A Clinical Lecture

ON

DYSPHAGIA.

Delivered at the London Post-Graduate College and Polyclinic.

By MAYO COLLIER, M.S.LOND., F.R.C.S.ENG.,
Senior Surgeon, North-West Hospital.

GENTLEMEN,—I have brought for your inspection to-day this man, who states he is 51 years of age. He is a carriage builder by trade, and has now been ailing some six months. He is suffering from dysphagia, or difficulty in swallowing. The cause of his trouble is not apparent.

I propose to discuss with you this afternoon the subject of dysphagia and to try and make out by the process of exclusion the exact nature of this man's trouble.

With an experience of twenty-nine years in hospital and other practice I have naturally seen some few of these cases. I know of no task or problem that can be presented to the surgeon that is more difficult or requires more care and circumspection than when a patient who is unable to swallow presents himself and asks for relief.

It is only after obtaining a complete history, and after making a most careful survey and minute examination of the nose, mouth, pharynx, larynx, neck, chest, arms, and abdomen, that you will be in a position to come to any correct opinion on the case. When foreign bodies have been swallowed their exact location can only be made out with the help of the probang, bougie, or Roentgen rays.

This man says he was quite well six months ago and could take his food like any ordinary person. He dates his trouble from swallowing a small bone or piece of gristle. Since then he has off and on experienced some trouble in swallowing. Up to within the last few weeks he has never been sufficiently bad to prevent him taking soft and well-chewed food. Within the last twenty-one days his dysphagia has become quite acute, and he is and has been reduced to swallowing quite small quantities of milk, tea, and broth. Lately he has lost flesh rapidly, and, as you see, is now much reduced in weight.

Ultimately his symptoms became so acute that he was admitted into the hospital under my care and operated on as an emergency case by my colleague, Mr. Templeton. A most successful operation was performed, and the man can now feed himself and go about like an ordinary individual, but neither Mr. Templeton nor I knew the exact nature of the obstruction to the oesophagus, although we may make a shrewd guess. I may here add that in this case there is no suspicion of syphilis, alcohol, tubercle, or gout.

All diseases of the oesophagus have a tendency to constrict, and eventually to occlude, its passage. In some instances the constriction may be purely nervous or reflex, but in the great majority of cases it is either due to fibrous or cancerous degeneration of the walls of the canal, and is then termed "organic stricture."

The great feature of oesophageal stricture is dysphagia, but there are many conditions producing dysphagia that are not due to stricture, and to these as well as stricture we must direct our attention this afternoon.

DIAGNOSIS.

Before passing an instrument down the oesophagus with a view to making a diagnosis of stricture it is necessary to examine for, and eliminate, the following conditions that may give rise to dysphagia independently of stricture:

1. Morbid Conditions of the Nose, Mouth, or Pharynx.

On a patient complaining of dysphagia, after having carefully made notes of the personal history, mode of onset, and details of illness, you will sit him down in a chair near a good light, and, with the aid of the frontal and laryngeal mirrors, you will examine for:

(a) *Bad Teeth*.—Bad teeth have been known to cause lock-jaw, as well as chronic inflammation of the lining of the stomach and oesophagus.

(b) *Tumours, Abscess, or other Affections of the Tonsils*.—These may cause marked dysphagia and obstruction to deglutition.

(c) *Tumours or cysts of the uvula, pharynx, or post-nasal spaces* may produce dysphagia. A polypus of the post-nasal space may hang down and cause complete dysphagia.

(d) *Post-diphtherial paralysis* of palate or pharynx may be present.

(e) *Glosso-labio-pharyngeal palsy* must not be omitted, as well as general paralysis, as a severe and fatal cause of dysphagia.

All these obstructions and conditions can be easily seen and made out by opening the mouth and depressing the tongue with a spatula in a good light. An abscess may exist behind the wall of the pharynx from caries of the cervical vertebra, or suppuration of the cervical glands, and cause marked and serious dysphagia. I have had two such cases under my care in the hospital recently.

A gumma, tuberculous ulcer, or syphilitic sore may each be present and set up a lesser degree of dysphagia or difficulty of deglutition. These conditions can be easily seen by simple inspection of the oropharynx.

2. Morbid Conditions of the Larynx.

Tuberculous or malignant disease of the larynx or upper opening of the oesophagus, oedema of the epiglottis or arytenoid cartilage, or other diseases of these structures may produce marked and profound dysphagia. Perichondritis, with or without abscess and growths in or about that organ, may cause dysphagia.

All these conditions are easily seen and their presence determined by the aid of the laryngeal mirror. The combination of dysphagia with cough and dyspnoea will point to the larynx as being affected.

3. Tumours in the Neck Outside the Oesophagus.

A cyst or abscess or tumour of the thyroid body may so press on the oesophagus as to cause marked dysphagia. Such a case was under my care recently. The cyst was of old standing and suddenly suppurated during an attack of influenza. This abscess caused death by pressure on the oesophagus and trachea.

4. Aneurysm.

An aneurysm of the internal carotid artery may develop inwards and cause dysphagia. Any tumour or abscess arising in the neck outside the oesophagus may press upon it and so obstruct its lumen.

In some cases an aneurysm of the innominate artery is limited to its postero-internal aspect, and developing in this direction its first and only symptom may be dysphagia. The usual signs of innominate aneurysm, such as difference of pulses on right and left side, difference in pulsation in the right and left carotids, enlargement of superficial veins in head and neck, pain and dyspnoea: these may be one and all absent, and the patient may be quite free from any other symptom than dysphagia. There is one point, however, of cardinal importance in the diagnosis of innominate aneurysm. It is this, that when the aneurysm causes marked dysphagia it nearly always causes some dyspnoea and cough. Dysphagia associated with dyspnoea and cough would certainly make one think twice as to the possibility of innominate aneurysm in the absence of any laryngeal affection.

Aneurysm of the aorta may give rise to dysphagia by pressing on the oesophagus, and, as in innominate aneurysm, the reckless passage of a tube may precipitate a fatal termination. The symptoms of aortic aneurysm are pain, dyspnoea, dysphagia, oedema, but of all these the dyspnoea is the most characteristic and important.

The dyspnoea may arise from:

(a) *Direct Pressure on the Trachea*.—This can be seen with the laryngoscope or its effects can be heard with the stethoscope.

(b) *Pressure on the bronchus* is characterized by a wheezing cough and some expectoration, with a marked difference of breath sounds on the two sides of the chest.

(c) *Pressure on the Lung*.—In these cases the dyspnoea is not marked till a late stage, when the aneurysm presses on and becomes incorporated with the lung. The lung then forms part of the aneurysmal sac.

(d) *The Recurrent Laryngeal Nerve*.—In pressure, irritation, stretching, or compression of this nerve the voice is hoarse and much changed, there is a cough of a metallic character, and usually some frothy expectoration. Any exertion brings on severe and distressing dyspnoea, and sudden attacks of dyspnoea without exertion are not uncommon. On examining the larynx there is usually loss of the power of abduction on the left side, and the cord rests in the cadaveric position or is completely adducted.

(e) *Pressure on the Pulmonary Vein*.—When this is the cause of the dyspnoea there is considerable lividity of surface and signs of pulmonary congestion. The dysphagia associated with aortic aneurysm seldom or never precedes the dyspnoea.

It is always a late symptom and is usually associated with pain.

One more characteristic of the dysphagia of aortic aneurysm is that it is nearly always associated with pain, and this pain is referred to the episternal notch, and with it there is a feeling as if there were a cord or string round the root of the neck.

5. *Intrathoracic Tumours.*

Enlarged tuberculous glands, cancerous and other tumours or abscesses may develop in the posterior mediastinum from the spine or other surroundings and compress the oesophagus. A local empyema may threaten the life of the patient by compressing the trachea or oesophagus. One such case came within my own experience. A collection of pus at the apex of the left pleura pressed so severely on the oesophagus and trachea that an exploratory operation had to be undertaken to assist the diagnosis.

In all these cases, when a tumour or aneurysm is suspected, a skiagraph will greatly assist the diagnosis; but always remember that dyspnoea followed by dysphagia and pain will most certainly make one very suspicious of aortic aneurysm.

6. *Dislocation of the Sternal End of the Clavicle Backwards.*

This may occur in two ways: From accident in a well-formed and healthy subject, and when associated with excessive curvature of the spine.

In the classical case reported by Sir Astley Cooper the end of the bone pressed so severely on the oesophagus and trachea as to threaten life. The sternal end of the bone was removed with a saw, and the patient's life saved.

7. *Impaction of a Foreign Body in the Gullet.*

In these cases there is generally a history and knowledge of the fact, or the patient has missed his false teeth on waking in the morning, or is conscious of having swallowed a coin or a piece of bone, or what not. These are the most important conditions that are likely and liable to simulate stricture of the oesophagus, and by the process of exclusion you must eliminate each and every one of these before you are justified in passing an oesophageal bougie to assist your diagnosis.

Now, with this patient before us, we have an excellent opportunity of carrying on our examination in the way I have indicated; and I propose now, with your assistance, to see if there are any of these eight conditions present before I pass this tube to find out more about the cause of his difficulty of swallowing.

[The patient being placed in a chair near a good light the lecturer said:]

You will see that, although few teeth are left, those that remain are sound. There is no stiffness of the jaws. The mouth and oropharynx are healthy. The nose and postnasal space are free from polypus or other growths. The larynx gives us no indication of paralysis, growths, ulceration, or other morbid conditions. The movements of the cords are quite healthy. There is no bulging into the pharynx by growths in the neck, such as aneurysm, post-pharyngeal tumours, or abscesses, or growth of any kind. The thyroid body is quite movable and apparently free from disease. There is no evidence of swelling at the root of the neck on the right side, no enlargement of the veins of the head and neck, no oedema of the arm, and the pulses in both radial arteries are equal. There is no pain, except in the back, low down, opposite the xiphoid cartilage. He has no dyspnoea, no dullness front or back, and no difference in breath sounds. There is no evidence of intrathoracic tumour of any magnitude. The sternal end of either clavicle is in its place. There is no history of having accidentally swallowed a foreign body.

USE OF THE OESOPHAGEAL BOUGIE.

Having carefully excluded all these conditions, we are now justified in passing an oesophageal bougie. The passing of an oesophageal bougie requires tact, determination, and care, and any hesitation or want of skill on the part of the surgeon will end in disaster. I have seen a feeding tube come out of the nose; I have seen it passed into the larynx; I have seen it coiled up in the postnasal space; in fact, I have seen it in every position but the right one.

An anaesthetic is often desirable in these cases, but as this man is now comfortable and confident, he will allow me to pass this medium-sized bougie without hesitation. I seat him in a chair and request him to sit up and open his mouth. By bending the head slightly forwards I avoid the prominence of the second cervical vertebra, and by grasping the

instrument about 8 in. from its tip I can pass it into his oesophagus without causing him the least laryngeal irritation or discomfort. You see that the bougie has passed some 10 or 12 in. and there stops. The tip is now not far off the lower end of the oesophagus but will not pass further. On withdrawing it you see it is covered with thick pasty mucus streaked with blood. The age of the patient associated with the rapid wasting and the complete obstruction will enable us now to say that this man has malignant disease of the oesophagus near the cardiac end.

Now what should we have done in a case like this to relieve him of his urgent symptoms of impending death from starvation? Do not wait till it is too late to operate. Operate first and make your diagnosis afterwards. Mr. Templeton, acting for me, was sure this man was dying of starvation. He did not wait an hour, but fed him by an opening in the stomach within four hours of his entrance into the hospital. You see this man now—he is the picture of contentment. He drove here in a cab and smoked his pipe all the way, and is now comparatively happy.

OPERATION.

The operation that we performed that snatched this man, so to say, from the jaws of death from starvation is known as gastrostomy. We gave him a mouth in his stomach, and, more than this, we aimed at giving him a new oesophagus also. If you examine him you will see his new mouth over the cartilage of the eighth rib, and with a probe you will make out the new oesophagus that leads into the cavity of the stomach. This operation is known as Albert's modification of gastrostomy, and I think it is the most efficacious of all the methods introduced within the last twenty-five years.

You will appreciate the advances made in surgery when I tell you that twenty-five years ago the foremost surgeons of the day in this country, with few exceptions, did not even so much as contemplate this operation. They looked upon opening the stomach for malignant stricture as useless and deadly. I will read you a passage from the best-known surgery of the day from the pen of one of the ablest men that ever lived—Professor Sir John Eric Erichsen, written in 1872.

Speaking of gastrostomy as performed by Sedillot and Cooper Foster, he says the value of this operation has as yet to be determined by experience. In no case in which it has hitherto been done has it succeeded in adding much, if anything, to the prolongation of life. In reasoning upon it two objections present themselves. First, there is the great and immediate danger of destroying life outright by the induction of peritonitis. But supposing this risk to be overcome, what is gained by the artificial opening? It is true that through it the patient might be nourished, but as every idiopathic stricture of the oesophagus is either from the first of a cancerous nature, or ultimately assumes a malignant action, of what advantage is it to endeavour to prolong a precarious existence which in a few months or weeks must be cut short by the unchecked progress of a malignant disease? Would not the immediate danger of the operation much more than counteract all good to be eventually derived from it?

What a change in twenty-five years! Now it is the general opinion that the operation is simple and safe, and extremely efficacious, and is to be resorted to on all occasions when the life of the patient is or may be threatened by starvation. I would here add that the French surgeon Sedillot was the first to perform this operation in the year 1846. Some years afterwards Mr. Cooper Foster performed a similar operation for the first time in this country without success.

Then came a slow sequence of cases by various expert surgeons with little success. Out of the first 60 cases, 50 died within forty-eight hours, peritonitis and exhaustion accounting for the majority of the failures. With antiseptic surgery came freedom from suppuration and freedom from giving way of the stitches that bound the stomach to the abdominal wall.

With antiseptic surgery the great gulf was bridged. Until to-day, gastrostomy, if performed before the patient is moribund with starvation and semi-decomposition, is one of the safest and simplest procedures in surgery. The operation as performed in this case may be described in Mr. Jacobson's own words as follows:

The peritoneum is opened either by an incision parallel with the costal cartilage or by one just within the linea semilunaris high up. The stomach having been drawn out, a long conical diverticula of the anterior wall of the viscus is pulled well out of the wound, and the parietal peritoneum and the posterior layer of the sheath of the rectus are sutured round its base, care being taken not to constrict it much. A continuous suture is used, and every care taken not to perforate the mucous coats of the stomach.

A small incision is now made through the skin a little above the front

and on the level of the costal cartilages. The skin between the two openings having been separated from the subjacent parts, the diverticulum of the stomach is drawn up under the skin and over the costal cartilages as far as the small skin incision to the edge of which its apex is united by a few sutures. A small opening is now made here into the stomach, and the orifice fixed to the skin by one or two points of suture.

The lower part of the wound is then closed by continuous suture. As a result, the diverticulum of the stomach is drawn upwards; its base is gripped by the muscular fibres of the rectus, while a short upward-directed subcutaneous oesophagus is also formed. All escape of fluid is thus prevented, and the patient can be safely fed at once.

SUPPURATIVE FRONTAL SINUSITIS:

ITS SURGICAL TREATMENT, BASED ON AN ANALYSIS OF FORTY CASES.

By W. MILLIGAN, M.D.,

Aural Surgeon, Manchester Royal Infirmary; Surgeon, Manchester Hospital for Diseases of the Ear; Lecturer upon Diseases of the Ear, Victoria University of Manchester.

SUPPURATIVE disease of the nasal accessory sinuses in its relation to general systemic affections, to septic intracranial lesions, and to infective processes within the tympanic and orbital cavities has been brought somewhat prominently before the profession of late years, more especially since the various epidemics of influenza have visited this country. The difficulties of accurate diagnosis, of differential diagnosis, and of a true estimate of the damage inflicted, or likely to be inflicted, upon the individual in question, present problems at once interesting and instructive to those engaged in this particular department of medical work.

For practical purposes the nasal accessory sinuses may be divided into two main groups, (1) those whose ostia drain into the middle meatus, and (2) those whose ostia drain into the superior meatus.

In the first group are included the maxillary antra, the anterior ethmoidal and fronto-ethmoidal cells and the frontal sinuses; in the second group the posterior ethmoidal cells and the sphenoidal sinuses.

Pus coming from any of the sinuses included in the first group drains into the anterior portion of the middle meatus, whilst its flow is materially increased upon stooping or upon bending the head forwards and downwards. More especially is this the case when the maxillary antrum is the source of the purulent collection. In suppurative disease of the posterior group of cells, the flow takes place backwards towards the nasopharynx, and is usually to be seen upon rhinoscopic examination covering the posterior ends of the middle turbinates and the adjacent regions of the lateral walls of the nasopharynx.

The main difficulty in practice is first of all to determine from which sinus or sinuses the flow of pus is taking place. To ascertain this it is frequently necessary to examine the patient on more than one occasion.

Experience shows that it is a matter of comparative rarity to find only one sinus or one group of cells affected. In the vast proportion of cases two or more sinuses are involved.

Zuckerkandl, with his great and unique experience, never found a single case *post mortem* in which frontal-sinus suppuration was uncomplicated with ethmoidal; and E. Fraenkel, in 146 autopsies, did not find one uncomplicated case of suppurative frontal sinusitis.

This tendency to multiple sinusitis may be due to the virulence of the original infective process or to an auto-infection. The anatomical arrangement of the various ostia also favours the passage of pus from one sinus to another. Thus, it is no uncommon thing to find that when one or other of the higher sinuses is affected a secondary infection of one of the lower sinuses follows. It is not always, however, a case of actual infection or disease of the lower sinus which results. The sinus may act merely as a reservoir into which pus trickles, and, should it be drained at a sufficiently early stage, no permanent damage may have been inflicted upon its delicate mucosa. This mechanical infection is more especially prone to take place as the result of frontal-sinus suppuration when the purulent fluid flows down the infundibulum directly into the maxillary antrum, guided thither either by the intimate relationship of the two ostia or along a narrow gutter of mucous membrane running from the open end of the infundibulum to the ostium maxillare.

The principal etiological factors responsible for frontal-

sinus suppuration may be grouped as (1) local, (2) general causes.

The most important local causes are extension from some previously-existing morbid intranasal lesion and traumatism. General causes are epidemic influenza, diphtheria, syphilis, scarlet fever, measles, pneumonia, and catarrhal affections of the upper respiratory tract.

The particular germ responsible for the production of any of these general diseases may be found within the sinus. Bacteriologically, however, no specific organism is responsible for the incidence of the sinusitis. Various cocci—streptococci, staphylococci, meningococci, pneumococci, and various bacilli; for example, Pfeiffer's, Friedländer's, etc.—have from time to time been demonstrated in pus taken from infected sinuses.

The histo-pathological changes which take place are at first confined to the mucosa, but later on the underlying or surrounding bony structures may become the seat of a cario-necrotic process ending in perforation and extension of septic disease to the intracranial or orbital cavities.

The mucosa lining the affected sinus or sinuses undergoes marked degenerative changes in chronic cases, becoming succulent, oedematous, and finally polypoid. As a result the natural orifices of the sinuses tend to become occluded. Distension follows, with at times disastrous consequences. In practice the latent and open form of empyema is the one most commonly met with; that is, where there is a free secretion of pus from the mucosa lining the sinus, with, at the same time, sufficient egress to prevent the supervention of tension symptoms. The advent of any acute catarrhal condition, or any increase in the virulence of the infective agents, may rapidly transform a latent into an acute and closed empyema.

In the diagnosis of acute suppurative frontal sinusitis no special difficulties are encountered, but it is quite otherwise in cases of chronic latent empyema. Localized pain, which is such a valuable symptom in the diagnosis of deep-seated suppuration is usually conspicuous by its absence. It is true that pressure over the floor of the sinus, which happens to be its thinnest wall, does at times produce marked pain, but an almost equal amount of discomfort is not uncommon when similar pressure is made over the floor of the opposite sinus. To elicit this symptom to the best advantage the finger must be introduced well under the supraorbital arch and pressure made upwards and inwards.

It is rare to find local pain complained of over the anterior wall of the sinus. This wall is its thickest wall, and in chronic cases is prone to become still thicker as the result of a formative osteitis.

The line of flow of pus is perhaps one of the most valuable of the objective indications of the disease. Pus coming from the frontal sinus appears in the anterior portions of the middle-meatal region, its flow is not much influenced by the position of the head as in bending forwards, its colour is usually of a light canary yellow tint, and the patient is usually conscious of a slightly disagreeable odour.

My experience has been that the fronto-ethmoidal cells are invariably affected in cases of frontal-sinus suppuration, and from the practical point of view should always be broken into and drained in operation cases. An accurate estimate of the presence or otherwise of pus in the frontal sinus is, I believe, more readily obtained by excluding the participation of the maxillary antrum and anterior ethmoidal cells in the suppurative process—in other words, more by the presence of negative than of positive indications.

In the diagnosis of empyema of the maxillary antrum positive information is usually obtained by the aid of transillumination. The opacity of the affected side contrasts markedly with the brilliant illumination of the opposite antrum. The fact also that the patient is usually conscious of a glow of light in the eye of the non-affected side—a sign which is absent from the affected side—is a useful aid to diagnosis. In doubtful cases washing out of the affected sinus either by the introduction of a cannula through its natural orifice or the passage of a Lichwitz's trocar through the thin inner bony wall of the sinus, that is, just under cover of the inferior turbinate body, serves to definitely demonstrate the presence or absence of pus in the antrum.

The diagnosis of anterior ethmoidal suppuration presents greater practical difficulties, partly on account of the frequent existence of polypoid granulations in the middle-meatal region, and partly also on account of the difficulty of seeing the orifices of the cells. To facilitate observation it is advisable to remove, either by scissors and cold wire snare or by