ON SOME PRACTICAL GAINS WHICH HAVE RESULTED FROM THE USE OF THE LARYNGOSCOPE.*

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THE practical advantages which have resulted from the use of the laryngoscope can be best appreciated by those who, having experienced the many serious difficulties attending the diagnosis and treatment of diseases of the larynx before Garcia and Czermak had introduced the throat-mirror into practice, have subsequently learnt to use that simple instrument, and have thereby placed themselves in a position to contrast the doubt and the difficulty of their earlier experience with the comparative certainty and facility which they now enjoy in dealing with laryngeal affections.

One of the best writers on diseases of the larynx in the prelaryngoscope days, the late Mr. W. H. Porter of Dublin (*Observations on the Surgical Pathology of the Larynx and Trachea*, 2nd ed., 1837), writing in the year 1837, referred to the uncertainties and the difficulties of diagnosis in the following terms. "When a man of experience meets with a case of laryngeal disease, how is he to know whether it is caused by an oedematous condition of the submucous tissue, by a chronic thickening of the mucous membrane itself, by laryngeal ulceration, by destruction of the cartilages, by the presence of abscess or tumour, or by any other of those numerous affections which dissection so frequently shows us to be the occasion of death?" And he goes on to suggest that "perhaps, by reason of the difficulty of the subject, it will be long before we possess the same accuracy of information with reference to affections of the windpipe that has been attained in other diseases". Now, the laryngeal mirror has thrown literally a new light upon these heretofore obscure diseases. The larynx has ceased to be an internal organ in the sense of being hidden from view, for it has been brought within the range of vision; and the answer to Mr. Porter's question now is, that the practitioner has only to look into the larynx, and he will usually see with perfect clearness the seat and nature of those diseases which formerly could at the best be only matter of doubtful and often erroneous inference. It is obvious that the man who has acquired practical facility in the use of the laryngoscope, enjoys the same advantage over one who does not use the instrument, as a seeing man has over one who is blind or who wilfully closes his eyes. Amongst the many causes of hoarseness and aphonia, we can now readily ascertain with which we have to deal in any given case. We can distinguish between organic disease within the larynx and spasm or palsy of its muscles the result of organic disease elsewhere, or of mere functional derangement of the nervous system; and, amongst organic diseases, we can distinguish between the various grades and forms of oedematous or inflammatory swelling and warty, or cystic, or cancerous, or other forms of tumour within the larynx.

Then it is obvious that the treatment of all forms of laryngeal disease has been much facilitated and improved. If we find a warty or a cancerous growth within the larynx, we see at once the utter inutility of treatment by drugs, and we abstain from giving active medicines. In the dark days of uncertain diagnosis, many an unhappy patient has been bled, and leeches, and blistered, and salivated, and ultimately, perhaps, has undergone the operation of tracheotomy, for what has been found after death to be a simple growth within the larynx, which might now be easily and completely removed; for, since the mirror has illuminated the interior of the larynx, not only do our patients escape the torture of needless medication, but, by the use of safe and suitable instruments, we are enabled often to remove morbid growths and foreign bodies from the larynx, and thus to restore the lost or enfeebled voice, and not unfrequently to save a life which had been imperilled by disease or by accident. There is scarcely a form of disease within the larynx the treatment of which has not been facilitated and improved by the mirror. It is obvious that all topical remedies can be applied with much greater ease and precision. In cases of inflammatory or oedematous swelling within the larynx, it is not difficult to puncture the swollen part with a laryngeal lancet, and thus, perhaps, to reduce the swelling and to prevent the necessity for tracheotomy. And, again, when the question arises, whether there is sufficient obstruction within the larynx to call for the operation of tracheotomy, a good view of the diseased parts often affords most welcome aid in arriving at a decision either for or against the operation.

Passing from these general remarks, I now proceed to indicate some particular additions to our knowledge and some special practical gains which have resulted from the use of the laryngoscope.

It had long been known that spasm and palsy of the laryngeal muscles play an important part in the phenomena of some diseases; but, without actual inspection of the living larynx, the exact share which each of these conditions contributed to the symptoms of any given case could never be known with certainty. Now, while inspecting the larynx in a case, for instance, of functional or nervous aphonia, we see, with absence of structural change, a functional inactivity of the muscles, which results in immobility of the glottis during attempts at phonation, or so feeble a movement as is insufficient for vocalisation. In other cases, we have the combination of nervous aphonia with stridulous breathing; and we see that, through disorderly action of the nervous system, the action of the glottis is the reverse of that which is normal, in so far as it closes during inspiration, which consequently is rendered stridulous, while during expiration and attempts at vocalisation it remains more or less widely open. The more exact diagnosis and improved treatment of nervous aphonia by a general tonic regimen and by direct galvanisation of the larynx, are amongst the practical gains which have resulted from the use of the laryngoscope. We are able to demonstrate now, what before could only be inferred, that, while spasm of the laryngeal muscles is a common cause of transient paroxysmal stridor and dyspnoea—as, for instance, in cases of infantile laryngismus stridulus, and in the earlier stages of an aneurism which compresses slightly and so irritates one of the recurrent nerves—palsy of the muscles on one or both sides of the larynx usually causes permanent stridor, either with or without dyspnoea. The compression of the pneumogastric or its recurrent branch by an aneurism or other tumour within the chest is a common cause of palsy of the laryngeal muscles; and, in several cases of this kind that have come under my own observation, an inspection of the larynx has led to the discovery of a previously unsuspected intrathoracic tumour, which, by its pressure on the nerves, had given rise to the laryngeal symptoms. In illustration of this, I may refer to two cases of aneurism of the aorta which I have published in the *Pathological Transactions* (vol. xv, p. 72, and vol. xxiv, p. 42). In one of these cases, the pressure of an aneurism caused paroxysmal spasm and symptoms resembling laryngitis; while in the other the laryngeal muscles were paralysed, the glottis consequently closed, and there was persistent dyspnoea with stridor.

As a rule, it appears that, when one pneumogastric or recurrent nerve is compressed by an aneurism or other tumour, the laryngeal muscles on that side only are paralysed; but, in a case published by Dr. Bäumlér in the *Pathological Transactions*, vol. xxiii, p. 66, an aneurism of the innominate, pressing on the right pneumogastric and recurrent nerve, caused almost as complete immobility of the left as of the right vocal cord; and, in one of my own cases (*Path. Trans.*, vol. xxiv, p. 42), paralysis of both vocal cords resulted from an aneurism of the aorta pressing on the left pneumogastric and recurrent nerve. It is difficult to explain bilateral palsy of the laryngeal muscles resulting from pressure on the nerves on one side only. This fact, which we have learnt from the use of the laryngoscope, we call upon our physiological friends to explain.

It should be borne in mind that aneurism of the aorta may cause stridulous breathing and dyspnoea, not only by pressure on the pneumogastric and recurrent nerves, but also by direct pressure on the trachea. Of this I have seen several examples; but the most interesting case I saw in consultation with my friend and former pupil, Dr. Richards of Winchester. A gentleman thirty-three years of age had suffered from shortness of breath, with noise in the throat, on any unusual exertion, for nearly a year. When I saw him on October 30th, 1871, there was loud stridor on a deep inspiration; but with this the voice was clear and distinct, indicating, as I at once said, that the obstruction which caused the stridor was below the larynx. The laryngoscope showed nothing more than slight redness of the mucous membrane, without swelling. The vocal cords moved freely; and, during a deep inspiration with a widely open glottis, there was loud stridor, evidently originating below the larynx. Suspecting aneurism, I carefully examined the chest. There was no abnormal impulse or dullness on percussion. On auscultation behind, over the upper dorsal spinous processes, there were loud tracheal stridor and vocal resonance. The respiratory murmur was decidedly more feeble over the lower lobe of the right lung than over the corresponding part of the left side. There had been occasional difficulty in swallowing. The pulse was equal at the two wrists. The right pupil was smaller than the left—a result, probably, of iritis some years before. The diagnosis was, aneurism of the transverse aorta pressing on the trachea. I did not see the patient again; but I learnt from Dr. Richards that the symptoms became steadily worse, until he died from apnoea on November 20th, three weeks after his visit to me. An

* Read before the West Kent Medico-Chirurgical Society.

aneurism of the size of a walnut projected from the posterior wall of the transverse aorta, and bulged into the trachea just above its bifurcation. (Fig. 1.) The opening of the right bronchus was somewhat more

Fig. 1.—The Trachea opened from behind, showing an Aneurism bulging through its Anterior Wall.

obstructed than that of the left, thus explaining the comparative feebleness of the respiratory murmur on the right side of the chest. One advantage of an exact diagnosis in this case was, that the patient was not subjected to the operation of tracheotomy, which, on a superficial view of the symptoms, might seem to have been indicated. The operation was not resorted to, because it was known that the obstruction in the trachea was below the point at which an artificial opening could be made, and therefore no relief could have been given by an operation.

The laryngoscope has materially assisted us in recognising the main points of difference between laryngeal and tracheal stridor. Excluding cases of purely spasmodic laryngismus stridulus, we find that, when stridulous breathing is the result of obstruction in the larynx, the voice is always more or less feeble and husky; while in cases of tracheal obstruction and stridor, whether the result of constriction of the trachea by syphilitic cicatrices or the pressure of an aneurism, the voice is unaffected, as in the case to which I just now referred. When tracheal stridor results from the pressure of an aneurism, the trachea being pushed backwards against the bodies of the vertebræ, the stridor and loud vocal resonance are heard most distinctly on auscultation over the upper dorsal spinous processes; whereas, in cases of stridor resulting from obstruction in the larynx, we find that, on auscultation over the spinous processes, the sound is heard most distinctly over about the middle of the cervical region—that is, just on a level with the larynx. This point we have repeatedly verified in the hospital by comparing cases of undoubted laryngeal obstruction with others in which an aneurism has compressed the trachea just above its bifurcation.

One result of my twelve years' working with the laryngoscope has been to assist me to the conclusion, long since arrived at by Bretonneau, Trousseau, and all the leading French pathologists, that those cases of croup which are associated with membranous exudation in the larynx are essentially and specifically diphtheritic; and, on the other hand, that what we, in this country, call inflammatory croup or catarrhal laryngitis, never results in the exudation of false membrane. In studying the morbid anatomy of cases of croup, we have now no need to wait for a *post mortem* examination. We can see the morbid anatomy in every stage of the disease during the patient's lifetime; and we may confidently affirm that an exudation of lymph on the surface of the inflamed larynx forms no part of the history of simple inflammatory croup or catarrhal laryngitis, whether the disease occur in adults or in children of any age.

Another practical lesson taught by the laryngoscopic study of inflammatory croup is that, in children of nervous excitable temperament, when there is but little inflammatory congestion and swelling of the mucous membrane of the larynx, the dyspnoea and stridor are often much increased by spasm of the laryngeal muscles; and, since this fact has been ascertained, our treatment of such cases has become more successful. We have learnt that the chloral hydrate, in repeated small doses—one grain for a child a year old, and an additional grain for every additional year of the child's age—is the best drug remedy for laryngismus stridulus; and we find that a combination of chloral hydrate with nauseating doses of ipecacuanha, in addition to the diaphoretic action

of the warm bath, warm fomentations to the throat, and the inhalation of steam, speedily arrests the progress of inflammatory croup.

Laryngitis in adults is far less frequently associated with laryngeal spasm than the same disease in children; but, whenever this complication does occur in older patients, the combination of chloral hydrate with ipecacuanha is as successful in them as in children. Our knowledge of the various forms and stages of strumous or tubercular, and of syphilitic laryngitis, has been much increased by the use of the laryngeal mirror. To some extent, too, although in a less degree, our treatment of these cases has been improved. While strumous laryngitis, in an advanced stage, is one of the most intractable of diseases, the syphilitic form is much more amenable to treatment.

With reference to prognosis and treatment, the increased facility of distinguishing the one form of laryngitis from the other is a real practical gain. We have now occasional opportunities of seeing that, after the healing of a deep syphilitic ulcer in the larynx, the contraction of the cicatrix may drag together the arytenoid cartilages so as to prevent the opening of the glottis; and, in other ways, the contracting cicatrices may narrow the glottis and so cause difficult and noisy respiration. Little or nothing can be done to remedy this state of larynx; but it is something to be able to distinguish it from other morbid conditions which admit of relief, either by medicines or by operation. To continue the employment of mercury or iodide of potassium in the expectation of removing the stridulous breathing which results from a syphilitic cicatrix in the larynx, is as useless as it would be to give the same remedies for the obliteration of the indelible scars left by a rupious eruption on the skin.

The mirror has greatly facilitated the diagnosis and the treatment of foreign bodies impacted in the larynx, by indicating their exact form and position, and so the best mode of dislodging them. My colleague, Mr. Henry Smith, once asked me to inspect the throat of a man who had allowed a half-sovereign to drop into his larynx. I had no difficulty in demonstrating the coin, lying flat across the glottis, with its margins impacted in the ventricle on each side, and its surface partly overlapped by the swollen false cords. Obviously, the coin was too firmly impacted to be dislodged by inverting the body of the patient, and I failed to seize it with the laryngeal forceps, having none at that time the blades of which opened horizontally; but I pointed out to my colleague that a bent probe introduced below through an opening in the cricothyroid membrane, and pressed against the under surface of the coin would thrust it up into the mouth. This operation Mr. Smith performed with ease and rapidity, and the coin dropped out of the patient's mouth. The celebrated case of Mr. Brunel, published by Sir Benjamin Brodie (*Medico-Chirurgical Transactions*, vol. xxvi), is probably familiar to most of you. A half-sovereign, which had passed through the larynx into the trachea and right bronchus, was ultimately expelled by inverting the patient's body. More than once the attempt to dislodge the coin in this way had failed, in consequence of the foreign body striking against the under surface of the glottis and exciting distressing spasm. Inspection of the living larynx suggests an important hint for the management of similar cases. The object is to have a widely open glottis at the moment that the body is inverted for the purpose of dislodging the coin. This we can insure by directing the patient to make a deep inspiration. The inspiratory current of air would have no appreciable effect in retarding the downward movement of a metal coin by its own gravity; and it is essential for its escape that the glottis be open, which it always is during the act of inspiration. When the body is inverted, the patient should be cautioned to make no vocal sound while his head is being lowered. The slightest whisper of the voice implies a closed glottis, which would, of course, prevent the exit of the foreign body.

In conclusion, I venture to give one or two practical hints, in the hope of facilitating the practice of laryngoscopy, and so bringing it into more general use. And first, I maintain that the best position for the concave reflector, by which the light is thrown into the patient's throat, is on the forehead, just above the eyes. It is quite unnecessary, and therefore undesirable, to look through a perforated reflector placed in front of one eye. With the reflector on the forehead, we avoid the discomfort and inconvenience resulting from the effort required to keep one eye applied to the opening in the mirror; we have the free and unimpeded use of both eyes; and we consequently find it much easier to direct a steady light into the throat, to introduce the laryngeal mirror, and to practise any other manipulation which may be required, either for diagnosis or for treatment.

Another great advantage resulting from this position of the reflector is that, by means of a shade attached to the frontal band, we completely protect the eyes from the direct light of the lamp, and thus avoid the fatigue and the confusion of sight which result from exposure to a bewildering glare of light (fig. 2). The practice of using a perforated re-

flector was borrowed from the ophthalmoscope, in using which instrument it is necessary to look through the centre of the luminous beam; but the conditions which attend the exploration of the interior of the eye through the small opening of the pupil are very different from those

Fig. 2.—Frontal Reflector and Shade.

which exist when we are looking through the wide open mouth at an image reflected from a mirror of considerable size. In the latter case, nothing is gained by looking through a perforated reflector, and the disadvantages I have already pointed out. I have no doubt that many students have been discouraged by the difficulties attending the attempt to see the larynx through a hole in the reflector.

One of the most useful means of acquiring skill and confidence in the examination of the larynx, is the practice of auto-laryngoscopy, that is, the examination of one's own larynx. The simplest and, on the whole, the most satisfactory method of auto-laryngoscopy was devised by myself eleven years ago. (See *Medical Times and Gazette*, February 14th, 1863, p. 157.) This method of auto-laryngoscopy requires no special apparatus. Sitting at a table of convenient height, I place a common looking-glass in front of me, and a moderator or gas lamp on one side of the glass, but two or three inches further back, so that the light may not pass directly from the lamp on to the face of the glass. Now, with the reflector on my forehead, I direct the light from the lamp, as it were, into the open mouth of my own image in the looking-glass; then, introducing the laryngeal mirror into my mouth, I see the reflection of my larynx in the glass before me, and any one looking over my shoulder can also see the reflected image. If I wish to demonstrate my larynx to several persons at once, I do this by having the mirror in front of me of small size—about three inches by two inches (fig. 3). Thus, while three or

Fig. 3.—Auto-laryngoscopy and Demonstration. *a*. The small mirror on a brass stem.

four persons standing behind me can see the reflection of my larynx in the mirror in front, three or four others, standing before me and looking over or under or by the sides of the demonstrating-glass, can see the reflection of my larynx from the laryngeal mirror which I hold in my

mouth. Those who stand in front of me have a somewhat better view than those who look over my shoulder from behind, for the obvious reason that some loss of light attends the second reflection from the demonstrating-mirror before the image reaches the eye.

For beginners in the art of laryngoscopy, this method affords a very useful means of training and practice. One of the chief difficulties at first is to keep a steady light in the patient's mouth while the laryngeal mirror is being introduced. Now the student, after arranging his looking-glass and his lamp, may direct the light into his own open mouth in the looking-glass. This process differs scarcely at all from that which he will have to practise on his patients. Then, having learnt to keep the light steadily and automatically directed into the mouth, he may warm and introduce the laryngeal mirror, and he will soon see his own larynx. The frontal reflector is a very useful means of lighting the throat for the purpose of examining the tonsils, palate, and pharynx. Placing a lamp or a candle by the side of the patient, the operator, with the reflector on his forehead, throws the light into the throat, and has both his hands free to depress the tongue and to apply caustic or other local remedies. In cases of diphtheria and scarlet fever, by this method of illumination a thorough examination of the throat can be made in a much shorter time than by the ordinary method, and without raising the patient's head from the pillow. The operator, too, in this way, runs less risk of infection from inhaling the patient's breath, or from the morbid secretions being coughed into his face.

I had practised laryngoscopy for some years before I discovered that the slight nervousness experienced by most patients on having their throats inspected for the first time causes them to hold their breath; and this suspension of breathing soon distresses the patient and embarrasses the operator. The direction which I now give to my patients is in substance this: "While I introduce the mirror and look at your throat, do not hold your breath, but continue to breathe in and out freely"; and I do not attempt to introduce the mirror until I see that the patient understands and obeys my direction. An analogous instance of nervous apnoea sometimes occurs when a timid patient is about to inhale chloroform. Emotional excitement may so completely suspend the respiratory movements, that the patient has to be encouraged and instructed to continue his breathing before the inhalation can proceed. I was told lately by a photographer, that a nervous subject, when told to remain still, will sometimes, as it were, forget to breathe. The result is, that the sitter soon feels distressed, and has a pained expression of countenance. A medical friend once, when examining with me the photograph of a distinguished surgeon, said—"He looks as if he were passing a renal calculus". He had probably held his breath while sitting for his photograph.

Rhinoscopy.—We may often obtain useful information by an examination of the posterior nares with a mirror. In the practice of rhinoscopy, as it is called, the patient sits erect, while the light is thrown into the mouth by the frontal reflector. The tongue is held down within the mouth by a right-angled metal depressor. The patient is directed to breathe softly. A forcible inspiration draws the soft palate and uvula upwards and backwards, and so interferes with the examination. A

Fig. 4.—Posterior view of the Uvula, Soft Palate, and Nares, as seen by rhinoscopy. *a*. A globular tumour obstructing the posterior opening of the right nasal fossa. *e*. The orifice of the right Eustachian tube.

mirror, about the size of a threepenny-piece, is warmed and introduced by the side of the uvula, beneath the palate, with its surface directed upwards and forwards, care being taken not to touch the soft palate or

uvula, so as to excite reflex contraction of these parts. In this way, when the throat is moderately capacious, we may bring into view the posterior openings of the nasal fossæ, the turbinated bones, the opening of the Eustachian tube, the septum narium, and the roof of the pharynx.

In illustration of the practical value of rhinoscopy, I may refer briefly to one case. A gentleman, twenty-four years of age, consulted me on account of an obstruction of the right nostril, which had existed for two years. On examination with the mirror, the posterior opening of the right nasal fossa was seen to be obstructed by a globular tumour (fig. 4), as large as a full-sized marble, and of a yellowish-green colour. I asked my colleague, Mr. John Wood, to devise a plan for removing the tumour. He introduced a slender curved polypus-forceps through the anterior opening of the nostril, and grasped the tumour, which burst, and discharged a glairy fluid like white of egg. The patient felt immediately that the obstruction was removed; and, on rhinoscopic examination, the shreds remain only of the tumour were seen attached to the middle turbinated bone, which had before been concealed by the tumour. (Fig. 5.) The tumour had evidently been a mucous cyst. This

Fig. 5.—The Posterior Nares, after the removal of the Tumour represented in fig. 4. *a.* The abraded surface from which the tumour was torn. *b.* The middle, and *c.* the inferior turbinated bone. *e.* The Eustachian tube.

case occurred ten years ago; and I heard only a few days ago that there has been no return of the disease. The practical value of rhinoscopy in this case can scarcely be questioned. It is doubtful whether, by any other mode of examination, the position and nature of the tumour could have been determined with sufficient certainty to warrant an operation for its removal.

THE PNEUMATIC ASPIRATOR IN RETENTION OF URINE FROM ENLARGEMENT OF THE PROSTATE GLAND.

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I THINK the following case will be considered a striking example of the value of the pneumatic aspirator in extreme cases of inflammation and enlargement of the prostate gland, and of inflammation and thickening of the mucous membrane of the bladder—cases which not only cause retention of the urine, but which sometimes absolutely prevent the introduction of the catheter, whether silver or elastic, without great risk or fatal injury. And the case now detailed not only proves the value of the instrument as the ready means of relieving suffering, and of prolonging life temporarily, but even of saving life for an indefinite period. Before going farther, I should state that whatever credit or praise, if any, in the management of this case, is due, is as much due to my partner, Mr. H. Davis, as to myself, as he took a full share in the conduct of the case from beginning to end.

W. C., a tall, swarthy man, in his seventy-third year, a farm-bailiff, came to our surgery on December 29th, 1873, in a state of great suffering. I was out of town. Mr. Davis found him with dusky countenance, dry, coated, striped tongue, febrile pulse, and complaining of great pain in the back and limbs, and especially pain and pricking at the neck of the bladder, inability to stand erect, and with a constant desire to urinate, but with power only to pass a few drops at a time. On examination, he found the bladder to be distended and extremely tender. The patient had been becoming worse and worse in regard to the bladder and

prostate symptoms, for a fortnight, having to get out of bed ten or a dozen times of a night—every half-hour, or oftener sometimes. He had had difficulty in, and frequent desire for, micturition ever since Michaelmas. Mr. Davis gently attempted to pass the catheter, but had not succeeded when I arrived. I carefully and patiently tried catheters of various sizes, but could not reach the bladder. The penis itself was turgid, and disposed to considerable erection, the glans penis livid, and the prostate would bleed with the least touch of the instrument. We then sent our patient to his home, giving him a draught containing twenty grains of chloral hydrate and half a drachm of tincture of henbane, to be taken when he reached home, ordering him to have a fire in his bedroom, to go to bed, and to use fomentation flannels or a large linseed meal poultice over the pubes, perinæum, etc. This was at 2 P.M. At 7 P.M., we visited him at his house. I then passed a No. 8 silver catheter after some difficulty, and drew off about thirty ounces of high-coloured, acid urine. We then ordered a mixture of nitrate of potash, infusion of buchu, liquor potassæ, and tincture of henbane, according to my usual custom. At 9 A.M. the next day, a messenger was sent to say that he was again in great agony. Mr. Davis went, but failed to pass the catheter. At 3 P.M., we both went, when, after a time, I again succeeded. The case proved so difficult to operate on, from the enormously enlarged state of the prostate, and the patient was in such a bad state generally, that we tied in the catheter for the night. On the following day, Mr. Davis, after emptying the bladder, removed the catheter, hoping its reintroduction would be less difficult. At 10 P.M., I was enabled, after considerable difficulty, to introduce, instead of the No. 8, a No. 10 long curve, or prostatic catheter. We had Sir Henry Thompson's black elastic catheters, and other catheters, but they proved quite useless.

On the next day, January 1st, at noon, the catheter could not be passed at all, or it seemed to pass into the bladder, but urine did not flow, as if from the blocking up of the aperture into the catheter, and of the end of the catheter also, by clots, mucus, etc.; unless (and this I deem the more probably correct explanation) from the almost disorganised state of the prostate and membranes of the prostatic portion of the urethra and of the neck of the bladder, the catheter passed between the membranes and carried the mucous membrane before it. I did not use force enough to cause complete tunnelling. In further proof of the size and condition of the prostate, I would here say, that we passed our fingers up the rectum, with the view of guiding the point of the catheter, but found the organ to project back like a large hard cancerous tumour, quite obliterating the channel of the gut; and the touch of the finger caused acute pain. We could not in the least feel the catheter or get above the tumour.

From the state of the prostate and bladder, and the patient's handling of the penis in his frequent violent efforts to urinate, the glans penis and prepuce, the whole outward organ, was now in a semi-sloughy state. And the patient, in all other or general respects, was in a most deplorable condition. His countenance was dusky and haggard; the heart's action at times over 140 beats in the minute, at other times alarmingly intermittent; and altogether he was getting into a condition of almost hopeless prostration. At 10 P.M., we used the aspirator, and drew off about twenty-eight ounces of urine.* I then seemed to introduce a No. 8 catheter, but not to my complete satisfaction, and only a few drops of urine passed. We tied in the catheter, but the next morning we found that the patient's efforts during the night had caused it to come out some inches. From this time, January 2nd, we found it absolutely unjustifiable to attempt to use the catheter until the night of January 12th; but we used the aspirator daily, and, on some occasions, the pain was such as to require the operation to be performed twice in the day. Altogether, we performed the operation fifteen times, with immediate relief on every occasion, and without the smallest inconvenience or injury from the punctures or perforations of the needle. By this time, the swelling and sloughy state of the penis had passed away, to the extent of its having nearly reacquired its normal appearance.

On the night in question, 11.30 P.M. January 12th, after pumping off by the aspirator, with the aid of Mr. Davis, the usual quantity of urine, of much more natural colour, I introduced with ease a No. 8 Liston's silver catheter, and drew off from six to eight ounces of urine, very thick and white or mucous at the finish, which showed the quantity the portion of the bladder below the brim of the pubes contained at this stage of the case, thereby affording another proof, beyond that of the easy passing of the catheter, how much the enlargement of the prostate must have abated. We then tied in, and as before carefully plugged, the catheter, and withdrew the plug daily, as also did the patient's wife, until the 15th, when Mr. Davis removed the catheter. The patient then found himself capable of passing small quantities of urine na-

* The instrument we used was a Coxeter's Stomach-Pump, converted by him into a pneumatic aspirator as well.