July the patient left the hospital. I have seen her repeatedly since, and at present there is no appearance of the disease recurring.

It will be recollected that the mere tip of the tongue on the right side not having been included in the disease was not removed. For some time the patient was much annoyed by her inability to distinguish the taste of substances coming into contact with this portion of the apex, and by its getting perpetually pinched between the teeth. Although the former condition remains unchanged, as I have this day (Nov. 13th) ascertained by the application of sapid bodies, she has become reconciled to it, and the latter does not now occur. For a longer time she was incommoded by food getting into the cavity left by the operation, and either remaining there unnoticed, or when she was aware of it, requiring the employment of the finger for

its removal. But partly from the space there being diminished, owing to the development of the previously compressed parts, and partly from having acquired a greater degree of power in the use of the tongue towards its displacement, she is not subjected to as much inconvenience as heretofore.

The motions of the tongue are restrained by the cicatrix attaching it to the bottom of the mouth, and the tip cannot be protruded beyond the teeth, but a stranger would not discover by her speech that she had lost so large a portion of it, he would merely remark that she lisped.

The idea of the operation, which has been now described, was taken from those performed by M. Jules Cloquet and M. Mirault respectively, in two cases of cancer of the tongue. In a man who had this disease seated on one side of this organ, and which could not be removed by incision or the ligature applied through the mouth, M. Cloquet operated thus:—Having made a small incision in the mesial line of the neck above the os hyoides, he passed a curved needle, having an eye at the point and fixed in a handle, through the base of the tongue, and carrying the handle backwards caused the point to project between the teeth. Through the eye two ligatures were passed, and the needle being withdrawn, carried the ligatures through the tongue. The free part of this organ anterior to the frenum was next divided in its middle, and the needle being re-introduced at the wound in the neck, its point was

made to appear in the floor of the mouth just before the frenum. The oral ends of both ligatures were next passed through its eye, and the needle being withdrawn, one of the loops thus formed was disposed longitudinally on the middle of the tongue and in the angle of its division; the other across, so as to surround it on the outer side. Being tied, the cancerous part was included between them. The operation terminated unfavourably, the patient dying in three days.

In a case of alleged cancerous tumours, with ulceration of the tongue, which M. Mirault met with in a woman, (aged 23,) and which occupied the centre of the organ in almost its entire width, two modes of operating presented themselves to the mind of that gentleman, who was not at the time aware of M. Cloquet's case. One of these was to apply two ligatures to the tongue immediately in front of the arch of the palate, in order to intercept the circulation through the part, and to divide it transversely, and then, "*dans un second temps,*" to extirpate the anterior portion of tongue, by detaching it with scissars from the floor of the mouth.—The other was to tie both lingual arteries, and having thus guarded against hæmorrhage to extirpate the cancer. M. Mirault determined upon adopting the latter proceeding, but in attempting it, he failed in finding the left lingual artery, though he succeeded in tying the right. Fifteen days subsequently, in order to controul the circulation through the left, he placed a ligature around this half of the

tongue, for which purpose he made an incision from about a finger's breadth under the chin to the os hyoides, and by this a needle was carried through the base of the organ into the mouth, out of which he drew the needle: this was again carried into the mouth, and through its floor, directly in front of the arch of the palate on the left side of the tongue, and brought out at the wound under the chin.

The ligature being tightened cut its way through the tongue in nine days, and during this time the tumour sensibly diminished, and the edge of the ulcer became less hard and prominent. To complete the operation nothing now remained but to detach the parts from the floor of the mouth, and to divide the right half of the tongue.

M. Mirault preferred doing this "en deux temps," and reversing the order just mentioned, he resolved to effect the division of the right half by means of a ligature, as had already been effected on the left.

Having done so, the beneficial results were so remarkable, that the remaining step of the operation was postponed—then abandoned—in fact, the tumour rapidly decreased, and the ulcer began to heal, so that in twenty-seven days from the last operation, the former was reduced to the size of a nut, and the latter was in great part healed. Two months subsequently the tongue had resumed its natural size, and presented a very dense cicatrix on its surface, but the tumour had entirely disappeared.

At this time the patient could move the tongue freely, could speak so as to be readily understood, and the sense of taste was retained on both sides of the tongue.