

detected ascending in the depths of the iliac fossa, it is only a question of time as to when its purulent contents reach the surface. For their removal aspiration is of no real value. The tubular needle is quickly choked, and flakes of fibrin, shreds of ruined intervertebral discs, and fragmentary sequestra of the vertebrae can never be removed by it. The abscess quickly fills again, and within a few days of making the attempt sero-purulent fluid leaks through the puncture, and unless thorough evacuation be at once performed, the abscess runs great risks of becoming septic. Irresolute attack of any other kind gives an equally unsatisfactory result. All this being admitted, there is no alternative for the practical surgeon but freely to open and drain the abscess.

The second point which I would suggest for discussion is, when should this thorough evacuation be resorted to? My contention is that the abscess should be attacked as soon as treatment has brought the patient into the best possible condition for the ordeal. There should be no useless temporising. Why delay operating until the skin has become thin and red? For during this time the pus may be hollowing out for itself a wandering chasm which extends from the diaphragm above to Scarpa's triangle below, and may be insinuating itself beneath the iliac fascia or amongst the planes of the abdominal muscles. Surely, the smaller the abscess the less serious the inevitable operation, and the more amenable the cavity to successful treatment.

The method of evacuating psoas abscess, which I have adopted in a large number of cases, and which I recommend with confidence, is by a free anterior as well as posterior opening and by then washing and draining the cavity right through. The first opening I make close above the outer end of Poupart's ligament, using the scalpel until about an inch of the length of the fibres of the aponeurosis of the external oblique has been exposed. I then scratch through the fleshy attachment of the internal oblique and transversalis, and, keeping well below the level of the peritoneum, thrust the director into the swelling. Pus escapes, and the opening is enlarged by the dressing forceps and the finger. A stiff probe is then passed through the abscess cavity and made to project beneath the skin on the outer side of the erector spinae. With this as a guide, a counter-opening is made in the loin. The large cavity is then flushed perfectly clean with a warm antiseptic solution, and a drainage-tube of the size of a penholder is laid through the chasm for a few days, being afterwards replaced by a silk thread. The parts are liberally covered with bulky pads of wood-wool and finely picked oakum in gauze bags; these are kept in position by a towel arranged as a binder, which, for the sake of compression, is tightly drawn and fixed with safety pins. Next day the cavity is again washed out, under chloroform, if necessary, the wounds being dressed as before. After this, the less that it is interfered with the better; if the temperature do not rise, and the discharge do not soak through, the dressings may be left for a three or four days, or longer. From the first day the discharge becomes thin and watery; suppuration in the ordinary sense of the word is at an end, and the cavity steadily contracts into a narrow passage.

If the abscess be so small that the surgeon does not feel inclined to attack it from the front, he may readily work down on to it above the iliac crest, on the outer side of the erector spinae. The scalpel is needed only for the skin incision, the rest of the operation being performed with equal ease and safety by the use of a steel director and the ring dressing forceps—at any rate in children.

Of the evacuation of unilateral psoas abscess, after the manner recorded, I have had a large number of examples; and it so happens that we have lately had under treatment in the ward, at the same time, three cases of double psoas abscess, each of which is deserving of special record.

The first is that of a girl, aged 6, who was admitted last March; she was pale and thin, and had been losing power in her lower limbs for about a year. A large psoas abscess reached from below each crural arch to the carious lumbar vertebrae. Mr. Lewis, the house-surgeon, evacuated the left abscess only, fearing lest the simultaneous attack of the two large abscesses should cause serious shock. The child did not do well, and the temperature rose. After an interval of a week or two, the other side was washed out and drained, and immediately the temperature dropped towards normal, and has not been materially raised since. The child is now at the Convalescent Home of the Children's Hospital, greatly improved in every way.

Another girl, aged 6, had a right psoas abscess evacuated in May last; her temperature remained at normal for about two months, when it began to ascend two or three degrees at night, and the child complained of much pain. Examination showed that the left side was occupied by an abscess, which had filled quickly. This I opened, front and back, thoroughly flushing the cavity with warm sublimate

solution (1 in 1,000); it was noticed that some of the injection returned by the opening on the other side. I much regret to say that this poor child died within four hours of the operation, death being preceded by three attacks of vomiting, and by collapse; she had, moreover, several loose motions, and the urine which was passed just before death was bloody. Of course, the vomiting might have been due to the chloroform; but, when this feature is considered in conjunction with the persistent and fatal collapse, the loose motions, and the hæmaturia, the circumstantial evidence in favour of her having been brought under the toxic effect of the sublimate salt is strong indeed. At any rate, for the future, I shall discard the mercuric solution of the strength of 1 in 1,000 for washing a large cavity in a child, and shall revert to warm iodine-water, decolourised by carbolic acid, a solution of which I have great reason to speak highly. (Salivation would not be expected in the case of sudden mercurial poisoning.)

The third case is that of Rebecca L., aged 5½, who, twelve months previously, had been treated at another hospital for spinal caries. On admission to Great Ormond Street, she had a large psoas abscess on each side, which had been noticed for eight months or so. On July 12th, 1886, the surface of the body having been cleansed, each abscess was opened, front and back, and drained. Since then she has been steadily improving in every way and is getting fatter. As is shown by the chart, her temperature has remained steadily against the normal line; it has never reached 100° F.

*Conclusions.*—It is unpractical to look forward to the spontaneous absorption of a psoas abscess; sooner or later it must be evacuated by Nature or art. In this matter art has the advantage, as by her aid the cavity can be at once emptied, cleansed and drained. The earlier the abscess is opened the better; for delay may entail the extravasation of pus, and the formation of a needlessly large and intractable cavity. The abscess should be opened and irrigated from the front and drained through a counter-opening in the loin. Washings and drainage should be thorough; for a small abscess the single opening at the back may suffice.

Warm iodine-water (decolourised) is the most suitable fluid for irrigation; the sublimate solution (1 in 1,000) is dangerous, at any rate in a large or double psoas abscess in childhood. The most convenient dressings are bulky pads of wood-wool and gauze bags of finely picked oakum; they should be fixed under a towel tightly pinned as a binder. Pus may rapidly collect on the opposite side of the spine, after a single abscess on the one side has been evacuated; therefore, if the temperature rise and remain high after the evacuation of a unilateral abscess, the formation of a second abscess should be watched for, and it should be opened as soon as it is detected; thus convalescence may be at once established.

Bilateral abscesses should be attacked simultaneously; they are likely to be in intercommunication, and the area of suppuration cannot be kept aseptic unless both sides are washed and drained.

## THE TREATMENT OF MALIGNANT STRICTURE OF THE ŒSOPHAGUS BY TUBAGE OR PERMANENT CATHETERISM.

By CHARTERS J. SYMONDS, M.S., F.R.C.S.,  
Assistant-Surgeon to Guy's Hospital.

1. *Epithelioma of Œsophagus: Treatment by Permanent Catheterism or Tubage: Death from Extension to Pleura and Lung.*—S. S., aged 43, came to my out-patients, at Guy's in April, 1885, suffering from dysphagia of two months' standing. She was between five and six months pregnant, and had got the impression that she had a "pregnancy tumour" in her neck, which would disappear at her confinement. A large bougie was arrested eleven inches from the teeth; a smaller one was passed with ease. For three months the occasional passage of a bougie relieved the dysphagia, though, on two occasions, she was unable to swallow even fluids for thirty-six and twenty-six hours respectively, the last being five days before admission.

July 6th. She came into the hospital very much emaciated, and able to swallow a little fluid only. She was eight months pregnant, and had had dysphagia for three months. A bougie was passed without difficulty, and the swallowing was improved.

July 9th. A short funnel-shaped tube was inserted; this gave rise to no trouble. On the 14th, it was removed, cleaned, and reintroduced, the stricture having become somewhat dilated. Through this tube (No. 10) she took beef-tea thickened with arrowroot, eggs and milk, and thin custard. She was up every day.

July 21st. She gave birth to a well-nourished female child, apparently at full time.

August 10th. The tube was removed. It had not been changed for twenty-seven days, during the whole of which time she swallowed fluids, arrowroot, eggs, custards and similar things freely. When removed the tube was found to be blocked, so that the fluids must have passed by the side, a circumstance indicating dilatation. The tube was now left out, as she was able to take bread and butter, bread and milk, and fish. On August 12th she was discharged.

August 24th. She returned, looking thin and exhausted. For the first week she swallowed fairly well, then the difficulty increased to complete inability on the 22nd. She was fed by a long tube; and, on August 27th, a No. 16 short tube was passed. It was a tight fit, but caused no discomfort. She spat up some blood-stained mucus, and, three hours after the insertion of the tube, had a rigor, with severe headache and an uncomfortable feeling in the neck. The temperature was not recorded at this time, but the next morning it stood at 103°; and, in the afternoon of the 28th, being still high, 102.6°, I removed the tube, fearing cellulitis. On the 29th the temperature was normal, and she was swallowing freely.

From August 29th to September 12th she managed to swallow without a tube, but suffered a good deal from cough, and from pain in the right side.

September 16th. A No. 12 short tube was inserted.

September 20th. Went out wearing the tube, but returned with the tube blocked on the 28th. She had been eating cake, and a currant was found in the tube; the tube had been in twelve days. She was sent home without the tube, and continued to swallow fluids and bread and butter, rice and cake, till October 15th, when she had pleurisy, with increased difficulty in swallowing.

October 20th. She was again admitted; and on 22nd a short tube, No. 10, was inserted. The introduction was followed by a rigor, during which the temperature reached 103.8°; but as she had no pain, and the pulse was good, the tube was allowed to remain, and the next day she was better.

November 4th. Up to this date she got on very well, but a symptom indicating pulmonary complication now appeared, namely, cough on swallowing. The tube was removed on the 6th, and she swallowed a little better, but the dyspnoea increased so much, and the cough became so continuous, that I was obliged to pass a long feeding-tube on November 10th. The sputa were foul at this time, and the pulmonary symptoms were increasing. From this date to her death, on December 14th, she wore a long tube through the mouth, by which all food was administered, except on one or two occasions, when she was able to swallow for a short interval without cough. The tube caused her much distress, due, as will be found later, to ulceration of the mucous membrane over the cricoid cartilage.

After death, the epithelioma was found to begin at a point four inches from the cricoid, and to extend downwards for three inches, ending at a point three inches from the cardiac orifice. There was a good deal of solid growth, rendering the wall thick. In the centre, the growth was ulcerated, and had infiltrated the wall of the bronchus, into the cavity of which it was bulging. A vertical ulcer, exposing the cartilage, existed in the mucous membrane over the back of the cricoid, and had been produced by the long tube worn through the mouth. There was an extensive right-empyema.

*Summary.*—In reviewing this case, I must say that, when the pulmonary distress became severe, I recommended gastrostomy, to prevent the food irritating the lung; but this the patient declined until it was too late to afford relief. The obstruction had existed in all ten months, during eight of which she was under treatment—for two months by bougies, and for the remaining time by œsophageal catheters. After permanent catheterism was adopted, she lived in comfort so long as she attended to the treatment, until the swallowing of fluids produced coughing. This occurred first on November 4th, forty days before her death, and 117 from the first introduction of the short tube. The longest period the tube remained in the œsophagus without removal was twenty-seven days. For three periods of fourteen, nineteen, and twenty-one days respectively, the patient was able to swallow without a tube; the closure gradually becoming complete, however, in each instance.

2. *Epithelioma of the Upper End of the Œsophagus: Treatment by Tube: Permanent Dilatation effected: Death from Exhaustion and Prevertebral Suppuration.*—T. W., 51, attended my out-patient room at Guy's Hospital, on November 16th, 1885, having been sent up by Mr. Bedford. The man had had dysphagia for three months for solids, and for six weeks had been restricted to fluids. When first seen he was pale and emaciated, and had not swallowed anything

for twenty-four hours, and for the previous two or three days had taken very little.

A No. 10 conical bougie was passed, and he was directed to come up next day.

November 17th. He had not swallowed anything since the passage of the bougie. After the conical bougie had been again passed, a No. 12 short œsophageal tube was inserted. The stricture was seven inches from the teeth, a distance which would place it just below the cricoid. The man immediately swallowed a pint of milk, without any effort, and was sent home. It was noted that the bougie was foul when withdrawn, and that a little blood was expectorated. His weight was 8 st. 1 lb.

November 19th. He looked much better, was able to take eggs, milk, and other fluids, without the slightest difficulty. He had a little uneasiness on swallowing saliva, which he referred to the cricoid and the base of the tongue. The tube was removed, cleaned and reinserted. The epiglottis was examined with the finger and found healthy, so that the inconvenience was attributed to the high position of the growth.

November 23rd. He came to out-patients; he was swallowing well, and said that he did not feel the tube at all.

November 25th. The tube became blocked, but freed itself again.

November 30th. He came to out-patients; he was unable to swallow, the tube having been blocked since the 28th, more or less. In order to clear the tube, he had swallowed forcibly, driving the tube through the stricture, so that the silk was quite taut. It was found impossible to remove the tube, the silk breaking in the attempt. I therefore passed a large bougie into the stomach, pushing the tube before it. The bougie entered with the greatest ease, nor was the tube felt. This bougie was several sizes larger than that formerly passed, and indicated a considerable dilatation of the stricture, which was further proved by my being able to insert a No. 16 short tube without difficulty. Through this the man swallowed freely, and though the tube had an unusually thick wall, he experienced no inconvenience therefrom.

December 1st. He weighed 8 st.  $\frac{3}{4}$  lb.

December 8th. The tube was removed and cleaned, having been in eight days, and was again returned. On the 9th this man was shown at the Hunterian Society.

December 14th. He swallowed well; the tube was removed, cleaned, and returned. He could swallow freely without the tube. He looked well, and was free from cough. He said he was able to get about, and felt great increase of strength, though unable to work.

December 21st. He had not been seen for a week, but had had no trouble.

December 24th. The tube was partly obstructed. It was removed, and he felt relieved at once of the uneasiness of which he complained. The tube could not be returned, so the man was allowed to return home without it. He had worn a tube continuously for thirty-seven days, without inconvenience, for the further history will show that the irritation and cough of the last few days were due chiefly to the extension of the growth.

December 25th. He swallowed freely; had less cough, and had slept well.

December 28th. A conical bougie was passed, but a tube could not be inserted.

December 31st. He was able to swallow stewed tripe and onions, stewed calves' feet. Weight 8 st. 4 lbs. His voice was gruff, without cough; the gruffness came on to-day, and he attributed it to cold.

January 4th-18th (1886). He continued to swallow freely, but the hoarseness remained. The larynx was examined, and though the cords were well seen, no change was observed that could account for the alteration of the voice.

January 26th. Came again, looking very ill. He had a bad cough, and expectorated a good deal of bad-smelling, purulent material. Swallowing (especially fluids) produced cough.

February 1st. He was very weak and thin, but being anxious to remain at home, and having a cheerful disposition, he would not enter the hospital, and made out that he was swallowing better than he really was.

February 4th. I saw him at his own house. He was then cold and almost pulseless. He had with difficulty got home on the 1st, and had rapidly emaciated since. He was anxious to have a tube passed. But the attempt proved too much for his remaining strength, for shortly afterwards he died.

At the *post-mortem*, the epithelioma was found extending from the level of the centre of the cricoid downwards for three inches, reaching to a point nearly opposite the bifurcation of the trachea. The growth was much ulcerated and the trachea infiltrated; its mucous membrane

showing three nodules. The ulceration extended outwards into the cervical tissues, where suppuration existed in front of the vertebra. There was no evidence that the tube had caused ulceration, though its upper end must have rested against or just below the cricoid. The tube pushed down nine weeks before death was found in the duodenum. It showed no evidence of digestion, and the mucous membrane was uninjured.

Summary of case :

Duration before treatment	...	3 months
"    after    "	...	nearly 3 "
Total	...	6 months
Of the 3 months of treatment,		
He lived with tube in	...	5½ weeks
"    after tube removed	...	6 "
Total	...	11½ weeks

It may be said : 1. The use of the tube kept him alive and well while it was retained. 2. It produced so much permanent dilatation that after its removal he was able to swallow solids to within a few days of his death.

3. *Rapid Epithelioma of the Oesophagus: Treatment by Tubage: Death from Extension to the Trachea.*—C. J., aged 51, grocer. He had been twenty-one years in the army. This man was admitted under me into Guy's Hospital, on July 6th, 1885. Five months previously he retched violently while at breakfast, and was unable to take any food. From this time he began to fail, lost appetite, and suffered from thirst. Two months later—that is, three months before admission—dysphagia began for solids, and for seven weeks he had been restricted to fluids.

July 6th. On admission, the man was emaciated and weak, but had continued to attend to his work. He presented all the usual signs of oesophageal obstruction, which was found nine and a half inches from the teeth. On the previous day I had passed a bougie, after which he swallowed more easily.

July 8th. A small-sized bougie passed with difficulty, though he was taking meat and vegetables. On the 9th I failed to pass a bougie, but succeeded on the 10th.

July 11th. He was sent out, since he was able with care to take solids. The improvement seemed due, in part at least, to the use of bougies, for when first seen he only swallowed fluids with difficulty.

July 28th. He was readmitted, with almost complete inability to swallow, and a bad cough. This latter symptom first showed itself on July 20th, and was produced by any attempt to swallow. I immediately passed a No. 10 short tube through the stricture. It was tightly grasped, and gave rise to some retching and straining. Before its introduction he took some milk, which was at once rejected with cough. Afterwards he drank half a pint without taking the vessel from his lips, and said "it was the greatest treat he had had for two months." He was put on milk, beer, beef-tea and eggs. This patient already had signs of extension to the lung, and a speedy termination was to be expected.

July 31st. He swallowed freely, but was disturbed by cough and expectoration, and by pain in the left side, about the position of the nipple. A No. 12 tube was tied in.

August 4th. The pain below and outside the nipple had increased, and there was tenderness, with a fremitus and a double pleuritic rub. He now had cough on swallowing.

August 5th. The tube was removed, and found narrowed by mucus. He was relieved, and at once expectorated foul purulent sputa. He took milk easily for a day; but, as cough was still produced by the passage of fluid, a long feeding-tube was introduced. This was successful for a few days, but had to be removed later, because of the pain. It was introduced during the day, and removed at night. The man's condition rapidly grew worse; the cough was incessant; signs of gangrene of the left lung came on; and he died on August 31st. The long tube was used up to the time of death, but caused him a good deal of trouble, due, as will be seen from the account of the necropsy, to ulceration of the mucous membrane over the cricoid.

At the inspection, the epithelioma was found occupying the central portion of the gullet; it involved the whole circumference, and perforated into the trachea at four points. There was gangrene of the lower part of the upper lobe of the left lung, a few enlarged glands, but no secondary deposits elsewhere. There was a little food in the bronchi. There was a vertical ulcer in the mucous membrane covering the back of the cricoid cartilage, caused by the presence of the

long tube. It was of exactly the same character as that in S. S., but not so deep.

CASE IV. *Stricture of Lower End of Oesophagus: Relief by Tubage.*—G., aged 43. This man was sent on to me by Dr. Pye-Smith, under whose care he had been in Stephen Ward for oesophageal stricture. The patient is now (August, 1886) under my care in Guy's Hospital. The obstruction is thirteen inches from the teeth, so it must be close to the stomach. When first seen as an out-patient, a bougie passed easily, and he was instructed as to food. Then he had pleurisy of the left side, and was very ill at home for some time. In July I took him in, and, after many attempts, succeeded in passing a conical bougie, and later a short tube. The relief afforded was most marked; for, while before he expectorated twenty to thirty ounces of saliva and mucus, he now ejected scarcely any. He was unable, before its introduction, to rest on his back, as a troublesome cough supervened, but now could do so for most of the night. The tube was left in three days, during which time he was fed on fluids only. After its removal, he took bread and butter, chicken, tripe, etc., with greater ease; and a bougie could be passed easily. The patient suffers chiefly from dyspnoea, due probably to extension of the growth to the left lung. The whole of the left chest is dull, and on several occasions blood only has been withdrawn on aspiration. Once an ounce of clear serum was removed. I propose to insert a tube from time to time, to keep the stricture dilated, and enable the man to take solids; and, when this is no longer possible, to retain the short tube permanently, until other conditions may demand the use of the long feeding-tube.

It has already been shown by Krishaber, Durham, and Croft, that tubes can be safely worn for long periods, both through the nose and the mouth, with the effect of prolonging life in cases of malignant stricture of the oesophagus.

Krishaber's<sup>1</sup> cases lived 305, 167, 126, and 46 days respectively; Croft's<sup>2</sup> wore tubes for 149 and 108 days respectively, and the case quoted by Mr. Durham<sup>3</sup> had already worn a tube four months.

The tubes used by the surgeons above mentioned were passed through the nose or the mouth, and the food was poured down the tube. The material was the ordinary gum-elastic or black caoutchouc. Dr. Krishaber stated that after a time soft rubber tubes could be passed. This plan has independently been carried out by Mr. Berry, who, in a paper in the *St. Bartholomew's Hospital Reports*, records cases and describes the method he adopted. Of all materials for long tubes, there can be no doubt that the least irritating in every way is rubber, and I can confirm the statement that ordinary drainage-tube is quite sufficient to maintain dilatation. These long tubes were used, as will have been seen, in two of the cases here recorded, when the swallowing of fluids produced coughing, and, for a time, they answered well, but an evil attending their use, to which attention has not yet been directed, deserves remark. In both cases the patients were at first relieved, and easily fed, but soon the tube caused great irritation and cough, and had to be removed frequently. After death a vertical ulcer was found in the mucous membrane over the cricoid, in both cases, and on the floor of one the cartilage was exposed. The tubes were worn through the mouth, as recommended by Durham and Croft, neither of whom seem to have encountered this effect. As both these patients were troubled much with cough on account of severe lung implication, it is probable that to the frequent and spasmodic movements of the larynx the ulceration was due. Such a result might not have happened had the tube been passed through the nose, as it is kept further back in the pharynx. Again, had a soft rubber tube been introduced, still greater relief might have been afforded.

*Short Tube.*—In one other case the long tube gave rise to great pain and irritation, partly due to its own presence, and partly to the necessity of constantly ejecting the saliva. It was in connection with this case, fully recorded in the *Transactions of the Clinical Society*, vol. xviii, that the short tube was suggested to me. In the paper referred to, the tube is illustrated *in situ*. The object of this modification of Krishaber's tube is to permit the patient to swallow and enjoy the taste of his food, while it at the same time substitutes a piece of silk for a tube in the mouth. Four cases illustrating its use are here recorded, and I propose to state the range of its usefulness, and to record the difficulties and accidents attending its employment. I am also most anxious to learn how far the tube has been found useful by others.

I can confirm Mr. Durham's statement that, with care and proper instruments, there is little danger in passing bougies, no accident having occurred in the eight cases I have had under prolonged treatment.

<sup>1</sup> *Transactions of the International Medical Congress*, 1881.

<sup>2</sup> *St. Thomas's Hospital Reports*, vol. xii, 1882.

<sup>3</sup> *Lancet*, November 19th, 1881.

The short tube, about six inches in length, is passed through the stricture till the funnel rests upon its upper face. It is passed on the end of a conical bougie, or by a special introducer of copper wire, which anyone can make. The advantage of the wire is, that the tube can be directed down the posterior wall of the gullet, the trachea being avoided; but it should always be made quite supple first, and tried on a bougie, as a tortuous passage may thus be easily and safely traversed. The silk is looped over the ear, and held by a piece of strapping. The patient swallows down to the funnel, through which the fluids pass to the stomach. The best form of tube is that made on a silk web, and it is essential that the thickness of the wall does not increase in proportion with the increase in size of the lumen, but remains nearly the same for all sizes. This gives a wider channel, and secures softness and pliability, the funnel moulding itself to the shape of the œsophagus, and it is quite stout enough to produce and maintain dilatation of the stricture. These tubes, with the proper silk attached, are well made by Messrs. Down Bros., of St. Thomas's Street, S.E.

*The Effect of the Tube.*—As Krishaber pointed out, dilatation of a malignant stricture can easily be effected. This is so rapid that, in a week, tubes two to three sizes larger can often be passed. Indeed, it is so rapid that it is always wise to remove and clean the tube once in ten days, for fear it should slip beyond the stricture—an accident that once occurred to me. The first advantage attending this dilatation is that the tube may be removed from time to time, and the patient allowed to take solid food for short intervals. This variation in diet is a great source of comfort as well as of nourishment. It may be urged that this dilatation leads to a more rapid formation of the growth, to which it may be replied that the comfort is cheaply bought.

*Its Applicability.*—In the case brought before the Clinical Society, the disease was seated in the middle third of the gullet; and it was thought by many that such a tube could not be worn when the disease was high up. I am able to record here the case of T. W., in whom the ulcer extended downwards from the centre of the cricoid, so that the funnel must have rested against the cartilage, and yet it gave him no inconvenience. In another case, G., the disease was at the lower end, and here the tube had been worn with great relief and without discomfort, though two to three inches must have been in the stomach. The five cases now recorded are sufficient to illustrate the value of the tube in stricture in all parts of the œsophagus.

This short tube has a limited range of usefulness, for in most cases there comes a time when the lung is involved and the swallowing of fluids produces cough. The funnel being no higher than the stricture, and fluid passing by its side, nearly the same irritation arises as if there was no tube in at all. That this is due to fluid passing by the side of the tube is suggested by the relief afforded on passing a larger one, and by the temporary relief which follows its withdrawal. When this period of the case is reached, we can only relieve by substituting a long tube, preferably of rubber, or by performing gastrostomy, and it can be shown, I think, that Krishaber's long tube will answer well, and since the patient has but a short time to live, it would seem better to continue the use of tubes. My own experience of the long tube is, I admit, unfavourable, and I believe one of my patients, S. S., would have been more comfortable with an opening into the stomach. I proposed this to her, but she declined until it was too late. The ulceration which occurred in these two cases will, I hope, be avoided in future by adopting the nasal route and using rubber tubes.

Two of the cases here recorded lived twenty-seven and forty days respectively from the time that swallowing fluids first produced coughing, while the original case wore a short tube of large calibre to the time of his death, though his cough was severe and the expectoration abundant. While referring to duration of life, I may mention that we are able to make a prognosis partly upon the duration before complete dysphagia arises, but chiefly upon the character of the breath and the result of examination. A foul breath or foul eructation, and an unpleasant odour communicated to the bougie, are evidences of rapid growth. The case of C. J. is a good example of this form, while that of S. S. is of the slower variety.

*Disadvantages of the Short Tube.*—As above stated, its applicability is limited, but the comfort and relief afforded when once witnessed are sufficient to justify its use, even for a short time. When expectoration is abundant, the sputa may block the tube, and it will require more frequent removal. The tube may pass beyond the stricture, and we may be unable to withdraw it. In one case, that of T. W., this was due to his attempting to clear the tube by forcible swallowing. It passed beyond the stricture, and on attempting to withdraw it I broke the silk. I at once sent the tube into the stomach by a large bougie, and inserted another. The tube never gave any

trouble, and was found at his death, sixty-five days later, in the duodenum, there being no evidence of any injurious effect whatever. This tube was a thick one. The softer ones will probably pass; this happened, in an instance related to me, on the sixteenth day. This accident will be avoided by removing the tube every ten days at least, to clean and if necessary insert a larger, and by directing the patient not to swallow forcibly. Beyond these two disadvantages I do not know any others specially connected with the short tube. That no ulceration attends the presence of the funnel has been proved now in four cases.

*Rigor.*—In the case of S. S., a rigor followed the introduction of a tube on two occasions, the temperature rising to 103° and 103.8°. The fever subsided in two days on the first occasion, the tube having been removed after twelve hours. The tube was allowed to remain in the œsophagus after the second rigor without any evil result. This complication closely resembles that occasionally attending catheterism of the urethra.

In reviewing the treatment of this form of stricture I would suggest the following plan:

1. So long as solids can be swallowed, let the patency be maintained by the passage of bougies, for neither by tube nor through the opening formed by gastrostomy can solid food be introduced. Well-stewed tripe, rabbit, and pigs' and calves' feet are swallowed readily.

2. When solids can no longer be taken, a short tube should be introduced. This, when considerable dilatation has been effected, may be removed altogether from time to time, and the patient allowed to take solids. This form can be worn till the case terminates, unless pulmonary symptoms supervene, especially cough on swallowing.

3. When the passage of fluids can no longer be borne, then they must be withdrawn altogether from the gullet. This can be accomplished in two ways: (a) by the use of Krishaber's long tube; (b) by gastrostomy.

The duration of life after this stage has been reached will in no case be long, and it becomes a question of giving the patient the greatest amount of comfort. The experience of others as well as my own shows that long tubes may be worn till the termination of a case; and, as I believe, the ulceration will be avoided by using rubber tubes, and passing them by the nose. To this method I give my adhesion, rather than to gastrostomy. Those who have seen many cases know the difficulty that often arises from escape of the gastric juice, and that not a few have been fed into the peritoneum, while the operation, if done when the patient is in a depressed condition, is very likely to be unsuccessful, either from want of union or exhaustion. Other means are sufficient in the earlier stages.

The most recent advocate for gastrostomy, Dr. Gross<sup>1</sup>, seems to believe that only those cases of malignant disease in which there is no ulceration are suitable for permanent catheterism. To this I may reply that my most successful case, T. W., had certainly ulceration when first seen; and this condition existed in all the others at a time when catheterism was giving complete relief.

Again, while I think greater caution must be exercised in dealing with disease at the lower end of the tube, it by no means follows that it is impossible, as Dr. Gross suggests, to enter the stomach. The case of G. shows this. I have had great difficulty in traversing the stricture in two cases; but I believe, with suitable instruments, and a period of complete rest, with the use of sedatives and rectal enemata, most of the strictures will be overcome; and once a tube has been passed and retained, there will be no further difficulty.

## RIGHT UPPER CANINE TOOTH REMOVED FROM THE LEFT ORBIT OF A CHILD.

By JOHN WARD COUSINS, M.D. LOND., F.R.C.S.,

Senior Surgeon to the Royal Portsmouth Hospital, and the Portsmouth and South Hants Eye and Ear Infirmary.

A WELL-NOURISHED child, aged 2 years, came under my care in May, 1886, with a hard tumour, about the size of a filbert, firmly fixed just within the left orbit. The tumour could be pressed inwards under the eyeball, and downwards to the edge of the orbital plate. It was deeply embedded, and required to be carefully dissected out and detached from its connections. The crown of the tooth was enclosed in a sac, and the fang was attached to the orbital plate by fibro-cartilage. On examination the teeth were found normal in position, complete in number, and well formed; and the jaws were also large and fully developed for a child of 2 years.

<sup>1</sup> Amer. Journal Med. Science, July, 1884.