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 oesophagus, 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 oesophagus.

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 oesophagus 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. Gross¹, 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.

¹ Amer. Journal Med. Science, July, 1884.

Mr. T. J. Tracey, and Mr. W. H. Kirton, Surgeon-Dentist to the Royal Portsmouth Hospital, kindly examined the tooth, and sent me the following report: "The tooth is a well-formed right upper canine belonging to the temporary set, and it is a well-developed canine for a child of 2 years of age."

REMARKS.—Irregularity in the number of teeth may occur in either the first or second dentition, and supernumerary teeth may spring up in any part of the dental arch. In shape these teeth are generally irregular and conical, and they bear no special resemblance to any kind of normal teeth; sometimes, however, they present a definite outline and accurately resemble one of the recognised forms. Instances of supernumerary incisors, canines, and bicusps have been recorded, but examples of ill-shaped teeth, without possessing the characters of any special form, are of frequent occurrence in dental practice. As regards the time of eruption, supernumerary teeth are always irregular. They are generally matured long before the appearance of the permanent set, but their exact relation to the normal teeth is not well defined; they may be freaks of development in connection with either the temporary or permanent teeth. A normal permanent and a supernumerary tooth sometimes seem to hold the same relation to each other as the teeth of the first and second dentition. In my case there was no irregularity of the teeth, but the age of the patient, and also the special characters of the tooth, clearly indicate its relation to the deciduous set.

Cases of misplaced teeth, in strange situations, have often been recorded. These irregularities, however, are not associated with any special shape of jaw, or deficiency of size in the dental arch. The teeth are generally found to occupy an inverted position on the bone to which they are attached. They have been erupted in the hard palate and in the nares, but I have been unable to find an instance on record of a tooth appearing in the orbit. The occurrence of a right upper canine in the left orbit is certainly a singular feature in my case, and this crossed displacement must have taken place at a very early stage of embryonic life. The canine papillæ appear in the primitive dental groove about the eighth week; and soon after the rudimentary pulp of the milk teeth are in rapid formation within their follicles on the edge of the jaw. At this period, a supernumerary follicle and its contents could be very readily displaced from the lip of the primitive groove, as the surrounding tissues are soft, and the rudimentary orbit and the gums are in close proximity. A supernumerary tooth-sac must always be especially liable to dislocation; and when once it gets out of the groove it may be pushed in any direction during the formation of the surrounding structures.

ON A SIMPLE METHOD OF OPERATION FOR DIVERGENT SQUINT.

By RICHARD WILLIAMS, M.R.C.S.,

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READJUSTMENT or advancement of the insertion of the internal rectus is now a recognised surgical proceeding. It is therefore important that the operation should be not only effectual, but easy of performance, and as simple as possible. Since its introduction by J. Guérin, it has undergone various modifications at the hands of Von Graefe, the late Mr. Critchett, and others. It still remains, however, a very tedious proceeding, necessitating the use of an anæsthetic, during the administration of which the patient not infrequently vomits, and matters are thus greatly complicated. The introduction of cocaine, while to some extent lessening these inconveniences, can hardly be said, in operations of this kind, involving the deeper structures, to enable us, in the majority of cases at least, to dispense with the use of an anæsthetic. Any modification therefore of this operation which secures this desideratum will be of advantage both to the operator and the patient. Of late I have adopted the following plan in all cases of external squint coming under my care, and unless the patient has been excessively nervous, I have not found it necessary to use an anæsthetic, while the time occupied in the operation has been greatly shortened.

An incision is made in the conjunctiva and subconjunctival tissue over the tendon of the internal rectus, extending from near the margin of the cornea for about half an inch towards the inner canthus. The edges of this incision being separated, the strabismus hook is inserted under the tendon in the usual way, and then confided to an assistant. A curved needle armed with a suitable silk thread is then inserted in the conjunctiva near the margin of the cornea (as shown in the figure), and carried between the sclerotic and the conjunctiva,

towards the muscle behind the hook. It is then passed through the tendon from edge to edge at right angles to the course of its fibres, and brought out at the opposite side of the conjunctival wound. The edge of the conjunctiva at this side of the incision is now raised with a pair of forceps, the needle is insinuated between it and the sclerotic, and brought out near the margin of the cornea at a point corresponding to the point of entrance. A glance at the accompanying figure will indicate the course the ligature has taken, and it will be seen that the tendon and conjunctiva are included in a single loop. At this juncture the external rectus may be divided or not, according to the requirements of each individual case. This point having been disposed of, the tendon of the internal rectus is divided at a safe distance from the ligature, and the hook is removed, the parts then presenting the appearance shown in the figure. By now tying the two ends of the loop together, the margin of the cornea is brought into apposition with the cut end of the tendon, and the eye is brought into a position of more or less internal squint. Finally, the edges of the conjunctival incision are brought together by means of a fine suture.

The advantages claimed for this operation are: (1) that it is much shorter and simpler than the usual method; (2) that by passing the ligature in the manner described, a very firm hold is obtained both of the tendon and the conjunctiva, which is sometimes apt to tear; (3) that no anæsthetic is generally required. The objection which naturally suggests itself is that there is a certain amount of tendency to puckering of the end of the tendon where the loop is tied. I think, however, this objection is more theoretical than real; at any rate, I have not found that it jeopardised the success of the operation in any of my cases. Moreover, it can to a large extent be avoided by placing the points of entrance and exit of the ligature at a considerable distance from each other.

The following two cases, while interesting in themselves on account of the condition of the refraction, are examples of cure by means of this operation.

CASE I.—W. G., aged 17, consulted me at the Eye and Ear Infirmary on October 4th, 1886. He had a well-marked external squint of the left eye, the duration of which could not well be ascertained. There was H=2 D in each eye, and vision was normal in the squinting eye as well as in the other. No cause could be assigned for the squint. He became an in-patient, and was operated on on November 29th. Cocaine was employed to produce local anæsthesia only. A month after the patient was shown at the meeting of the Liverpool Medical Institution. By this time he had completely recovered the power of conjugate action, and the eye appeared quite normal, with the exception of a slight injection in the region of the inner canthus.

CASE II.—Miss R., aged 17, consulted me first in September of last year, but the operation was deferred owing to the patient being at school. She had an external squint of the right eye of many years' standing. On examination with the keratoscope, she was found to have H=4 D in one meridian, and =6 D in the other. Vision, with correcting glasses, was barely $\frac{1}{2}$. The fundus was normal. In the left eye she had M=2 D; V with this glass being $\frac{1}{2}$. With the help of my colleague, Mr. C. G. Lee, I operated on December 21st, 1886. The patient was so excessively nervous that we were compelled to give her ether. With this exception, the operation was performed in the usual way.

December 29th. The ligature was removed. There was a slight internal squint, with a tendency to homonymous diplopia, increased on looking outwards. A week later she was ordered glasses; and on January 24th, 1887, she left for school, the diplopia having quite disappeared, and the eyes being quite parallel.

GLANDERS IN RUSSIA.—A laboratory and a *clinique* for the study of glanders have been added to the Veterinary Institute of Dorpat.