Societies' Proceedings

ROYAL SOCIETY OF MEDICINE—SECTION OF LARYNGOLOGY.

June 20, 1930.

President—Dr Dan McKenzie.

Congenital Stenosis of the Œsophagus in Children, associated with Diaphragmatic Hernia of the Stomach.—A. Brown Kelly, M.D. The paper is published in the *Journal of Laryngology and Otology*, vol. xlv., p. 680, October 1930.

Discussion.

Mr E. Watson-Williams said that this paper explained a case which he had six weeks ago, in a patient, aged 37, sent as a case of carcinoma of the œsophagus. There had been difficulty of swallowing for seventeen years, and there was a constriction midway down the chest. This opened easily before the œsophagoscope (under general anæsthesia), and he found himself looking at gastric mucosa, 36 cm. from the teeth. He confessed that he had been completely puzzled at the time.

Gradual Diathermy Destruction of the Faucial Tonsils.—Dan McKenzie, M.D. (President). The paper is published in the *Journal of Laryngology and Otology*, vol. xlv., p. 686, October 1930.

Discussion.

Dr J. S. Fraser would like to know how the President performed the operation. In ordinary enucleation of the tonsil by the dissection method one separated the anterior pillar from the tonsil, then proceeded to operate in an easy area, keeping close to the capsule. An assistant retracted the anterior pillar. Could that be done with the diathermy pencil or needle? Or did Dr McKenzie destroy the tonsil much in the same way as it was supposed to be destroyed by London paste? He had had one or two cases in which the tonsil was supposed to have been destroyed by London paste, and in which he subsequently had to remove a very large tonsil stump which contained the so-called supratonsillar fossa, and had been the seat of numerous attacks of acute tonsillitis.

Did Dr McKenzie make an incision with the diathermy knife through the plica triangularis and work in the space between the tonsil and its capsule, or did he attempt to destroy the tonsil by coagulation from within outwards in the same way as by the London paste method? In other words, could the diathermy knife or needle be used just as the scissors were used in ordinary dissection of the tonsil?

Mr Musgrave Woodman would like to hear more about removing the whole tonsil. London paste was condemned because it left the tonsil behind. He submitted that it was unwise to leave any portion of tonsil behind, whether it was treated by paste, by ordinary operation, or by diathermy.

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Mr H. BELL TAWSE said he had no experience of the treatment of septic tonsils by surgical diathermy, but he had recently seen a patient who was recovering from the application of this method. The surgeon's procedure, however, differed from Dr McKenzie's; it was to be done at one, or perhaps two sittings, and was said to be a painless process under surface anæsthesia. The patient said that the operation was extremely painful; she was in bed four days with a temperature, and for ten days was unable to swallow comfortably. This experience had upset her nervous system, with some return of the symptoms of exophthalmic goitre, for which a portion of the thyroid gland had been removed a couple of years ago. She was advised that a second application of diathermy would be necessary, but she had not the courage to face a similar ordeal, and, judging by the amount of tonsillar tissue still to be removed, several further sittings would appear to be necessary for complete destruction. The post-operative history of this case appeared to be more unpleasant than that following enucleation by dissection under local anæsthesia by injection, and as the operation had to be repeated it was unlikely, in his opinion, to become popular with the general public.

Dr McKenzie's method, on the other hand, was apparently painless, and would appeal to the few who could spare the time and possessed the means and the temperament. At the moment it seemed to be inapplicable to hospital practice, but improvements in technique might render surgical diathermy as useful for the removal of tonsils as for other lesions of the throat.

The PRESIDENT (in reply) said that several of the points raised would be found in the full paper, of which he had given only portions. If he did not use some sort of anæsthesia he would not get many patients, as at the beginning patients were alarmed. He employed surface anæsthesia and injected novocain. Separation of the anterior pillar was not necessary; one destroyed the tonsil from the inside, and, if one chose, the destruction could be carried through the pillar, or up to it and stop there. There was no need to remove the capsule, but the operator could do so if he wished.

Pain and discomfort resulted if the operator was careless or ignorant, but if he proceeded cautiously, diathermising only a little at a time, and produced anæsthesia before beginning, there would not be pain.

He was sure there was a numerous class who would not submit to the ordinary operation, but would submit to diathermy. After a careful operation in this way there would be no more than a little residual soreness. Its great drawback was its tediousness; it might have to be carried out every week or fortnight for three or four or more months, but the final result was admirable.

Thirty Foreign Bodies Removed from the Air and Food Passages.

D. A. CROW, M.B., Ch.B.

Of the first foreign body case in which I performed œsophagoscopy I have no record. It is nevertheless deeply engraved upon my memory by reason of its tragic termination. A colleague who had

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unsuccessfully endeavoured to remove a jagged half tooth-plate from a woman's post-cricoid œsophagus asked me if I would care to try. Nothing looks difficult to the inexperienced and I set about the task with a high confidence. In order to rotate the foreign body, I introduced a steel hook. I think back on that moment with horror; the hook stuck and could in no wise be removed. By œsophagotomy the plate, but not the hook, was recovered. The patient died. So heavily did this event weigh upon my mind that I would not touch an œsophagoscope till I had been over to Philadelphia and closely studied Professor Chevalier Jackson's methods; and much as I could say, and should like to say, in admiration of the man himself and of his mechanical genius, the fact that I have never since unsuccessfully tackled a foreign body case is the simplest and most sincere tribute I can imagine.

Cases 1 to 9.—The next few cases were of coins all impacted below the crico-pharyngeal band; they do not present any unusual points of interest. Provided that we can get such cases early, that the issue has not been prejudiced by blundering attempts at removal, and that the operator is mindful of the tendency of coins to hide under the crico-pharyngeal fold, these foreign bodies cause the least anxiety of any.

Case 2.—The child in this instance was allowed to go untreated for a week, hardly able to swallow anything; there was a certain amount of sloughing of the œsophageal wall.

Case 3.—Presents no unusual feature.

Cases 4, 5, 6, 7, 8, 9.—Six coins, almost all of them dealt with soon after impaction and, therefore, without difficulty.

Case 10.—Here is a brass object from a whistle, similar to a coin, from the endoscopist's point of view.

Case 11.—An overcoat button in the œsophagus. The child nearly deceived me by stoutly maintaining that the button had gone down, but his deception availed him nothing.

Cases 12 and 13.—Two bones from the œsophagus. A general anæsthetic has been used in almost all of the cases. It is by no means impossible to effect the removal of them under local anæsthesia, but I prefer to avoid the psychological trauma which such a procedure involves.

Case 14.—A partridge bone, removed under somewhat humiliating circumstances.

Cases 15, 16, 17.—Here are three bones; the turkey bone case gave some anxiety; by the time the patient was sent to hospital four days had elapsed and the œsophageal wall was already perforated. She made, however, a good recovery.

Cases 18 and 19.—The two aluminium wires from a saucepan

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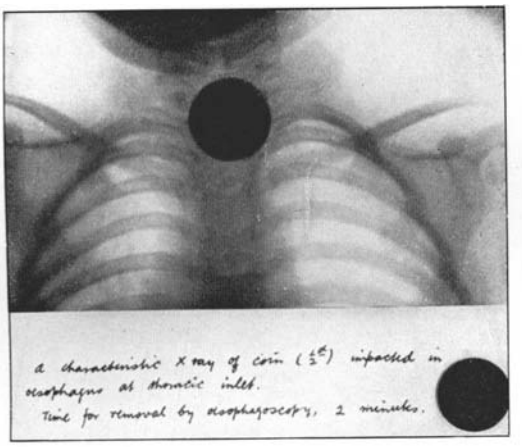


FIG. 1.—CASE 1.

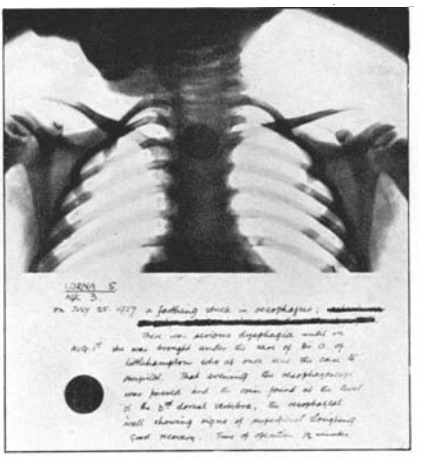


FIG. 2.—CASE 2.

NAME. Norman Pattison.
ADDRESS. Moulescombe.
AGE. 5.

June 6th. 1929.
At 7 a.m. to-day swallowed a coin, stated to be a penny.

X-ray shows a coin, much smaller than a penny at supra-sternal level.

Under $CHCl_3$ with Lynah tube and Jackson forceps removed sixpence from the oesophagus, 1½ inches below crico-pharyngeus.

Time taken 3 minutes.

FIG. 3.—CASE 3.

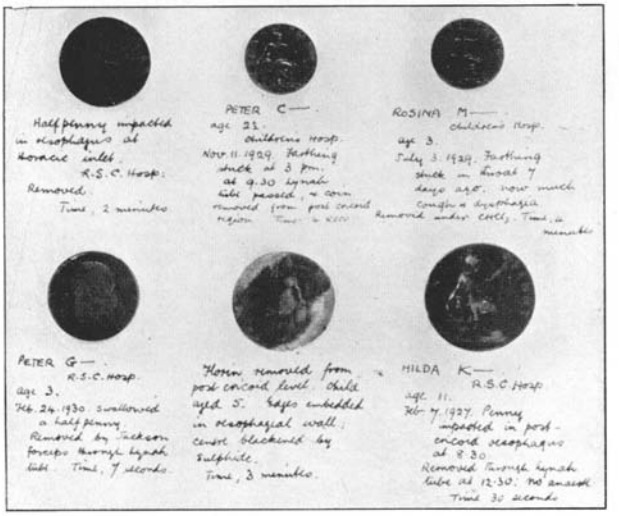


FIG. 4.—CASES 4, 5, 6, 7, 8, 9.

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FIG. 5.—CASE 10.

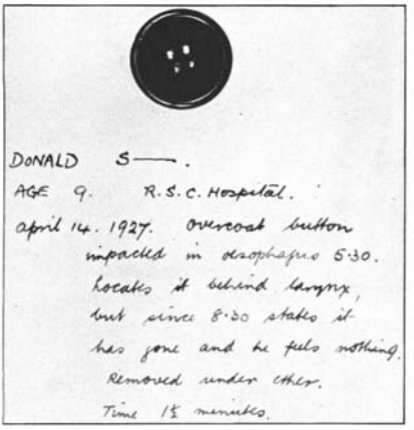


FIG. 6.—CASE 11.

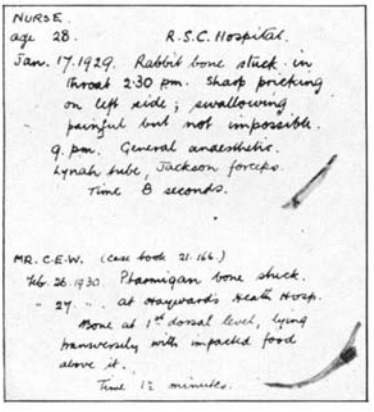


FIG. 7.—CASES 12 and 13.

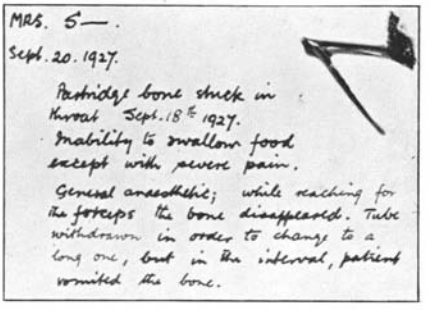


FIG. 8.—CASE 14.

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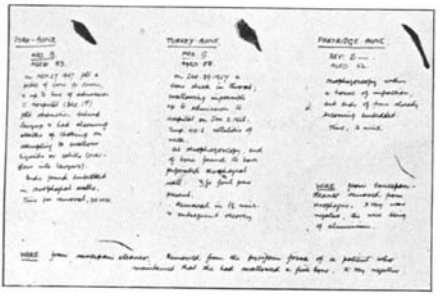


FIG. 9.—CASES 15, 16, 17, 18 and 19.

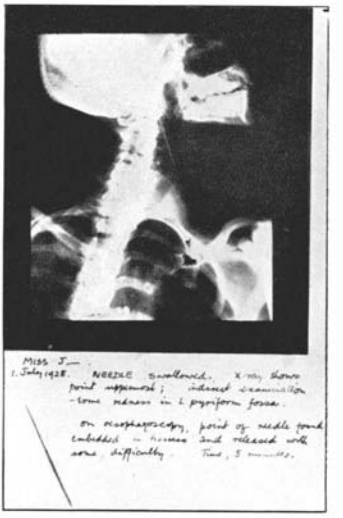


FIG. 10.—CASE 20.

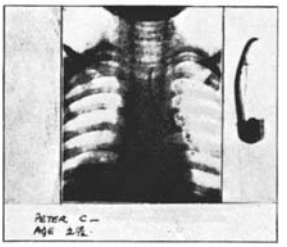


FIG. 11.—CASE 21.

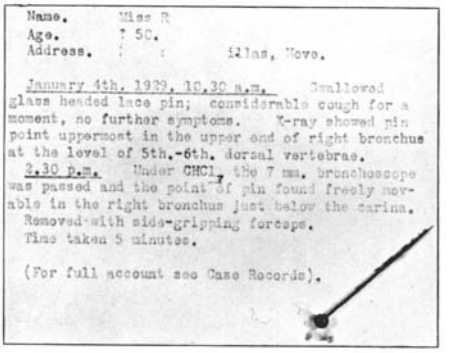
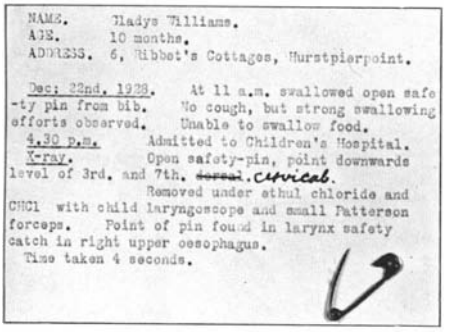


FIG. 12.—CASE 22.

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NAME. Gladys Williams.
AGE. 10 months.
ADDRESS. 6, Tibbet's Cottages, Hurstpierpoint.

Dec: 22nd, 1928. At 11 a.m. swallowed open safe-ty pin from bib. No cough, but strong swallowing efforts observed. Unable to swallow food.
4.30 p.m. Admitted to Children's Hospital.
X-ray. Open safety-pin, point downwards level of 3rd. and 7th. ~~cervical~~ cervical.
Removed under ethul chloride and CHCl with child laryngoscope and small Patterson forceps. Point of pin found in larynx safety catch in right upper oesophagus.
Time taken 4 seconds.

FIG. 13.—CASE 23.

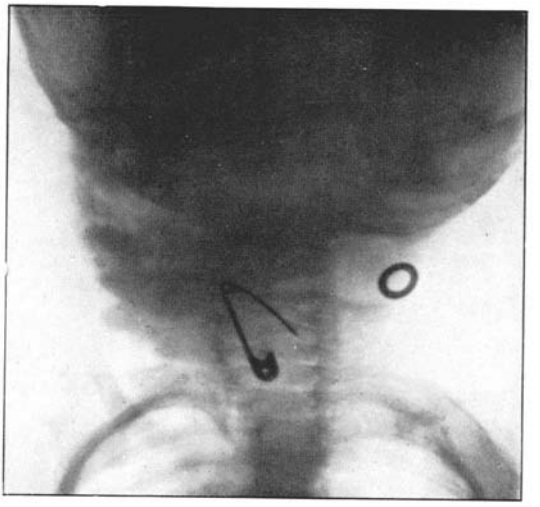


FIG. 14.—CASE 23.

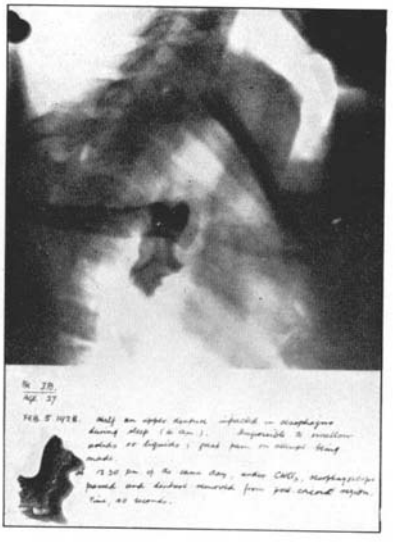


FIG. 15.—CASE 24.

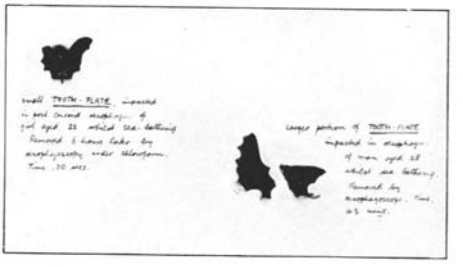


FIG. 16.—CASES 25 and 26.

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cleaner were interesting because X-ray examination was negative, and in each case I was looking for a fish bone.

CASE 20.—This is a case of a needle embedded in the tissues just out of range of indirect examination. Disimpaction was by no means easy. The girl had three other needles in the stomach.

CASE 21.—A portion of a safety-pin in the right bronchus of a child scarcely three years old. There was hardly a symptom at the moment of inspiration, but the mother was suspicious and the doctor to whom she took the child had the good sense to realise that absence of symptoms is quite compatible with the presence of a non-obstructing bronchial foreign body. He sent the child to hospital for an X-ray examination, and within five days I therefore had the opportunity of removing the foreign body by means of the 4-mm. bronchoscope. The safety-catch required a little disimpaction from the upper bronchus opening and had to be steered rather carefully through the larynx.

CASE 22.—This patient inhaled into the bronchus a glass-headed shawl pin.

CASE 23.—A safety-pin in a child's hypopharynx.

CASE 24.—This is half an upper denture removed without difficulty from the post-cricoid œsophagus.

CASES 25 and 26.—Two dental plates, both swallowed while sea-bathing when the patient gasped with the initial plunge. The larger one required a little careful disimpaction, the smaller one presented no difficulty.

CASE 27.—A whole denture swallowed by a feeble-minded woman; the hypopharynx seemed quite without sensation.

CASE 28.—So far the cases shown have been of recently impacted foreign bodies, thanks to the alertness of my colleagues and house surgeons. Here, however, is a case of a boy aged 19, who for eleven years had a pencil cap in his lung. It had caused a lung abscess which, some years previously, had burst into the pleural cavity and required rib resection; his condition when I first saw him was deplorable, and there was nothing to make one hopeful that he would survive. He was emaciated, his fingers were clubbed, there was constant expectoration of foul-smelling pus, and he was quite unable to work.

I cannot claim this as a triumph for bronchoscopy.

On two occasions I spent half an hour down the bronchus, trying to get through the stricture by the aid of a specially heavy, stiff spring forceps which Professor Jackson sent me for the purpose; not only did I fail to see or bring up the foreign body, but I was troubled to find that my manipulations set up a considerable hæmoptysis in the next few hours. I had the melancholy suspicion that I was killing

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the patient. But next day the bleeding ceased and a further skiagram showed the pencil cap displaced downwards and outwards some three inches towards the periphery of the lung.

I asked for assistance from a general surgeon, Mr J. R. Griffith, who, on the second attempt, recovered the foreign body by external operation. As a result of his skill, a complete recovery resulted; in six months the patient was able to work, and he is now happily employed as a steward on the *Aquitania.*

Case 29.—A woman inhaled the heavily filled, natural crown of a molar tooth during gas extraction. On waking up, she coughed for a few minutes and then felt nothing much unusual, except a slight awareness of something deep in the chest. The dental surgeon with commendable frankness urged the patient to have an X-ray examination in case the tooth had gone into the lung. Such was the case; it lay deep in the left lower bronchus, and physical examination showed no air entry into most of the lower lobe. Next day, the 7-mm. bronchoscope was introduced, the tooth located with difficulty, tucked away in one of the larger terminal branches, and removed by Jackson's side-grasping forceps.

I believe it to be our concern as bronchoscopists to implore the dental surgeons to take far more precautions than many of them do, with regard to teeth slipping down the throat. It is the dental surgeon's only opportunity of killing his patient; we are entitled to ask for *absolute* precautions in respect of the danger. In my opinion, no tooth should be extracted in a frantic hurry and a large gauze swab should always be placed behind the site of operation.

If they are unwilling to observe these simple precautions and a tooth goes down the throat, the dentist does not keep faith with his patient if he preserves silence and omits to have a skiagram taken. In a court of law, I imagine, it would not be the accident which would be stressed, but whether or not immediate steps were taken to recover the tooth. I do not see how any dental surgeon dare neglect radiography and bronchoscopy in such circumstances.

Case 30.—The last case of the series was the most dramatic of any in my experience. A doctor rang me up and said that during a tonsil dissection the previous day in a girl, aged 13, he had been alarmed by a sudden respiratory embarrassment, the child becoming deeply cyanosed and obviously in serious danger. He had been up all night giving her oxygen, believing that the trouble must be due to an unusual amount of blood inhaled or to a sudden cardiac failure.

But when he spoke to me on the telephone, he asked me if I thought it possible that a swab had gone down. I said I would come over at once, prepared for a bronchoscopy. He did not think I should be in time, so perilous was the situation; and when I arrived, the child

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was certainly conscious, but grey in the face and the pulse was almost imperceptible. No air entered the lung at all.

There was nothing wanting to make the decision as critical and anxious as you can imagine. The doctor could not persuade himself that a swab was in the lung. If I gave an anæsthetic and the child merely had an acute heart failure, the issue would be fatal and I could but admit an awful blunder.

If the swab were present, and the anæsthetic proved fatal, the inquest would have been a distressing affair for the doctor. Yet an anæsthetic had to be given, for without it the risk from straining, coughing and fright would have been far greater.

I acknowledge gratefully the cool courage of my anæsthetist, Dr Eccles. He induced with ethyl chloride and continued with chloroform; in less than three minutes this swab, already foul-smelling, was found tightly corking the left bronchus, and easily moved therefrom, so that in two or three days the child was again quite well.

These cases which I have presented took six years to collect. That in itself justifies their being brought forward because it means that this kind of work is uncommonly met with, and, therefore, the sharing of experience must make up for our individual lack of opportunity.

Moreover, publication will emphasise to our colleagues in practice the fact that precise methods of dealing with these emergencies are available; they already suspect that rough and blind methods have little to commend them; it is for us to show that our claim to precision rests upon a steady basis of fact.

The PRESIDENT said that the fatal case raised an important point as to the limitations of the method of attempting to remove foreign bodies from the œsophagus by the direct route; there were cases in which attempts by the direct method could not succeed, and he did not know whether all operators had clearly formulated in their minds what the prohibitory conditions were. If the foreign body was a large one and had been *in situ* for a considerable time, and if there were physical signs of rupture of the œsophagus, the direct method should not be attempted; the case should at once be dealt with by external operation. He had seen cases in which there was emphysema in the neck, owing to rupture of the œsophagus. To attempt the direct method in such a case was to lose time and to make the patient worse, as there was a great danger of sepsis. Also in operating on such cases one should limit as much as possible the opening in the deeper planes of the neck, particularly towards the lower part.

Mr T. B. LAYTON said he was in general agreement with Dr Crow; but wished to criticise three phrases that he had used. First, he had spoken of "blundering attempts at removal" in reference to the coin cases. From this he (the speaker) inferred that Dr Crow alluded to the removal of coins with the coin-catcher, and he (Mr Layton) denied that to remove a coin with the coin-catcher was a "blundering method." It was a right and proper method. In Dr Crow's list of thirty foreign bodies, nine were

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coins. In his (Mr Layton's) clinic these nine coins would have been removed by him, or rather by his dresser, with the coin-catcher. This would have been done in 5 seconds as against from 1½ to 4 minutes, and chloroform would have been avoided in every case. It might be asked whether he had ever had any anxiety with the coin-catcher? The answer was "Yes, once!" but the experience had taught him how to avoid any such anxiety in the future. The coin had become stuck against the lower margin of the cricoid; this had happened because he had used a coin-catcher with a wide immobile angle. This accident would not happen if one used a coin-catcher with a narrow angle and a mobile end, so that the coin would be caught in either side. In the case referred to, he disengaged the coin-catcher and arranged to carry out endoscopy next day, by which time the coin was in the child's cæcum. This case had explained to him the only bad result due to the *use* of the coin-catcher in the cases recounted by Dr Irwin Moore.* In all the other cases recounted in Dr Irwin Moore's paper, the ill-effects were due not to the use, but to the *abuse* of this instrument. Because certain persons did not employ a proper technique and did not take due precautions was no reason for decrying any instrument. He would remind members that "blundering attempts" might also be made with an endoscope. Of the two fatal cases from foreign bodies in his clinic in the last eleven years, one was due to this cause. In the case of an infant with an open pin in the œsophagus, the foreign body had not only been driven down into the stomach, but its point had also been driven into the liver. The child was sent up in an ambulance and kept alive on the journey by a cylinder of oxygen. After a rest the pin had been removed by laparotomy, but the infant died from peritonitis.

He would also criticise the phrase "psychological trauma" as applied to procedures under local anæsthesia. There was no psychological trauma when these were properly carried out; if there were, it meant that the surgeon did not know how to obtain the anæsthesia, or was unable to control the patient. He (the speaker) operated on these cases under general anæsthesia as Dr Crow did, but he admitted that he did so because he was unable to apply the local anæsthetic and to control the patient. In one such case he had been able to do this, and it had shown the advantage of the method, for the patient, an elderly lady, had an abscess of the pharynx, caused by a fish bone, and this lay immediately behind the arytenoid in such a position that had it burst while the coughing reflex was abolished the pus would probably have gone down into the lungs.

The third remark that he criticised was that which implied that the only risk in dental surgery was that of a tooth entering the lung. A second risk was sepsis, and the administration of an anæsthetic was a third.

It was said that one learnt more from failures than from successful cases, and he would remind members that in a case of a foreign body in the œsophagus the symptoms might be entirely respiratory. He had been called to a case in a small child in which there was no history of foreign body; but after the provisional diagnosis of laryngeal diphtheria had been excluded, it had been suggested that a foreign body might be present.

* *Lancet*, 1919, ii., 566.

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He had passed a bronchoscope and found nothing. The child had subsequently died, and a large bone stud was found post-mortem in the œsophagus. That life could easily have been saved had he either passed a tube down the œsophagus, as well as the bronchus, or had a skiagram been taken.

Dr J. S. FRASER said that he personally did not like the coin-catcher, though he knew it was sometimes used in the surgical out-patient department, where the house surgeon "had a shot" at removing a coin before sending the case to the ear and throat department. In at least one case the result had been disastrous. He could not see why the use of the coin-catcher should be preferred to endoscopy ; it was much safer to remove a coin when it could be seen than when it was being groped for.

The President had well said that if there was evidence of cellulitis in the neck, the endoscope should not be used ; he (the speaker) would go further and say that if one had been trying for a reasonable time and had failed to remove a tooth-plate with the endoscope, it was better to perform an external operation. In these cases of impacted tooth-plate he recommended a general anæsthetic. In other cases, *e.g.* those of coins, buttons, etc., he always used a local anæsthetic.

Mr MUSGRAVE WOODMAN said that in 50 per cent. of the cases in which the coin-catcher was used the coin was pushed into the stomach, in which case gastrotomy might be required to remove it. He found it very difficult to cut tooth-plates in half *in situ* so as to remove them from the œsophagus. He agreed with Dr Fraser that when there was perforation or laceration of the œsophageal wall, removal should be carried out by an external incision. His own practice was, if possible, to remove embedded tooth-plates *per vias naturales*. But if there was even a suspicion of perforation or laceration of the œsophagus, an external incision was made, maintaining drainage externally for the following week. No case had been lost at his hospital since this practice was adopted, but patients were lost when it had been omitted, owing to infection having occurred in the neck.

Mr HAROLD KISCH said that the coin-catcher had a definite use, and all students should be taught how to employ it, as they might be practising beyond the reach of any endoscopist or œsophagoscopist. If every practitioner were required to be able to pass bronchoscopes and œsophagoscopes, the mortality would be higher than that following the proper use of the coin-catcher. In the East, during the late War, he (Mr Kisch) had removed many foreign bodies, such as coins, pieces off bully-beef tins, etc., and in some cases the men had been sent hundreds of miles because medical officers had not been taught how to use the coin-catcher, or remove foreign bodies with the probang. He had either to put a coin-catcher down or a catheter with gauze tucked on the end of it. He had safely brought away many foreign bodies in that way. But he thought all these patients should have a general anæsthetic, then the coin-catcher could be used with great ease and delicacy : the body could be felt and could be pulled up without doing damage. Once, in a London operating theatre, he saw a young colleague trying to remove a coin.

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He missed it three times, and then he (the speaker) removed it with a coin-catcher without difficulty.

Dr DOUGLAS GUTHRIE said that the President's remark regarding external surgery was applicable to foreign bodies in the air-passages. He recalled a case in which a large piece of bone, impacted in the subglottic region of a child, was easily removed through a tracheotomy incision.* Had he (the speaker) tried to pull the bone through the glottis, considerable damage would have been done to the larynx.

With regard to Mr Layton's remark that a foreign body in the œsophagus might cause symptoms resembling those of a foreign body in the air-passages, he remembered a case in which a bone collar-stud had been in the œsophagus for three months, during which time the child had been treated for some obscure chest condition.† At the autopsy the stud was found to have ulcerated through the posterior wall and caused a pre-vertebral abscess. The symptoms were not those of difficulty in swallowing, but of trouble in the respiratory tract.

Mr MICHAEL VLASTO asked whether Dr Crow had ever found himself obliged to push a foreign body from the œsophagus into the stomach. He was far from wishing to convey the impression that he was recommending this as a routine method in dealing with foreign bodies in the œsophagus. Occasions had arisen, however, in his own practice, where he had considered it unsafe to extract forcibly such a foreign body as a fish bone for instance. A choice had to be made between the dramatic and the commonplace. Local application of adrenalin and cocaine to the site of impaction and the gentle pressure of a bougie, had allowed the foreign body to pass into the stomach, with complete relief of symptoms.

Sir JAMES DUNDAS-GRANT said that before the introduction of endoscopic methods he had had occasion to use the coin-catcher, and had not known any harm to result. He was not now, however, altogether in favour of that instrument; whenever he had an endoscope at hand he used it. He instanced the case of a child who had swallowed a halfpenny, which became fixed in the œsophagus. It could not be seen by the ordinary endoscope, which went past it, but it was revealed by X-ray examination. He had brought from Germany a Killian's special endoscope, a very small one, for use in the case of children, and with that he removed the halfpenny without difficulty.

Mr W. S. THACKER NEVILLE said there were several reasons why coin-catchers should be relegated to the museum. If students were taught to use coin-catchers, they would be likely to use them for foreign bodies other than coins, and that practice would bring laryngology into disrepute. Another reason was that endoscopists should keep their hand in training. so that they would be ready to deal with a difficult case at any moment, Furthermore, coins were not always easy to remove; they might be behind the crico-pharyngeus.

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* See *Proceedings*, 1919, xiii. (Sect. Laryng.), 37; *ibid.*, 1921, xiv. (Sect. Laryng.), 63.

† See *Proceedings*, 1921, xiv. (Sect. Laryng.), 63.

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He was sorry, notwithstanding the wonderful record shown, that Dr Crow did not use local anæsthesia for adults; without that he could not be a true disciple of Chevalier Jackson. Most of the adults who had swallowed a foreign body were very healthy, and many would stand half a grain of morphine, and with that and a small amount of cocaine paste (cocaine hydrochloride in adrenalin) applied to the pyriform fossæ and epiglottis, one could easily pass an œsophagoscope in one's consulting room. He (the speaker) was a strong advocate of local anæsthesia.

Mr HERBERT TILLEY said he had not seen a coin-catcher for twenty years, and had never used one. He did not agree as to the advisability of teaching students to use the coin-catcher. Even in the heart of the country, if a person had swallowed a coin it was possible, in these days of rapid transit, to obtain the services of an endoscopist within a few hours, and even if a coin were impacted for so long as forty-eight hours not much harm would probably result. He agreed with those who contended that to search blindly in the gullet for a foreign body was neither safe practice nor good teaching.

A point of interest was the frequency with which junior endoscopists missed a coin in the upper region of the œsophagus. On three or four occasions he had been asked to help when the coin had not been detected, and the reason was that the patient's head had not been sufficiently flexed, and consequently the end of the tube over-rode the coin. If the head was well flexed, the upper edge of the coin would be seen, and it could be removed with appropriate forceps.

With regard to local anæsthesia, he advocated the application to each pyriform fossa of 10 to 15 per cent. cocaine solution. This produced an anæsthesia sufficient for passing an œsophagoscope.

Referring to the question as to whether one should allow a foreign body to pass on, or helping it downwards, as Mr Vlasto had suggested, he (Mr Tilley) had had at least one interesting experience in that connection. He was asked to see a woman who was brought into hospital at midnight with a denture in the œsophagus. Inquiry elicited that there were no hooks on the denture, which the skiagram showed to be in the mid-thoracic region. He advised that a hypodermic of morphia be given, and he would be round in the morning at nine o'clock. On passing the œsophagoscope no foreign body was detected, but a second screening showed it to be in the stomach, where it remained for a period of six weeks. He then asked Mr Trotter what he thought was the best thing to do, and he advised leaving it alone, but suggested that some good might result from giving the patient some butter-muslin to swallow with her meals. Two days after this had been done the plate was seen by the X-rays to have moved onwards, and two or three days afterwards the patient passed the tooth-plate securely wrapped in the butter-muslin.

Speaking of cellulitis in the neck, in 1926 he published some experiences concerning serious complications resulting from the swallowing of foreign bodies. An athletic and well-built cricketer consulted him with the history of having swallowed a fish bone three days previously. He looked very ill, and had a temperature of 101° F. There was much cellulitis of the left side of the neck. Within two hours he was taken into a home, and the bone was found to be straddled across the gullet about the level of the

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episternal notch. He disengaged the pointed end, and there was a gush of foul pus. He was very ill for a week, during which the cellulitis slowly subsided. After the pus had been evacuated, the patient was given half a pint of warm milk containing two beaten-up eggs, through a stomach-tube. No external operation was performed. For further details, see *Brit. Med. Journ.*, 1927, i., 1135 (Case IV.).

Mr ERIC WATSON-WILLIAMS said his own teaching and practice had been that both the coin-catcher and the probang should be in the museum. If a person swallowed a halfpenny, there was no need to dash at once to do something vigorous and possibly disastrous. If the foreign body were a coin, it did no harm for two or three days. If it had sharp edges or points, a tug might do great injury to the œsophagus, perhaps might even perforate it. It was better to bring the patient to a clinic properly equipped and staffed, which in this country was never far distant, and to pass an endoscope. Dealing with the extensive statistics of Guisez and Chevalier Jackson, the speaker analysed 1000 endoscopies, and, with hardly an exception, the fatal cases of œsophageal trouble were due to unskilful attempts to remove the foreign body with the probang and similar instruments before the patients were brought to them for endoscopy. He had himself seen two cases of serious injury due to the use of the probang. It was very important to have a skiagram taken immediately before endoscopy. He had been asked to look in the upper air-passages for a needle which was actually in the cæcum. A year ago he was asked to operate on a child, because the skiagram showed a brass disc at the level of the top of the sternum, but he insisted on another skiagram, and a later message said the disc was in the stomach.

Mr RITCHIE RODGER, referring to the question of deliberately forcing a foreign body downwards, said that many years ago a prisoner was brought to him by the police surgeon with half a tooth-plate in the œsophagus. The house surgeon prepared the patient with cocaine, and the foreign body was easily removed in thirty seconds by means of the endoscope. A month later the man was brought again, having swallowed the other half of the plate. It was explained that after the first operation his trial for forgery had been postponed for twenty-eight days, and he had swallowed the second half hoping to secure a further postponement of the trial. In those days he (the speaker) had only had a jointed pair of forceps, and the joint became stuck. He therefore used a bougie and deliberately forced the foreign body into the stomach.

He understood that those who had spoken in favour of the coin-catcher agreed that it should be used only for coins. The trouble was that if its use was sanctioned at all, it could not be guaranteed that it would not be used for other foreign bodies.

Dr CROW (in reply) said he was interested in Mr Layton's downright criticism, though profoundly disagreeing. Elegance had an intrinsic value in surgery ; the use of a coin-catcher for the removal of a coin, perhaps already sloughing half-way through the œsophageal wall, was, in his opinion, neither elegant nor safe. Indeed, he felt despondent that the Section should in any way hesitate in condemning blind methods.

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With regard to the criticism of the method of anæsthesia, he would certainly stress the avoidance of "psychological trauma," but it was not the only consideration ; one obtained much greater relaxation under general anæsthesia and consequently much greater ease of manipulation.

Granuloma of the Larynx following exposure to Mustard-Gas.

E. Watson-Williams, M.C.

"Neoplasms of the larynx, whether innocent or malignant, are uncommon—one might even say they are extremely rare . . . A granuloma must be a rare occurrence in the larynx; it cannot be looked upon as a neoplasm *sui generis*, it is but an inflammatory manifestation of some irritation . . . It may have a specific cause such as tuberculosis or syphilis, or a traumatic origin, such as a foreign body or the wound of a laryngo-fissure" (Sir St Clair Thomson).

The object of this communication is to establish that the trauma inflicted by mustard or other irritant gas may produce a granuloma. The typical clinical history appears to be: Exposure to gas, followed by hoarseness, often relatively slight after the subsidence of acute symptoms; a latent period of some years, during which there persists a variable degree of painless hoarseness, with some tendency to get worse; the onset finally of symptoms of laryngeal obstruction, and perhaps aphonia, both often intermittent. Cough and sputum are inconspicuous, and the general health may remain robust. On examination, one finds a semi-pedunculated, slightly crenated, reddish tumescence, most often springing from the subglottic region just below the anterior commissure, and sometimes sufficiently movable to be blown up between the cords. When removed it is found to be composed entirely of granulation tissue with a squamous epithelial covering. Clinical and laboratory evidence of syphilis and of tubercle is negative.

A point of special interest is the long interval that may intervene between exposure to gas and the discovery of the granuloma: in Mr Tilley's case it was fifteen months; in Mr Bell Tawse's, fourteen years; in my own cases, five years and a half, seven years, and nine years respectively. In support of the ætiological claim, against which the length of this interval might be objected, there is nearly always *some* continuity of symptoms between the granuloma and the original gassing to which all the patients attribute their disease. And in the second place, apart from operation, syphilis and tubercle, granuloma of the larynx appears to be of extraordinary rarity.

As to rarity: personal inquiry has been made from every member of this Section, and through journals circulating in this country, America, Belgium, France, Italy, Portugal, Austria, Germany, Holland

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and Switzerland. I have received a number of replies to the effect that the writer has never seen a case; only the cases reported below have come to light. The War Office, Admiralty, Air and Pensions Ministries, and the American Chemical Warfare Service have likewise no record of any cases.

In the literature I have been able to find only three* relevant cases, to which, by the kindness of the authors, I am allowed to refer.

CASE I. (Dr Thrasher)—*Granuloma of the Larynx after Inhalation of Flames.*—An adult male was involved in an explosion of coal-gas, and suffered from acute laryngitis. Two months later he was found to have several granulomata springing from the laryngeal ventricles, and almost completely hiding the vocal cords. Operative removal was carried out in several sessions by the indirect method, and revealed that there were also a number of subglottic granulomata. Between the cords and just below a couple of small reddish bodies could be seen during forced expiration. Section showed the structure to be "papillomatous neoplasm with admixture of granulation tissue."

CASE II. (Sir St Clair Thomson)—(*Apparently Spontaneous*) *Granuloma of the Vocal Cord.*†—The patient, Frederick M., aged 40, came to my clinic on 12th September 1911, complaining only of hoarseness for the previous two months. The case book describes the growth as "a pedunculated, mobile tumour, adherent to the free edge of the right vocal cord, just in front of the processus vocalis. The growth is ovoid, smooth, purplish, and the unattached extremity is slightly yellowish and puckered. During inspiration it falls below the glottis. The right cord moves freely, and is only slightly injected. Some enlarged glands at the angle of jaw."

On 7th November 1911, the growth was removed entire with Mackenzie forceps by the indirect method. The report from the pathologist was as follows: "The tumour consists of fibrin and granulation tissue. It is covered by a squamous-celled epithelium, which shows no evidence of malignant change. Diagnosis: granuloma (Percy B. Ridge)."

The after-history of the case is brief. The larynx was left quite clear. The patient was seen at intervals afterwards, the last note being dated 19th March 1912, four months after the operation, when there was no trace of growth, and no suspicion of recurrence.

CASE III. (Mr Herbert Tilley ‡)—*Granuloma of the Trachea following Mustard-Gas.*—Capt. R. was gassed on 21st March 1918, but remained some hours on duty until his eyes closed up. He was in bed fourteen days, and then sent home for twelve weeks and during this time his only trouble was a sense of difficulty in breathing when he hurried. In October there was still dyspnœa on exertion, and occasional matutinal hæmoptysis. He was demobilised in January 1919, disability 20 per cent., dyspnœic on exertion. June 1919, marked stridor, impeded inspiration and expiration,

* *Laryngoscope*, 1906, vol. xvi., p. 730. *Journ. Laryng., Rhinol. and Otol.*, 1906, vol. xxi., p. 380.

† *Journ. Laryngol. and Otol.*, 1915, vol. xxx., p. 425.

‡ *Journ. Laryng. and Otol.*, 1920, vol. xxxv., p. 1; *Proc. Roy. Soc. Med.*, 1919, vol. xiii. (Sect. Laryng., 3).

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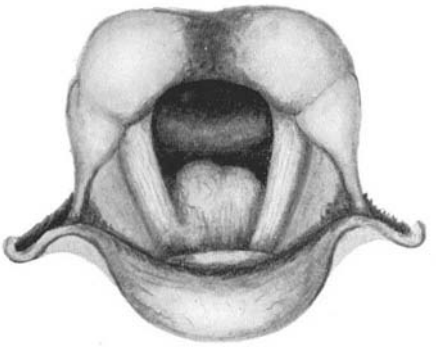


FIG. 1.—CASE IV.



FIG. 2.—CASE IV. Granuloma after removal, actual size.

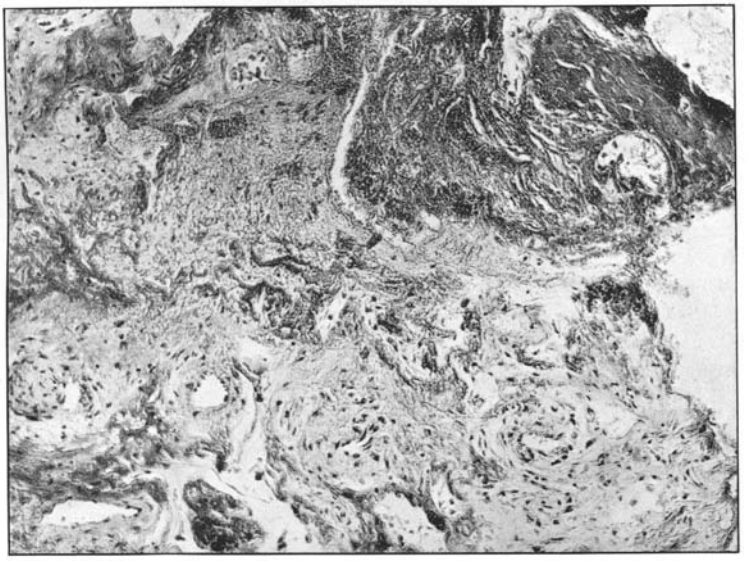


FIG. 3.—CASE IV. Section of granuloma. × 110.

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feeble breath-sounds over right lung. Sputum, pus, blood-cells, numerous organisms, no tubercle bacilli. On examination the larynx was normal, but the lower end of the trachea was almost occluded by a pale reddish-grey tumour which moved upwards and downwards with respiration, attached to the right side and close to the right bronchus. The growth was with great difficulty removed by direct tracheoscopy. It was the size of a small cherry and somewhat pedunculated, deeply lobulated, the surface finely papillary. Microscopically it was found to be a papillary granuloma.

My own cases, the first of which I showed and published in 1923, are as follows*:—

CASE IV.—Mr A. W. B., aged 29, came to me in January 1923, complaining of hoarseness, which had gradually been coming on since August 1917, when he had been exposed to mustard-gas, but not evacuated from the line. At first it was quite slight (my clerk's note is, "Hoarseness during last four years, *i.e.* since 1919"), and only during the last six months had it become really very conspicuous, and was getting worse. The voice varied, being always worse in wet weather, but during the recent bad period it had on several occasions entirely failed, sometimes in the middle of a word, with a sensation of choking. He had been in receipt of a pension for "D.A.H." of which the chief feature was breathlessness, and had been under observation in Edinburgh in 1918. On several occasions he had had very severe attacks of dyspnœa, especially when riding up hill on his bicycle, and had had to be helped home at times. When the attacks came on, the hoarseness was notably more pronounced.

On examination, I found a tumescence in the lumen of the larynx, "a not quite smooth, roundish body attached in front and (?) to left cord, partly between cords." In view of my report, "Laryngeal neoplasm or (?) granuloma. The exact nature can only be determined after section," and the provisional diagnosis of laryngeal fibroma, the patient was refused further pension, his condition being considered constitutional. There were no physical signs of tuberculosis, though I cannot find any record of sputum, or of its examination; the Wassermann reaction was negative.

By direct laryngoscopy the mass was seen to occupy approximately half the antero-posterior diameter of the larynx; it appeared finely mammilated, softish, and attached by a rather broad pedicle to the subglottic region anteriorly and somewhat to the left. Its colour was a pale cream, though by indirect laryngoscopy it had seemed more definitely pink. It was removed with Paterson's laryngeal forceps, the bulk in one mass, and remnants subsequently. The pathologist's report was "Simple granulation tissue; no evidence of malignancy." The patient was completely relieved by the operation, and his claim to pension (up to the date of operation) was admitted as a result of the report. I have no doubt that the granuloma was the direct though apparently late result of mustard-gas inhalation.

CASE V.—Lieutenant J. R. W., aged 29, came to me on 18th July 1924, with the diagnosis of "polypus of larynx." In 1917 he had been gassed by mustard and other gas. Since then he had been always hoarse after the

* *Bristol Med.-Chir. Journal*, 1923, xl. 154.

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initial laryngitis, and, when I saw him, had the voice of a severe chronic laryngitis; there was no pain, very little expectoration, and the general health was good.

On examination, I found the vocal cords injected: there was no ulceration, or alteration in movement: "A smooth reddish body, like a cock's comb, apparently attached at, or just below the anterior commissure, probably a granuloma." The chest showed no evidence of disease, and repeated sputum examinations had failed to show tubercle bacilli; there were no history or signs of syphilis, but the Wassermann reaction was not performed.

Two days later, under general anæsthesia, I carried out direct laryngoscopy, and confirmed the appearance and position of the growth. It was attached by a longitudinal base in the subglottic region, the upper end of the attachment reaching just up to the lower edge of the cords. I have no record of the growth coming between the cords, and think that it did not. The growth was removed piecemeal with punch forceps, as Paterson's forceps could not be brought to bear on the base. The pathologist's report was: "Granuloma; no trace of tubercle or new growth." On 29th July the laryngitis was "much improved." The patient went home and I have not since been able to trace him.

CASE VI.—Mr A. W., aged 32, came to me in March 1926, complaining of hoarseness since he was gassed at Corbie in 1917, not getting any worse. The condition was painless. During recent months he had been getting attacks of breathlessness. Atrophic rhinitis was present, but had not attracted his attention, and his pension was for "laryngitis." On examination, I found a round, smooth cherry-red body attached to the anterior commissure of the larynx, or a little below this, and about one-third of an inch in length. It moved freely, and in expiration was blown up through the glottis. The Wassermann reaction and sputum examinations were negative, and there were no physical signs in the chest, although the skiagram of the latter showed a generalised fibrosis. I made a diagnosis of granuloma, although "fibroma" was suggested as more probable. By direct laryngoscopy the little mass was readily removed. On section it was found to be composed of loosely arranged granulation tissue, with considerable vascular development. Two months later the larynx showed no signs of abnormality beyond a generalised laryngitis, apparently chronic catarrhal. The condition has remained unchanged until the present time.

CASE VII.—Mr R. C., a middle-aged man, came to me in February 1926, for a report on his larynx; he had been slightly hoarse for many years, *i.e.* before the War, and did not think his hoarseness had been worse since he had been in France; he had been employed in repair of roads, and the history of gassing was vague. He was in receipt of a pension for bronchitis.

On examination, I found deep to the vocal cords below the anterior commissure a small sessile grey-pink semi-translucent body, looking like a small nasal polypus. Treatment was refused, so that the nature of the body is unknown; and there are no data to indicate how long it had been present, or whether it had in fact any connection with gassing. The record

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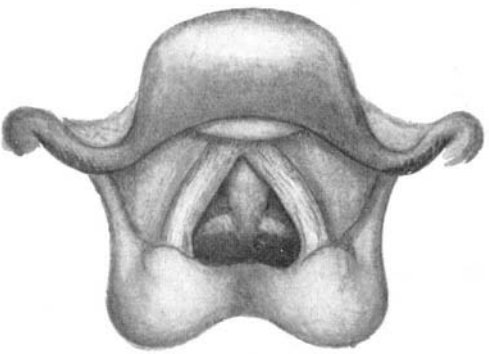


FIG. 4.—CASE V.



FIG. 5.—CASE VI. Section of granuloma. × 100.

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is included here, as this is the only tumescence which I have seen, in site and general appearance much resembling the granuloma of the larynx described; and it is curious that it occurred in an ex-soldier who claimed to have been exposed to gas, though without injury.

CASE VIII. (Mr H. Bell Tawse).—Reported in *Proceedings*, 1930, xxiii., 784 (Sect. Laryng., 26), 1417 (Sect. Laryng., 59).

CASE IX. (Mr Capps.)—Reported in *Proceedings*, 1930, xxiii., 791 (Sect. Laryng., 33).

Dr Jobson Horne reports that he has seen cases of granuloma of the larynx due to mustard-gas poisoning, but is unable to supply details. *Proceedings*, 1930, xxiii., 785 (Sect. Laryng., 27).

Communication from Mr W. J. Harrison:—

"I am afraid I cannot give you the details which are necessary to make the cases of any value.

"No. 1 had been receiving a pension for tuberculosis of lung, and was sent to the hospital for observation. There was a history of gassing and bronchitis, but with which particular gas and at what date I cannot remember. No sign of tuberculosis could be found by X-ray or other means when he was in hospital, and I was asked to examine him on account of persistent hoarseness, to see if there was any suggestion of tuberculosis of the larynx. I found the cords congested, and a small growth situated at the anterior commissure.

"No. 2 came as an out-patient at another hospital complaining of sudden alterations in his voice which he said had been weaker since the symptom had developed. There was a small pedunculated growth just below the anterior commissure which could be seen every now and then to come up and be grasped between the cords."

Communication from Dr J. Nouailhac, of Brive, Bordeaux:—

"Mons. D. (pharmacist) had been in good health before the War; no syphilis or tuberculosis. During the War he was gassed on several occasions, and in particular during 1917 at Verdun (mustard-gas, arsine), following which he was a month in hospital. Since the War he has been always fragile, catches cold readily, the voice is always hoarse; he suffers from hawkings and distressing attacks of cough. In 1920 he was given a pension for catarrhal rhinitis, laryngitis, and a cyst of the epiglottis, consecutive to gassing. First seen in April 1928. The vocal cords were a little red, with some interarytenoid infiltration. A little tumour the size of a pea, sessile, of rosy colour, and soft consistence was found in the right glosso-epiglottic recess. It has been under observation since that time, but has remained quite stationary, and since it has caused no symptoms has not been submitted to operation. Its histology remains therefore unknown; but the appearance closely resembles that of a nasal polypus."

Sir ST CLAIR THOMSON said that all these laryngeal growths were very interesting. Only about 1 in 5000 patients attending an oto-laryngeal clinic had a laryngeal tumour, therefore records were collected very slowly.

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In his own case he had suggested that the tumour originated from a submucous hæmorrhage. These conditions might result from violent action taking place in the larynx. Perhaps Mr Watson-Williams might like to look up Sir Felix Semon's cases of hæmorrhage of vocal cords simulating malignant disease.

The Use of Avertin in Oto-Rhinology.

W. S. Thacker Neville, F.R.C.S. Ed.

Avertin, a simple organic compound of bromine, was first made in Germany in 1926, where it was seen in December 1927 by Basil Hughes of Bradford, who was largely instrumental in introducing it to this country.

I have used avertin in twenty-eight cases. In only one case did I get complete anæsthesia without local or general anæsthesia. The solution can be given by a nurse or family doctor in the patient's room or in the patient's own home before entering the nursing home. After an interval of between thirty and sixty minutes, a local anæsthetic consisting of novocain 0.125 grm., potassium sulphate 0.1 grm., normal saline 25 c.c., has to be injected or ether has to be administered, for I have not aimed at complete anæsthesia with avertin. Avertin in safe doses is not an anæsthetic—it is a basal narcotic. When ether was employed the patient was unaware of its administration. Furthermore, so little ether was necessary that the after-effects were over before the patient recovered from the avertin.

The method I adopted of preparing the patient and solution was as follows:—The evening before operation, the patient was weighed after his bath and then an enema was administered. On the morning of the operation, morphine gr. $\frac{1}{4}$ or $\frac{1}{6}$ was given half an hour before the avertin was administered.

The table issued by the makers was consulted, and on this chart opposite the patient's weight was found the number of c.c.'s of fluid avertin and the amount of distilled water that was to be added. The amount to be given is calculated in this table on the basis of 0.1 gramme per kilogramme of patient's weight (1 cm. of avertin fluid corresponds to 1 grm. of avertin powder). The amount of the distilled water was measured out and was heated in a flask to body-heat. The avertin fluid was now measured out and added to this flask. The fluid, which is oily, was mixed with the water by shaking the flask vigorously. To prevent cooling, we generally held it under the hot tap as we mixed it. When mixed, 5 c.c. of the fluid was poured into a test-tube and one drop of Congo red was added. If the colour was pink, the mixture in the flask was at once handed to the nurse, who injected it into the rectum through a thin rubber tube. If the reaction with Congo red resulted in a blue colour, the fluid would be rejected.

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Almost immediately after injection, the patients became unconscious though they did not lose their reflexes. In order to avoid the danger of the jaw falling back, a clip was inserted into the tongue and the patient was watched by a nurse. As most of the operations have been performed under local anæsthesia instead of ether in addition to the avertin, we let an hour elapse before the patient was brought to the theatre. It takes from twenty to thirty minutes for the anæsthetic to act fully and then the effects will last from two to four hours. Even after an hour the pharyngeal reflex is still present and so it is necessary to insert an intranasal or postnasal plug, as otherwise the blood falling back into the pharynx will make the patient cough and become restless. The insertion of the postnasal plug disturbs the patient too much, so I now employ an intranasal plug of gauze. The retention of the cough reflex is an advantage in that, with the addition of ether, a tonsillectomy can safely be carried out, without incurring the danger of aspiration of the blood. Before the postnasal plug was inserted, each nostril was anæsthetised by three cotton-covered probes dipped in cocaine mud.

In a case of a Caldwell-Luc operation, the field of operation was anæsthetised with the local anæsthetic mentioned above. During the operation the patient was sometimes slightly cyanosed, and respiration was shallow, the rate being increased. The blood-pressure fell, and, therefore, when the operations had been completed, lobeline and ephedrine were injected. The lobeline caused the patient to breathe deeply whilst the ephedrine raised the blood-pressure. In our early cases we washed out the rectum when the operation was completed, but in one case the wash-out evidently distributed the avertin more widely, as the patient after awakening passed into a deep sleep for about six hours; so in other patients we merely passed a rectal tube, and latterly we have even given this up as we found the patient usually awakened in two or three hours after the rectal administration.

The great advantage of this anæsthetic is that the patient, no matter how restless, knows nothing of the operation, and at times nothing of the after-effects.

The disadvantage of employing this form of basal narcosis with local anæsthesia is the fact that the patient becomes restless, moving the hands and legs if he feels the slightest pain. So one must anæsthetise the nose more thoroughly than in the usual form of narco-anæsthesia I employ—namely, "twilight sleep." Whilst anæsthetising the nose the patient moves his hand from side to side. Thus in performing an operation under surface anæsthesia, one must have a nurse to fix the head and another to watch and possibly control the arms and legs.

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When one employs novocain infiltration, as in the case of a Caldwell-Luc operation, the patient remains quiet during the whole operation. Ether was administered to four patients: two were to undergo tonsillectomy, one a double mastoid operation, and one—a child, aged 12—an intranasal operation. A boy, aged 8, who was said to require tonsillectomy, refused to open his mouth when he was being examined. However, as the tonsillar cervical glands were large and the tympanic membranes retracted, we decided to remove the tonsils. He refused to go to the nursing home or allow a nurse to approach him, so I prepared the avertin and gave it in a "thermos" flask to the family physician, who injected it into the rectum whilst the boy was in his bed. The boy fell asleep in three minutes, and was then driven to the nursing home and anæsthetised with ether. On waking hours later he wanted to know how he had got to the nursing home without crying.

A man, aged 27, who dreaded tonsillectomy and postponed it for two years because of his fear of the anæsthetic, faced the operation cheerfully when avertin was offered.

On a child, aged 12, I performed a submucous resection of the septum, middle turbinectomy and intranasal opening of both the maxillary sinuses. After the nose had been cocainised, a small quantity of ether was administered, but during most of the operation I worked without the anæsthetist. When the patient became restless, the anæsthetist stepped forward and allowed the patient to inhale ether. The operation was almost bloodless, and so differed from operations I have done under full anæsthesia where the bleeding demanded repeated sponging. Probably we all prefer chloroform if a general anæsthetic is employed in nasal operations. Avertin avoids the necessity of employing chloroform and so allows one to use ether and inject adrenaline with safety.

The one patient who was operated on without local or general anæsthesia, was aged 58. He had a large carcinoma on the lateral wall of the laryngo-pharynx. After receiving avertin he became cyanosed and his breathing was very shallow. I did a tracheotomy and removed the ala of the thyroid cartilage, and opened the larynx and pharynx. I inserted twelve needles of radium into the growth. The operation lasted two hours. The patient recovered consciousness three hours after the administration of the avertin. He would not cough and his breathing was laboured. He complained of epigastric pain and died sixteen hours after the completion of the operations. This case shows that in cachectic patients, the weight is not the only guide for dosage, but when the general condition is poor the dosage must be reduced and the fractional method as adopted by Morrin and Hirsch must be employed. This case also shows that avertin is

https://doi.org/10.1017/S0022215100035398 Published online by Cambridge University Press

contra-indicated in all laryngeal operations, as the patient would not cough even after he had recovered from the avertin.

To sum up: avertin is an ideal form of basal narcosis when ether is added or infiltrated anæsthesia employed. Thus it may be employed in the case of an external frontal sinus operation or a Caldwell-Luc operation in combination with local anæsthesia, or in the case of a tonsillectomy or mastoid operation, in combination with ether. It is also an ideal anæsthetic when combined with ether in the case of an intranasal operation on children under 14, in whom, I believe, morphine and scopolamine are contra-indicated on account of the excitability produced by the scopolamine.

Avertin is unsuitable when one merely employs surface anæsthesia and so is unsuitable for septum, ethmoid, sphenoid or intranasal maxillary sinus operation, all of which can be quite well carried out with morphine and scopolamine and local anæsthesia.

Sir ST CLAIR THOMSON said he was surprised to hear Mr Thacker Neville use the term "ideal" in recommending this substance, as he (the speaker) would have thought, after all the "wild excursions and alarums" recorded, that the paper was written to warn laryngologists off avertin! It was difficult to know how much in these cases was due to the avertin and how much to the variegated mixture of other drugs used at the same time. It might be very well to keep the cough reflex in check for a little while, but to have the patient unconscious for two hours and sleepy for three days was something to be strenuously avoided in laryngeal surgery. He was not altogether prejudiced in this matter, for his colleague, Mr Lionel Colledge, had tried and abandoned avertin. The danger was the absence of reaction in these patients. The long period of unconsciousness would certainly result in a heavy death-rate in laryngeal surgery.

Dr LESLIE POWELL said his anæsthetist had used avertin for a few of his cases, and he (the speaker) had been anxious about it. In the first of these, although the operation was a simple one, the case had ended fatally from sudden respiratory failure about six hours later. Since then patients had been carefully watched. There was nobody watching this patient at the moment and she died. Resuscitation was said to be easy if attention was given at the first sign of respiratory failure, but this might happen many hours after the operation. He did not regard avertin as a safe anæsthetic.

Mr V. E. NEGUS said he had not had personal experience of avertin, because by using morphine and scopolamine and nerve blockage by wool-tipped probes passed up to the region of the nasal nerve and spheno-palatine foramen it was possible to do such operations as ethmoidectomy with the patient still carrying on a conversation and keeping quiet. It was hopeless to attempt any intranasal operation if the patient was restless and constantly moving about. It was difficult to see what were the advantages of avertin for these operations.

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Mr THACKER NEVILLE (in reply) said he agreed with Sir St Clair Thomson that this anæsthetic was not suitable for laryngeal cases. He preferred morphine and scopolamine and block anæsthesia for ordinary nasal work. The only cases in which avertin was desirable were those in which one could use ether or infiltration anæsthesia.

Its chief value was its psychological effect on adults and it was useful in operations for sinusitis in children. He had given morphia and scopolamine to children under 14, but they had got out of bed and torn up the sheets. For children, addition of ether was advisable.

CASES AND SPECIMENS.

Deformity of Pharynx after an attempt at Removal of the Tonsils.—NORMAN PATTERSON, F.R.C.S.

Male, aged 25. At the age of $7\frac{1}{2}$ underwent an operation for the removal of tonsils and adenoids. This operation was, apparently, not an unqualified success, and six months later another was performed in order to remedy some condition resulting from the first. This second operation was followed by daily insertion of the finger in order to improve the nasal breathing. The patient was examined by me on 8th April 1930. The tonsils had not been completely removed; there was much scarring in the neighbourhood of the pharynx and palate, and only a small opening between the oro- and naso-pharynx, almost entirely obscured by the uvula which hung down in front of it. The patient was unable to breathe through nose during sleep. He could improve the nasal breathing during the daytime by pushing his tongue upwards towards the roof of the mouth; if the uvula was pulled forwards much improvement followed. He complained of being easily tired and frequently suffered from colds in the head. On 25th April, after a consultation with Mr Tilley, I removed a portion of the uvula, and since then the breathing during the daytime has improved, but is no better at night. Lateral to the central opening a probe can be passed between the palate and the posterior pharyngeal wall on both sides, showing that the palate is not adherent in this region. Opinions are asked as to the best method of treating this case.

Sir JAMES DUNDAS-GRANT said he wondered whether any constitutional dyscrasia was present to account for this unusual sequel.

Dr T. A. CLARKE said he had now under his care two similar cases. In one the occlusion of the nasopharynx was complete; in the other a fine probe could be passed. Two years ago he had had a similar case, of which he afterwards lost sight. All three cases had been operated on several years previously by other surgeons. None of the patients had any other stigmata, but all had a positive Wassermann reaction; they were congenital syphilitics. He thought that the constitutional condition was responsible for the excessive post-operative adhesions and scarrings.

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The PRESIDENT said these cases were usually the result of unskilful attempts at tonsil-dissection ; amateurs would do better by keeping to the guillotine, as by dissection they might remove a good deal of the pharynx and leave the tonsils behind.

Dr J. S. FRASER said that Dr Gardiner, of Edinburgh, had used the Thost apparatus, with good results, for dilating the larynx in cases of stricture following intubation for diphtheria. He did not know whether the intubation or the diphtheria was responsible for the stricture. The dilating apparatus was fitted in above the tracheotomy tube and worn for long periods. He wondered whether, in the present case, an enlarged form of such an apparatus might be inserted through the mouth and worn at intervals to try to dilate the opening between the mouth and the naso-pharynx.

Sir JAMES DUNDAS-GRANT said that in one of his cases the patient had derived great benefit from the ordinary tracheotomy dilator used the other way up.

Mr HERBERT TILLEY said that he saw this case with Mr Patterson; the chief difficulty had been in breathing at night. At that time the uvula was practically intact and hung over the small hole immediately behind it. The removal of the uvula had seemed to give so much relief that this fact, coupled with the definite experience that it was one of the most difficult conditions to deal with by surgical measures, inclined the speaker to admit that nothing further should be attempted.

Mr J. F. O'MALLEY said that at first sight he felt that surgical ingenuity should attempt something for this case, but there was little loss of function, and the patient looked physically fit. He (the speaker) had had an experience of the kind fifteen years ago, and he had not invited a second one. He had shown the patient, a child, at a meeting of another Section.* There was extensive scarring of the naso-pharynx. He was pleased with the operation, but, after healing, the condition was worse than before. He tried dilatation, and by that time there was trouble in the ears, and the patient was miserable for a long time. When the condition settled down he was glad to leave it.

Mr MICHAEL VLASTO said he did not subscribe to the attitude of doing nothing. It seemed at first sight that it might be easy to remove the fleshy mass by diathermy or excision, but if that was done the subsequent contraction and adhesion made the condition as bad as or worse than before.

Although he had had no personal experience of such cases, he suggested a course of action which had been adopted in such conditions as syndactylism and synblepharon. If the fleshy mass were intubated through the nose, in accordance with the law of angular cicatrisation a channel lined with epithelium would ultimately be obtained. A plastic operation might then prove successful.

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* *Proceedings*, 1914, vii. (Sect. Dis. in Child.), 80.

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Mr HAMBLEN THOMAS said that one would have to be careful about intubating or enlarging the hole or communication between the nasal pharynx and the oral pharynx, as there would be a lack of mobility of the soft palate, and there would afterwards be troubles such as regurgitation through the hole. If an operation was to be done he thought the case should be handed over to an expert in plastic surgery, who would place an obturator between the hard palate and the soft palate.

Sir ST CLAIR THOMSON said that there had been a set debate on this subject in the old Laryngological Society* of London, at which most of the suggestions put forward by Mr Vlasto were discussed. That was in the days of Sir Henry Butlin, Sir Felix Semon, and general surgeons skilled in cleft-palate work. They had attempted all these methods and had honestly put forward their results. These agreed with what Mr Tilley and Mr O'Malley had just said, namely, that if a patient could tolerate his condition he should be advised to do so. The methods of treatment referred to were not only failures, but in many cases they caused ear or sinus trouble and traumatism inside the nose, and the last stage of such patients was often worse than the first.

The PRESIDENT said that he had operated on three or four such cases, but had not been satisfied with any of them. In one, which he had shown a year ago, he had used diathermy, and the diathermy point had been carried too much to one side, so that a series of disturbances had been set up: the hypoglossal nerve had been destroyed and one side of the tongue had been paralysed.† Septic meningitis developed, but the patient recovered. Ultimately healing took place, and the previous opening was rather larger than it had been. Even when the opening remained, however, the normal flexibility of the soft palate was not secured. Breathing, no doubt, was possible through the nose, but speaking also took place through the nose, as there was no movable soft palate to direct intonation. Another plan consisted in keeping tubes in the pharnyx for many weeks, and at the end of the time epithelialisation might be secured: but even then there was contraction, with reconstitution of scar tissues. On one occasion he had used a laminaria tent to dilate the opening, but while being taken out, the tent had broken, a portion being left between the nose and the posterior pharyngeal wall, and this had caused a good deal of trouble before it could be removed. He therefore agreed that in these cases we should leave well—or moderately well—alone.

Mr NORMAN PATTERSON (in reply) said that in one case in which the soft palate was adherent to the posterior pharyngeal wall and there was no opening into the naso-pharynx, operation had been followed by a remarkably good result. After the operation he had inserted two rubber drainage-tubes and these were worn for a year; they had to be changed frequently.

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* *Proc. Laryng. Soc. London*, 1893, i., 47; 1897, v., 4; 1903, x., 81; 1907, xiv., 106.

† *Proceedings*, 1929, xxii., 1110 (Sect. Laryng., 28).

https://doi.org/10.1017/S0022215100035398 Published online by Cambridge University Press

Royal Society of Medicine

Swelling of Naso-Pharynx and Hard Palate: Case for Diagnosis.—K. W. MacKenzie, M.B.

H. C., aged 48.

19*th November* 1928. Eighteen months' history of swelling of upper part of right side of neck, becoming gradually larger. Some pain.

On Examination. Hard swelling of the size of an egg, under lateral border of sterno-mastoid and just below mastoid process; fixed to deeper structures.

Under a general anæsthetic no primary malignant focus found in mouth, pharynx, larynx or nose. Swelling removed: section showed "inflammatory tissue only; no evidence of secondary deposit." The spinal accessory nerve was cut.

24*th April* 1929. Indefinite swelling of hard palate. This was incised and a portion taken for examination.

Pathological Report.—"Section shows normal epithelium with mucous glands, beneath which is lying a portion of new growth consisting of masses of spindle cells in concentric tissue stroma. It resembles a parotid tumour but is probably of the nature of an epithelioma."

Eight needles of radon were inserted into the swelling and left in for one week. The swelling disappeared.

9*th October* 1929. Pathological section of portion taken from swelling of lateral wall of naso-pharynx of right side showed no evidence of new growth.

1*st November* 1929. The case now came under my care. It was thought advisable to explore the antrum in search of a new growth, despite the fact that an antral operation had been performed in November 1928.

It was discovered that the previous operation had consisted of draining a large dental cyst into the nose, and the antrum was still present but consisted of a small space between the posterior wall of the cyst and the posterior wall of the antrum. It was full of pus and was drained by removing the posterior wall of the cyst. At the end of the operation a swelling was found between the cheek and the last molar. A needle was inserted and a large quantity of straw-coloured fluid escaped. This fluid was examined and the report was as follows:—"The deposit from this fluid shows red cells and an occasional epithelial cell; ptyalin is present; cultures gave a growth of *Staphylococcus albus* only."

This swelling diminished considerably in size and gave no more trouble.

Two days after the operation another swelling was noticed at the posterior edge of the hard palate and medial to the last molar. This was incised and although no pus was found, there was a cavity,

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extending upwards and backwards, into which the little finger could be inserted. B.I.P.P. was applied to the walls of the cavity and a skiagram was taken. The cavity discharged pus for a few days and then dried up.

Endothelioma of Left Tonsil — Radium Treatment— Recurrence in Abdomen—Death. (Specimen shown).—J. F. O'MALLEY, F.R.C.S.

C. S., male, aged 42.

History. *1st April* 1929. Swelling in left side of throat, of six weeks' duration.

On Examination. Large hard mass occupying left tonsillar fossa, deeply ulcerated in front.

2nd April 1929. Under general anæsthesia a piece was removed, examined microscopically, and pronounced to be carcinoma of the endotheliomatous type.

Radium was inserted (2×25 mgrms., 1×50 and 5×10 of radium bromide, for 40 hours = 4280 mgrm.-hours).

Patient reported on 17th October 1929. There was no trace of growth in throat or neck and he was very fit.

January 1930. Patient came under the care of Mr C. P. G. Wakeley at King's College Hospital, on account of symptoms of intestinal obstruction.

Exploration revealed large masses of growth in the liver, stomach, colon and posterior abdominal wall. This growth proved to be typical lymphosarcoma. There was no sign of recurrence in the neck or fauces. The patient died early in April 1930.

I am showing this specimen in connection with a case shown by Mr Vlasto at the last meeting, when suggestions as to treatment were invited. I then said that I had a similar case, and this specimen is from that case. Although my treatment in April last year was apparently very successful—as six months afterwards the patient was free from growth and was feeling well—he died from recurrence in April this year. So that we must wait a long time before we can consider a case cured. The sections from the tonsil and the abdominal growths are microscopically identical although two different pathologists used nomenclature which seemed to indicate that they were not of the same nature ("endothelioma" and "lymphosarcoma," respectively).

Mr VLASTO said that there seemed to be a difference of experience in this respect. Mr Norman Patterson had shown a case recently in which the end-result was disastrous. Mr O'Malley had employed radium treatment, and in his case there had been some measure of relief, as the patient had remained well for six months. He (the speaker) could not claim so satisfactory a result in his case after deep X-ray therapy.

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Mr MUSGRAVE WOODMAN said he had had a case in which the pathological report was sarcoma, and there had been secondary deposits in the neck and in the liver which were found to be carcinomatous. He particularly noted the fact that Mr O'Malley had put a large dose of radium into the tonsil for a relatively short time. He (the speaker) had done this in one or two cases, with similar results to those in Mr O'Malley's case. He had therefore consulted Professor Sidney Russ, who said that in the case of the tonsil one should use a smaller dose of radium and keep it there for a longer time, as the tonsil substance was so soft that it easily broke down, and an explosive dose would "blast" the cancer cells to different parts of the body. In most of these cases, however, the patients died within a year from secondary deposits in other parts of the body.

Mr A. D. SHARP said that six months ago he had seen a patient who had a large tumour in the left tonsil which the pathologist reported as carcinoma. It was inoperable, and he had asked a surgeon to see and take over the case. There was great enlargement of the cervical glands. Operation being out of the question, radium was tried, needles being inserted along the line of the tumour, the total used representing 1000 mgrm.-hours. Needles were put in for a week. The treatment had been so successful that all traces of the tumour had disappeared. To the glands 2000 mgrm.-hours were applied, the needles being left in for a fortnight. Now nothing but a scar was to be seen. Such a case renewed one's hopes of beneficial results from the use of radium in the treatment of malignant disease.

Dr J. S. FRASER said that the Radium Commission, which was lending out radium to various hospitals, insisted on well-kept reports of all cases, which had also to be followed up systematically for months and years. It was only when a series of cases was followed up for a long time and tabulated, that an accurate knowledge of the results of radium treatment could be obtained. It was much more valuable to have these tabulated results than to hear of isolated brilliant cases. There was also a tendency to publish one's good results and leave the others unreported. This latter course led to the belief that, for instance, some 60 per cent. of the cases of brain abscess recovered, whereas the proportion of successful results was probably only 30 per cent., *i.e.*, when all cases operated upon by one surgeon, or at one hospital, were followed up and reported.

The PRESIDENT said he thought that most people in dealing with lymphosarcoma had had an experience similar to Mr O'Malley's. The local growth disappeared under radium treatment but, in the long run, secondary growths appeared and the patient died. Probably the reason was that the case did not come to the surgeon before dissemination had set in.

Hæmoptysis due to Cryptal Ulceration of Tonsils.—E. A. PETERS, F.R.C.S.

Mr W., aged 44, complained that in February 1930, and on a later occasion, he had brought up two teaspoonfuls of blood. Dr Carmichael examined the chest but found no evidence of tuberculosis.

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This view was confirmed by radiography. On examination of the tonsils—which were reported to have been removed in 1913—there were abundant signs of lacunar tonsillitis. On the application of Bier's apparatus, a drachm of blood escaped from three crypts. The tonsils were removed by dissection at a later date. There was no excessive bleeding at the operation nor was there evidence of new growth in the tonsil.

Sir JAMES DUNDAS-GRANT said that he frequently had cases of hæmoptysis referred to him to see if he could discover any cause in the throat. The method now described was one he intended to apply in such cases in the future. It was a good cleansing method in chronic tonsillitis. The use of Bier's apparatus was advocated by Dr Le Mée for testing whether a tonsil was mischief-making; he massaged it with a miniature rubber roller, and afterwards applied Bier's apparatus. If the tonsil condition was virulent there was evidence of disturbance in the blood-picture after this liberation of toxins.

Dr DOUGLAS GUTHRIE asked whether this so-called "ulceration" of the tonsil crypt was of pathological significance. It was difficult to determine this, because one could not define a "normal" tonsil. In text-books of normal histology one found such statements as the following: "Many lymph cells migrate through the epithelial covering of the tonsil on to its free surface, and enter the mouth to become the salivary corpuscles." This statement, made by Stöhr in 1882, seemed to have been copied from book to book ever since. The passage of leucocytes through the epithelium was in places so active that the surface layer became packed with them, and it was difficult to distinguish the epithelium from the tissue beneath, so that the appearance was that of an ulcer. The matter demanded further investigation from the standpoint of the laryngologist.

The PRESIDENT said that the bleeding might have come from the tonsil crypts, but in that case, considering the great prevalence of tonsillitis, one would expect such hæmorrhages to occur more frequently. Although one often heard hæmoptysis attributed to bleeding from the pharynx or larynx, in by far the largest number of cases the blood came from the lungs. If there was any doubt as to the source of the hæmoptysis—and sometimes there was considerable doubt—examination with the laryngeal mirror would often settle the question, as during the progress of a hæmoptysis from the lungs, the blood was visible in streaks about the trachea. Blood might be seen there even two or three days after the active hæmoptysis had stopped.

Mr PETERS (in reply) said it was possible that the hæmoptysis was due to tuberculosis, but a small amount of hæmorrhage was so common after using the Bier apparatus on an infective tonsil, and the microscopical appearances of ulceration were so definite, that he took it to be a sign of cryptal disease. Up to a point, practically every crypt was a focus of disease. The inflamed part of the tonsil was nearly always the crypta magna. In the lingual tonsil and adenoid area there was almost an entire absence of crypts.

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On examination of material extracted from a crypt there were seen: (1) Masses of bacteria and cocci, evidently nurtured in the security of the crypt; (2) Polymorphonuclear cells with cocci; (3) Polymorphonuclear cells associated with blood indicating ulceration.

Dr DOUGLAS GUTHRIE, referring to Mr Peters' remark that the appearance was not seen in the lingual part of the tonsil, said that the illustration in one text-book, showing migration of lymphocytes towards the free surface, producing an apparent breach of surface, was drawn from the normal "lingual" tonsil.

Mr PETERS (in reply to Dr Guthrie) said that he had recently seen a case in which the whole lingual tonsil was much inflamed, and studded over with white pin-points—the openings of crypts; this condition was, however, exceptional.

A New Œsophagoscope and Bronchoscope.—C. HAMBLEN THOMAS, F.R.C.S.

Dr Haslinger's latest pattern of œsophagoscope and bronchoscope, with proximal illumination. In this model the lighting, which is powerful, is so arranged that the light does not have to be moved for instrumentation. Also, it is chromium-plated to prevent rusting. When it is in use an excellent light is thrown well beyond the distal end of the tube.

Section of Papilloma removed from the Left Aryteno-Epiglottic Fold by the direct method.—E. A. PETERS, F.R.C.S.

Mrs R., aged 57. Dr Kennish reported that she had been hoarse for eighteen months.

On examination, there was a swelling of the size of a pea, loosely attached to the left aryteno-epiglottic fold. The cords were freely movable. Sir St Clair Thomson recommended removal by the direct method, and this was carried out, the result being recovery of the voice.

I may mention that the patient has septic tonsils and nasal obstruction. A general anæsthetic was employed because she was extremely sensitive, and I thought it would be well to get the base of the growth away, with a view to possible malignancy.

Swelling below Left Malar Bone with Pain in front of Left Ear: Case for Diagnosis.—W. H. JEWELL, M.D.

E. A. P., male, aged 56 years, came to hospital with four months' history of pain in front of the left ear, passing up to the forehead. There was slight swelling of the left cheek and there was some fullness of the gingivo-labial fold below the base of the left malar bone. There was pain, on pressure, over the left intra-orbital nerve.

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Notwithstanding that the swellings below the malar bone and that of the cheek have increased, the pain has diminished. Left antrum wash clear.

Sir JAMES DUNDAS-GRANT said he thought there was some continuous irritation set up by the plate of artificial teeth, and that in this way a malignant process had been set going.

Mr JEWELL (in reply) said that the report on an examination was to the effect that the swelling was not malignant. That report, however, he did not consider final. A larger piece of growth was required for examination. If it proved to be malignant, he did not think it was suitable for removal by the knife. He thought the cheek was involved, and when that was the case, he usually found that the condition was hopeless.

Mr PETERS said that he would advise preliminary deep X-ray treatment and then opening of the antrum by the Caldwell-Luc operation. Afterwards the condition could be treated by radium or otherwise, as the biopsy or appearance suggested.

Postscript.—The antrum has been opened below the left malar bone and a growth was found which proved to be epithelioma.—W. H. J.

FURTHER REPORTS OF CASES PREVIOUSLY SHOWN.

Dermoid Cyst of Floor of Mouth. (Shown 7th February 1930.)*—DAN MCKENZIE, M.D.

The cyst was shelled out through a transverse incision in the floor of the mouth without any difficulty. It proved to be a dermoid. (Specimen shown.)

Ulcerative Condition of Throat and Nose tentatively diagnosed as Actinomycosis. (Shown 3rd May 1929.)†—MORTIMER WOOLF, F.R.C.S.

The lesion proved to be a salivary tumour of the palate which had become malignant.

A few weeks after the section was made the patient left the hospital. He (Mr Woolf) saw him again later, and there was then much stridor with difficulty of breathing and a swelling in the neck. He opened a large retropharyngeal abscess. The patient died shortly afterwards. The specimen shown had been obtained post-mortem. The palate had become necrosed, and the growth could be seen spreading to the Eustachian tube. An enlarged gland contained epitheliomatous deposit.

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* *Proceedings*, 1930, xxiii., 786 (Sec. Laryng., 28).

† *Proceedings*, 1929, xxii., 1263 (Sect. Laryng., 35).

https://doi.org/10.1017/S0022215100035398 Published online by Cambridge University Press

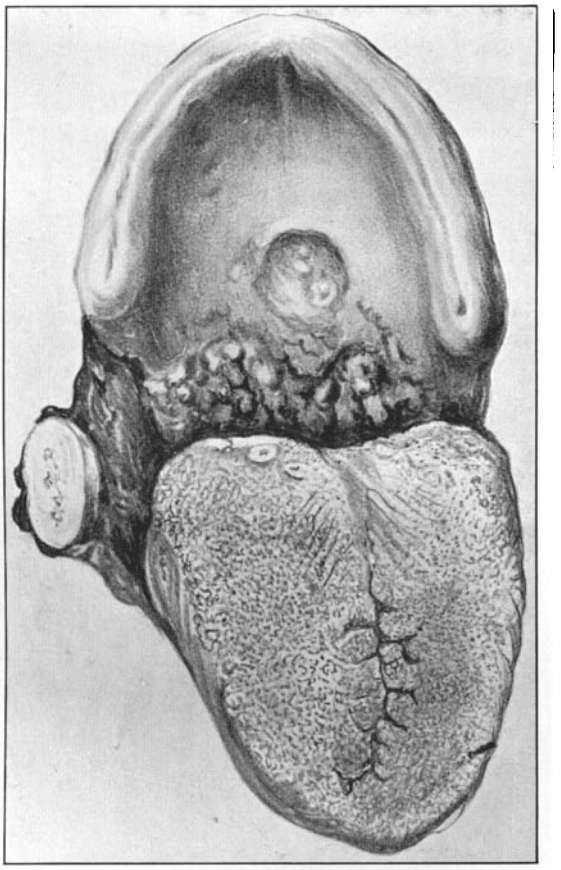


Fig. 1.—The tumour as it appeared post mortem. The ulcer on the palate occurred after a piece had been removed for section.

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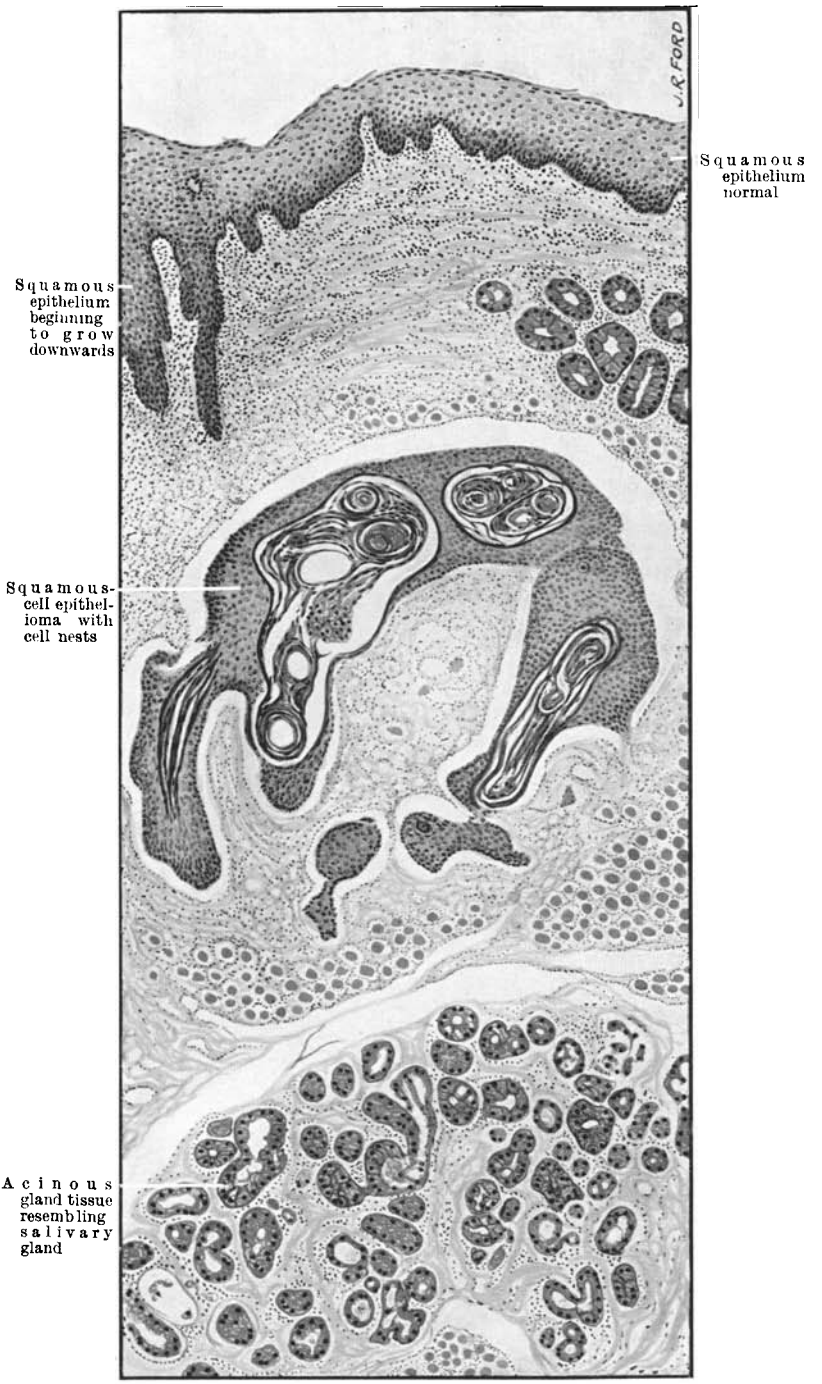


FIG. 2.—A composite drawing to show the various tissues of which the tumour is composed.

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Dr DOUGLAS GUTHRIE said that he had treated a case of epithelioma of the larynx, in which the question of a pension had arisen.* In July 1924, he had performed total laryngectomy on a sergeant, aged 35, who had been gassed with chlorine in 1918, and had afterwards suffered from occasional hoarseness, which had become continuous two years before he (the speaker) saw him. That patient was now able to manage a poultry farm in Devon. It was considered that the "gassing" was at least a contributory cause of the growth and he was awarded a pension.

Sir ST CLAIR THOMSON said that it would be interesting to know—just to satisfy one's mind in regard to the indications for laryngofissure—whether Mr Bell Tawse now thought he could have removed the tumour through the mouth, and if not, why not?

Sir JAMES DUNDAS-GRANT asked if the tumour was pedunculated, and if the tissues beneath the growth were involved. Applications of salicylic acid in alcohol had a very beneficial effect, both in diminishing papillomata and in preventing their recurrence.

Mr BELL TAWSE (in reply) said he had performed laryngofissure because he was not satisfied with the pathological report, and he thought the growth might be infiltrating the ventricular band. He was glad he had done so, as he could not have removed the growth by the mouth, and if he had taken it away in portions, some would have been left behind. The growth did not infiltrate the ventricular band, but he had removed a shaving of the ventricular band with the tumour. The vocal cord was completely replaced by papilloma.

Ulcer in Tonsillar Region. (Shown 2nd May 1930).†—MICHAEL VLASTO, F.R.C.S.

Considerable difference of opinion was expressed at the last meeting as to the pathological nature of the condition. Since his last appearance the patient has had seven local applications of deep X-ray therapy, five to the glands of the neck on the right side, one directly on the ulcerated surface and one to the glands on the left side of the neck. He has also been taking 45 grains of potassium iodide daily for three weeks. Members will note that there is a marked increase in the extent of the disease.

The pathologist reported that the growth was a naso-pharyngeal sarcoma.

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* *Proceedings*, 1926, xix. (Sect. Laryng., 65).

† *Proceedings*, 1930, xxiii., 1153 (Sect. Laryng., 47).

https://doi.org/10.1017/S0022215100035398 Published online by Cambridge University Press