A NEW URETHROTOME.*

By WM. HENRY PANCOAST, M.D.,

Professor of General, Descriptive, and Surgical Anatomy in Jefferson Medical College, Philadelphia; Surgeon to the Philadelphia Hospital; etc.

THE following is descriptive of an urethrotome which I have used successfully for the last three years as a "stricturotome" and scarifier of the urethra. I have cut fourteen cases of stricture with it, operating in private and also before my classes, at the Philadelphia Hospital and the surgical clinics of Jefferson Medical College of Philadelphia. The instrument is modelled after Mr. Syme's staff for external urethrotomy, only it is of larger calibre. In 1875, while my father (Professor J. Pancoast) and I were performing the perineal section in a case of rupture of the membranous part of the urethra, my father suggested how useful it might be if a knife-blade were added to Mr. Syme's staff. I thought it over, and had the instrument made as above. Some of the fourteen cases that he had cut were of a difficult character. The last, just before leaving the United States, was a very serious case, that of a young man who had been run over by a cart two years previously. The membranous portion of the urethra had been lacerated, and had cicatrised in such a way as finally to prevent his urination. In his extremity, he had called in a physician, who had not succeeded in relieving him. When I saw the patient at midnight, I found him exceedingly prostrated, with extravasation of urine in his scrotum and front part of the perineum, producing quite extensive abscesses. He was so low, that I limited myself to incising freely the parts, to allow the escape of pus and urine; and was so fortunate as to be able to pass a filiform bougie. The following day, the patient having rallied under the use of anodynes and stimulants, I passed my stricturotome over the whalebone filiform bougie, and cutting the stricture in three places, but not too deeply, cut directly into the bladder. Removing the stricturotome, I passed in immediately the bougie-catheter as shown at M. This I left in for four days, watching it to see that it was in place and clear for the passage of urine. Then I removed it, and after cleaning it replaced it. Removing it for the same purpose every day or two, until the patient was able to do so for himself. In four and a half weeks the patient was cured, came to my office and passed the catheter on himself in my presence, and I counselled him to pass it every two days, gradually increasing the interval. I report this case, as an example of three difficult ones of the same character, to illustrate the use of the stricturotome or stenotome. Of course, the same result could be obtained with other instruments; but the advantage of this stricturotome and scarifier is, I think, in its simplicity, adaptability, the ease with which it can be kept in order, and, having no delicate mechanism, does not readily rust or become damaged.

The first figure, B—B¹, represents a side view of the instrument; F the handle; A the body of the instrument, concealing the knife, which, now hidden, can be pushed forward by the screw E. D—D¹ is the grooved, probe-pointed, delicate end of the urethrotome, which, following the guide of the whalebone bougie, readily insinuates itself into the stricture. The guide is the ordinary filiform whalebone bougie, with olive tip, only made nearly twice the ordinary length. This bougie I insinuate into the stricture, as soon as I can safely. If there be false passages, I fill them up gently with the bougies, and then, passing another, it generally finds its way into the stricture. I sometimes twist the end of the bougie into a corkscrew shape. If at

first it only engage in the commencement of the stricture, I leave it for twenty-four hours, more or less, so as to dilate the stricture as much as possible. Then, withdrawing it, I have always been enabled to pass another one, or the same, into the bladder, or at least further into the stricture, the same process as I have used formerly in operating with M. Maisonneuve's urethrotome. When the filiform bougie is in the bladder, the end which I still retain in my hand I pass through the hole D at the end of the instrument, and through another at D¹. The filiform bougie now lies in the groove, on the under side of the probe part of the urethrotome; and, as I pull gently on it, also in a groove on the front part of the instrument, as shown in the second figure E, I now push the instrument gently down upon the whalebone guide, and, when the shoulder at H, fig. 3, strikes the stricture, I push the screw-head E, so as to make the knife advance, cutting the stricture delicately but sufficiently, and in three or four places, by turning around the handle; pushing the instrument gently, the knife cuts a way first, and I pass it into the cavity of the bladder. Removing the stricturotome or stenotome, I then immediately pass the catheter-bougie, as

shown at M, I, K, L, which corresponds to No. 24 of the French scale. The instrument can be readily cleaned, and the knife sharpened when necessary, by loosening the screw E, and withdrawing the knife from the instrument.

The catheter-bougie which I have devised, and have been using for some time, has some advantages over the ordinary silver catheter or

* Read in the Section of Surgery at the Annual Meeting of the British Medical Association in Bath, August 1878.

bougie. Its olive-shaped end permits it to pass more readily, as the larger calibre of the instrument keeps the olive point directly in the centre of the urethra. The instrument has two holes for the entrance of the urine, one only being shown in the figure. The handle is movable, and when on is fastened by a pin at M, so as to make it immovable. The handle then covers the opening, also at M, and the instrument is a bougie, as no urine can escape. The picture does not represent the best form of the catheter-bougie, as there are two curves towards the end; the second a little below I, thus imitating the two curves of the urethra in the flaccid condition of the penis. When the instrument is in the cavity of the bladder, by slowly removing the handle, but not entirely, the opening on the under side at M is uncovered, and the urine freely escapes on the under side, so that there is no danger of the operator being sprinkled with it. It is not necessary to remove the handle entirely, only just sufficiently for the escape of the urine, which the patient soon learns. The notch on the handle enables one to tie the instrument readily in the bladder.

When it is necessary to clean the instrument, the handle is removed, and there is a little hole directly in the end of the catheter for the passage of the wire.

In tying the catheter in the bladder, I find a method advantageous which, though original in my practice, others may have thought of. I tie a strip of bandage around the waist of the patient, and then a silk ligature or string on each side at the same point as the bandage, so as to have a loop around each thigh and resting in each groin. I then tie four strings to the handle of the bougie at the notch. I tie one of these to each loop at the groin, one above to the bandage, and one behind, passing under the perineum, also to the bandage, thus staying the catheter-bougie with four strings. This method allows free motion to the instrument when needed, and prevents its escape from the bladder. I follow this plan when tying any bougie or catheter in the bladder.

Since writing the above, my friend Professor Lister of London has informed me that a surgeon in Edinburgh has conceived the same idea of putting a knife blade into Mr. Syme's staff. I have not had the opportunity since, though I have sought it, to learn from Professor Lister the gentleman's name, or whether his idea is the original one, or antedates my suggestion. I believe that no one has yet thought of my plan of adding the filiform bougie to the instrument, which makes the operation sure and safe, even when this stricturotome is used by those not having much experience in the operation.

A NEW METHOD OF APPLYING THE ÉCRASEUR FOR THE REMOVAL OF THE TONGUE.

By CHARLES COPPINGER, L.K.Q.C.P.,

Surgeon to the Mater Misericordiae Hospital, Dublin.

SINCE the *écraseur* was first used by Chassaignac in operating on the tongue, the removal of that organ by its means has been, at least with surgeons in this country, the most usual method of procedure.

The tongue is not a situation suitable for the use of the ordinary or elastic ligature, nor yet for caustics, nor the knife. The ordinary ligature is too slow in its action, and causes an unnecessary amount of annoyance and pain. The elastic ligature is open, though in a less degree, to the same objections. The disadvantages which attend the employment of caustics for the removal of morbid growths are doubly intensified in the case of the tongue, while the surroundings of the organ and its great vascularity exclude, in many cases, the knife from consideration. For these reasons, the *écraseur* in its ordinary form, or furnished with a wire heated by galvanic current, is still much relied on by careful surgeons in dealing with lingual ulcers requiring removal.

When the disease is confined to the anterior part of the organ, there is, of course, no difficulty in the use of either the knife or *écraseur*, etc.; but, in those cases in which a large portion requires removal, the application of the *écraseur* becomes often a matter of considerable difficulty, and one which has for a long time exercised the ingenuity of surgeons.

A patient has lately been under my care in whom a cancerous lingual ulcer was so situated as to suggest for its removal a method of procedure which I have not seen described, and which seems to offer some advantages over the ordinary methods in use.

P. C., a healthy-looking man, aged 60, was admitted to the Mater Misericordiae Hospital suffering from ulcerative disease of the tongue. Inasmuch as the ulcer presented a somewhat doubtful appearance, a small portion was snipped from its edge with a scissors, and frozen by means of ether-spray, so that a thin section could be made. Under the microscope, this precautionary measure at once settled the question of

diagnosis by revealing the characteristic globe-nests of epithelial cancer. I would remark, in parenthesis, that this is one of the occasions in which the microscope is of great practical value to the surgeon; for ulcers of the tongue are proverbially difficult of diagnosis, while any delay in the case of cancer is much to be avoided. A piece of the size of a small pea, cut from the edge of a doubtful ulcer, is not likely to affect it much in any way; while it is quite sufficient, in the case of epithelioma, to render the diagnosis by the aid of the microscope quite positive. As the disease extended far back along the tongue, the following method was adopted for its removal. A large gum-lancet was first introduced into the mouth, and the gustatory nerves divided by an incision made on each side from near the angle of the jaw to the prominent termination of the alveolar process at the last molar tooth. Each incision was about half an inch long, and was made down to the bone, the nerves being thus divided in the manner recommended by Mr. Moore. The tongue was now drawn forwards by means of a ligature passed through its apex, and a curved needle threaded with a cord attached to the *écraseur*-chain was passed deeply from side to side through its root. The *frænum* was now divided, and the tongue separated from the floor of the mouth by the chain cutting from behind forwards. A scalpel was then thrust through the substance of the left cheek, and a vertical incision made about an inch long, corresponding to the anterior edge of the masseter muscle, below the parotid duct and behind the facial artery. The loop of the *écraseur* was easily introduced from the side through this wound, and the tongue drawn forward through it. The chain was slowly tightened, and the tongue then divided almost as far back as the epiglottis. The operation occupied just half an hour. There was no bleeding whatever; while in two days the wound in the cheek had closed, and the tongueless patient was able to articulate and to tell us that he had not suffered much during the procedure.

For the removal of the tongue with the *écraseur*, Chassaignac adopted the method previously used with the ordinary ligature, of passing the chain of the instrument over the base of the organ through an incision in the suprahyoid region. This method, although followed in the well-known case of Mr. Nunneley of Leeds, does not seem to be popular with English surgeons.* The late Mr. Collis of Dublin recommended that an incision be made backwards from the angle of the mouth, to facilitate the application of the chain. This, described in continental books as the method of Jaeger, consists essentially in a prolongation of the commissure of the lips by an incision on one or both sides stretching as far back as the vertical ramus of the jaw. The late Sir William Fergusson reported some time ago a case in which he had made such an incision back from the angle of the mouth for the purpose of applying the *écraseur*. Now, this procedure has certainly the recommendations of simplicity and facility of execution; but it has also manifest disadvantages. The deformity where an incision implicates the angle of the mouth is generally great, and is in this instance likely to be increased by the difficulty of obtaining immediate union, due to the division of the facial artery, and probably also to accidental contusion of the edges of the wound during the subsequent operation.

Division of the facial artery and disfigurement of the face are, of course, minor considerations in an operation of this character, but nevertheless evils to be, if possible, avoided. The method adopted in the above case is not open to these objections, and, if slightly more difficult of performance, is quite effective as regards result. A vertical incision in front of and corresponding to the anterior edge of the masseter muscle and vertical ramus allows, when the mouth is held open, ample room for the introduction of the chain or wire loop, and of the end of the *écraseur* itself, thus preventing compression of the cheek during the *écrasement*, or injury from contact with the heated wire when the galvanic modification of the instrument is used. The section of the tongue can be made as far back as is possible by the other method; the wound of the face is bloodless; while the subsequent deformity is *nil*, for, if the incision unite but by granulation, a scar in its situation is of no importance.

There is now in the Mater Misericordiae Hospital a patient on whom this operation was performed a few days ago. In this case, the same precautions were taken with reference to diagnosis, and with a like result. Methylene bichloride was administered, the mouth being held open by means of Sir William Fergusson's invaluable dilator. The root of the tongue and *frænum* was first divided by means of the *écraseur*, which was subsequently introduced, as described above, through an incision in the cheek. The organ was in this case removed behind the range of circumvallate papillæ and close to the epiglottis.

* I have no experience of this method; but, according to Dr. Fairlie Clarke, the wound in the neck is very slow to heal on account of the gravitation of the saliva through it. Any protrusion of the treatment is in these cases a serious evil, inasmuch as a return of the disease is unfortunately to be expected.