ON AUSCULTATION OF THE ŒSOPHAGUS.*

By T. CLIFFORD ALLBUTT, M.D.,
Physician to the General Infirmary, Leeds.

DISEASES of the Œsophagus often prove somewhat difficult of investigation, and it is not likely that we shall ever succeed in bringing this tube within the range of vision, as we have brought the larynx, the inner eye, and even the cavity of the bladder. Diseases of the Œsophagus, moreover, even when benignant in character, have a peculiar terror in the peril of starvation which threatens the sufferer. Any help, then, which we can obtain either in our diagnosis or our treatment of disease in this part, should be carefully cherished; and for this reason I venture to bring before you a means of diagnosis which, in my opinion, has been unduly neglected. The only means used in cases of alleged disease of the Œsophagus are the catechising of the patient and his friends, and the exploration of the tube with the sound; and not unfrequently this latter cannot safely or judiciously be employed; in which case we are wholly dependent upon more general clinical observation and inquiry. The method of auscultation of the Œsophagus which I have found to be useful is especially useful in cases of this kind, and will tell us much that we could not otherwise discover with any certainty. Nevertheless, I do not find that auscultation of the Œsophagus is commonly practised. Nay, I cannot call to mind a single consultation in a case of this kind where the patient's medical attendant had used auscultation, or had even heard of it before I pointed it out to him. Nor, again, in the ordinary text-books on medicine do I find any allusion to auscultation of the Œsophagus; nor is it described in special treatises on auscultation. So far as I know, the only systematic account of the method is to be found in the papers of Hamburger, which appeared in the *Oesterreichische Medicin. Jahrbücher* for 1867-8-9. My own initiation into the plan was through these papers; but whether Hamburger was the first to introduce it into practice, I know not, nor in this place does it much matter. During the six or seven years that I have tested Hamburger's statements, I have found that, although there is much exaggeration, inaccuracy and whim in his way of putting them, nevertheless, after all deductions, there remains a solid residue of valuable observation.

The method of auscultation of the Œsophagus depends upon the audibility of the swallow both in the neck and thorax. It is best, of course, to educate the ear at first upon a healthy subject. The subject is requested to take a mouthful of water, and to swallow it at a signal. The operator then places the stethoscope (Sibson's stethoscope is the best for the purpose, I find, but any stethoscope will do) first upon the trachea anywhere between the hyoid bone and the supraclavicular fossa. The signal being given, the patient now swallows; and, as he does so, a very distinct resonant gurgle is heard at the place of the stethoscope. This sound, which is very loud at the hyoid bone, where the water is as it were slung through a tube into the observer's ear, becomes duller as the instrument is removed to deeper parts of the neck. Below the cricoid cartilage, the sound is more heavy or solid in character, and the morsel is as it were shoved downwards with a whiz. To examine the lower part of the Œsophagus, the instrument must be removed to the spine, and must be carried down the left side of the spines of the first eight dorsal vertebrae. Here the sound is still more distant, though still very distinct, and is like a smooth body slipping through with a sort of cluck.

By repeated observations upon the healthy subject, the operator must make himself thoroughly familiar with the tone, with the apparent size of the morsel, with the energy of the Œsophageal contraction, with the rapidity of it, and also with the direction of the morsel. The rapidity of the passage of the morsel is ascertained by putting the instrument over the cardiac orifice while a finger is placed upon the larynx. The moment of commencement of deglutition is known precisely by the rise of the larynx; the moment of its completion is recognised by the ear. The rate of the swallow varies a little in individuals, and is generally distinctly slower in weakly persons at all times, and in healthy persons after a prolonged meal. The direction of the swallow may be reversed, as in regurgitation. In this case, the gulped fluid eddies as it were in a funnel with a prolonged resonant gurgle; or the direction of the swallow may be diverted, as in one case under my notice, where the Œsophagus was perforated, and the matters escaped into the pleural cavity. Hamburger had more than one case of the kind; and he prepared me to recognise this condition, which was quite easy when one was thus forewarned. The small quantity of diverted fluid passed through the chink in the Œsophagus with a kind of sizzling murmur. Pyopneumo-

thorax of course was present as a consequence, and there was thereby a metallic quality added to the tone. Or, again, while the swallow still runs in the tube, it may be heard to cross the vertebral column, and to appear on the right side only for a greater or less distance. Hamburger relates a case of this kind, in which it was found, after death, that the Œsophagus had been pushed over by an aneurism of the descending aorta. The swallow was in no way interfered with, so that it seems desirable to auscultate the Œsophagus as a routine in cases of suspected aneurism of the descending aorta. The energy of the swallow must be considered apart from its rapidity. In cases of dilated Œsophagus, the fluid may pass the tube quickly enough; but the absence of energy of contraction is known by the want of grasp. The fluid passes down the tube with a squirting or running sound, not as though slung in a piece. It must be remembered, however, that in obstruction at the cardiac orifice, the accumulation of mucus may, and often does, modify or prevent the usual sounds for some five or six inches above the seat of the disease. In tender places, as in ulcers of the Œsophagus, Hamburger says that the morsel may seem to stick or recoil. My own experience does not enable me as yet to speak decidedly on this point. It sounds to me rather like an over-refinement. So, again, with the rubbing or friction-sounds in inflammation of the tube, which I certainly have never been able myself to detect. But the tone of the swallow, on the other hand, is changed in quality by the presence of rough ulcers and the like on the inner surface of the tube, so that it becomes deadened; though the more common and more easily known result is the prolongation of the morsel. It is, indeed, the prolongation of the morsel which, more than all other changes, has caught my own ear. Almost all changes in the inner surface of the tube may be regarded as diminutions of its calibre, and as checks to its peristalsis: so that, where disease exists, be it ulcer, be it contraction, be it tumour, we hear there a slackening of the rate at which the morsel is slung downwards, and a prolongation of the morsel itself. It tails off and slackens as it passes by. If the stricture be tighter, the morsel, when it reaches the spot, eddies through with a creak, or even with a squeak. If the stricture be tighter still, we hear the resonant regurgitation of which I have already spoken.

After thus describing the changes in the swallow readily to be heard in the various states of disease, I need not stay to point out how valuable these signs must prove in the consulting-room. My hearers will be astonished, when they put it to the test, how readily they will spot the exact site of an organic stricture, and how easily they may prove the nervous nature of a dysphagia which causes no stethoscopic disturbances in the swallow. Time will not allow me to read notes of the numerous cases in which I have found Œsophageal auscultation of value; but among the best of them are many in which the absence of organic stricture was thus almost proved, to the infinite satisfaction of timid patients and their timid friends, who shrank in fear from the name of the sound; while in others the unmistakable signs of a local stricture have forbidden us to nurse any hopes of a spasm which might pass away. For spasmodic dysphagia is unknown to the stethoscope.

SYME'S OPERATION MODIFIED AND IMPROVED BY SAVING THE PERIOSTEUM OF THE OS CALCIS.

By JOSEPH BELL, F.R.C.S.Ed.,
Surgeon to the Edinburgh Royal Infirmary.

PIROGOFF's operation is by some preferred to Syme's, as it leaves, or is said to leave, a more useful stump, while at the same time it avoids the difficult and tedious dissection of the soft parts from the os calcis.

A plan I have used for some three or four years, and practised in ten cases, will, I believe, be found to give the advantages promised by Pirogoff's method, and yet to avoid the risk of recurrence of disease of bone in the portion of os calcis left in Pirogoff's operation.

It is a very simple and slight modification, and consists in leaving attached to the flap the periosteum of the posterior part of the os calcis, and instead of dissecting the soft parts alone off the bone, stripping along with them the whole periosteum. In the case of amputation for disease of tarsus in children, this is done with the most perfect ease. It adds to the chance of vitality of flaps, diminishes the risk of sloughing and number of vessels to tie, and gives the most excellent results. Especially if the patient be encouraged early to move his flap by means of the tendons which soon take on new adhesions, we find that a considerable power of moving the heel flap over the end of tibia is saved, and, in some cases, a deal of new bone is formed from the periosteum. So much so is this the case, that in

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one patient on whom I operated in 1874, it was hardly possible to persuade those who saw the stump, that it was not a portion of astragalus which had been left, with the integrity of the ankle-joint preserved. As all the cases in which I have practised this modification have survived and been successful, I have not found any objection to it, nor had the opportunity of making any *post mortem* examination.

One case had to be taken down about the fifth day for secondary hæmorrhage from the posterior tibial, yet I did not find that the presence of the periosteum implicated in any way the subsequent secondary union of granulations which healed the wound.

ON THE TREATMENT OF BROKEN-NOSE BY FORCIBLE STRAIGHTENING AND MECHANICAL RETENTIVE APPARATUS.*

By WILLIAM ADAMS, F.R.C.S.,
Surgeon to the Great Northern Hospital, etc.

THE treatment of broken nose is a subject which does not appear to have sufficiently attracted the notice of the profession, although the importance of the accident to the patient in producing a permanent and conspicuous deformity, as well as in many cases interfering with the voice and breathing, is very great.

It has been too generally supposed that no permanent benefit can be derived from treatment; and in the cases which I propose to describe, nothing whatever had been done, although high surgical authorities had been consulted. It occurred to me, however, that, by the operation of forcibly straightening the nose under chloroform, and afterwards employing some retentive apparatus, varying according to the nature of the case, much good might be done, and in some instances the deformity entirely removed.

All cases of so-called broken nose may be divided into 'two classes': viz., 1. Those in which the injury is limited to the anterior or cartilaginous portion of the nose, and consists essentially of depression, with

lateral bending of the cartilaginous septum; a partial displacement of this septum from its attachment to the vomer also occurring in many cases. 2. Those in which the nasal bones are fractured, in addition to depression and displacement of the cartilaginous septum from the vomer. Several examples of both these forms of injury have fallen under my observation in private practice, but all the cases, with one exception, in which I have been consulted, have been at periods varying from one to six months after the accident. In one case, however, that of a young lady eleven years of age, the accident occurred six years previously in a fall down a sloping bank, forty feet in height.

In all these cases, the principle of treatment which I have adopted has been, whilst the patient is under chloroform, to straighten the bent cartilaginous septum, and bring it into a direct line with the vomer, using for this purpose a pair of strong forceps, with flat parallel blades, represented in Fig. 1; and, when the nasal bones are depressed, to raise these also, by carrying the blades of the forceps directly upwards. In some cases the two blades, when closed, may be forced up each nostril, under the lower portion of the nasal bones, and lateral pressure may be made externally by the thumb, at the same time that the bones are raised from within. This was done in the second case reported—that of C. R., in which sufficient force was employed to refracture the left nasal bone.

After this operation of forcibly straightening the nose, I employ a retentive apparatus, consisting of the steel-screw compressor, represented in Fig. 2, which is applied so as to support the septum, one blade

(a) being introduced into each nostril, and the screw (b) tightened just sufficiently to hold it in position, and bring the blades into contact with the septum, but without making any pressure upon it. This apparatus can be worn for two or three days and nights without removal. After this, I introduce the ivory plugs represented in Fig. 3, which the pa-

Fig. 2.—Steel Screw Compressor.

Fig. 3.—Ivory Plugs.

tients can remove at pleasure, and reintroduce, so that both nostrils are kept moderately distended, and support given to the cartilaginous septum.

It would not be possible to support the nasal bone by any plug introduced in the upper part of the nasal cavity, from its small size, and the sensitive character of the lining membrane. When the nasal bones have been fractured, I have employed a retentive apparatus externally,

by means of a pad adjusted by cog-wheels, and attached to the front part of a steel band passing round the head, forming a kind of nose-truss, if it may be so termed. This apparatus is represented in Fig. 4, and was first used in the case of C. R., and found to answer extremely well. This truss can be worn day and night for two or three weeks, according to the extent of the injury, and in the case above referred to was worn for a still longer period.

The operation of forcibly straightening the nose does not require to be repeated, except in cases of great severity; but it may in some instances have to be repeated once or twice before the deformity can be rectified, the retentive apparatus being afterwards employed. When the nose has been straightened, I have not found that there has been any disposition

Fig. 4.—Nose-Truss, with Screw-Pads.

to relapse of the deformity: the nasal bones and the cartilaginous septum retain their improved position and relations the more readily, as they are not subjected to any muscular influences tending to cause displacement.

Although I have not had the opportunity of applying the treatment above described at an earlier date than a month from the accident, there can be no doubt that its employment would be more easy and effectual in proportion to the early period at which it was adopted after the accident; but, should there be much swelling and ecchymosis, it would be advisable to wait until these had subsided, and in a week or ten days the treatment by forcible straightening and retentive apparatus could be employed with every probability of success. In recent cases, however, it may not always be necessary to employ any retentive apparatus.

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