Spasmodic Stricture of the Oesophagus

its Etiology and Prognosis

Being a Thesis for
the Degree of Doctor of Medicine

Presented by
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Shaemodius structure of the oesophagus has by no means the interest for us that attaches to the other varieties of oesophageal structure, from the absence (in the vast majority of instances) of any gravity from its prognosis but few affections indeed in looking over the literature attached to it, have such a vast etiological field. I intend in this sketch to go over fully the state of our knowledge of its etiology and prognosis, beginning with the consideration of the following case, which has occurred in my private practice.

A.G., 34. Unmarried. Clerk in the Civil Service. First seen on Jan. 14th, then complaining of difficulty in swallowing, paroxysmal, not complete. The affection had then lasted two months.

History. As regards hereditary tendencies, with the exception of one sister, who is slightly hypertensive occasionally, and who suffers much from neuralgia, there is nothing to be found. Patient's relations are more German than English, and as far as I have been able to judge, the reverse of neurotic. There is a strong gruity tendency in the family. Previous illnesses from
a short account furnished by his mother, we see that patient had a severe attack of diphtheria when 8 years old— that as a child he had frequent "choky feelings" in the throat — and cramps from 1st to 15th year. He himself has not the slightest recollection of any of these — and says that as far as he can remember he has always been strong and healthy — has had no trouble but the ordinary children's diseases — and up till five years ago prided himself on being able to eat anything, and stand any fatigue. For the last 15 years his only complaint has been obtundate neuralgia — never (or very rarely) severe.

Five years ago, in the winter of 190-191, he had his first attack of influenza — he was then off duty for 6 weeks — the attack he says was fairly severe, and affected principally the bronchi, being also followed by a good deal of conjunctivitis. After this (from which he made a good recovery) he enjoyed good health for about a couple of years, at the end of which, in the spring of 193, he had a second attack. This was very slight to begin with — and as at that time he happened to be engaged in his office in some very important work, he
worked right through it, and consequently had some difficulty in shaking it completely off. However in 6 weeks he was fairly recovered, but remained weak for another few months. This one did not attack the parts previously affected, but caused a troublesome 'ordinary sore throat' (he is certain there was no tonsillar trouble) which lasted for 2 months, and a renewal of the neuralgia, but not very severely. After this he enjoyed fairly good health until the autumn of 1914, when he had a third attack, which kept him at home about a month and left him very much unstrung, and unfit for any exertion — a state of things lasting right on till the end of that summer — during which time also he had again very frequent sore throats. At the end of this, in October 1915, while just beginning to get over the last attacks, influenza reappeared for the fourth time — this time he was confined to bed for 2 weeks, and to the house for 3. Both the last attacks were followed by severe neuralgia, most marked after the last — during and after which his nerves were in a very bad state. While ill the knocker and bells had to be muffled, the slightest noise nearly driving him frantic.
This excessive sensibility persisted in a modified form until the middle of March. Soon after the second attack (Spring of 1973) he began for the first time in his life to feel  protestant complained also of giddiness, languor at nights after dinner accompanied by a great deal of flatulence. This passed off in 4 or 5 months, after a visit to the seaside. But ever since his digestive powers have not been as good as formerly, and he has had nearly constant acidity and flatulence, with very frequent bilious attacks. Four months, giddiness, black spots before eyes etc.

As regards the difficulty in deglutition, all the summer of 1915 he had noticed a slight difficulty in that respect, as well as being very weak and sleepless and neurasthenic. But this was nothing to speak of, and was easily overcome. But on one occasion, about a year ago, while at the seaside, he woke up one night with a feeling of intense constriction of the throat and suffocation, accompanied by great terror and fear of impending death. This passed off in a few seconds, and did not reappear.

At the commencement of the fourth
attack in Oct. 1915, along with shivering fits and high fever, the chief complaint appears to have been a 'gripping round the head and throat.' At that time, however, he was conscious of no difficulty in deglutition.

In the middle of November, while still in a very weak and nervous state, this difficulty became much more marked— he found he had to make a distinct effort accompanied by protrusion forwards of the chin, before anything could be swallowed—but he never actually failed to swallow anything, after 5 or 10 seconds at the most. At such times he was accustomed to aid the effort by clenching on to the table, which seemed to give a point or appui for the trapezius and muscles of the chest at this very subsequent period was there any regurgitation, either of solids or liquids.

On Nov. 20th he had what he terms his first 'big choke,' of which there have been four during the progress of the malady. At this time he was at dinner with a large party in a friend's house—all that day he had been feeling very much out of sorts—pain in abdomen and diarrhoea.
and at dinner he ate very little. When dinner was nearly done, (perhaps because of his difficulty in swallowing he took longer to eat than the others, and finding himself the last, made efforts to eat more quickly) suddenly a mouthful seemed to stick halfway down—at the same time he was unable to breathe, turned very white, and his face (as he was afterwards told) assumed an expression of intense anxiety and fear— at the same time he felt a loud ringing in his ears, and a sensation as if they were full of water— he rose and rushed from the room and upstairs, unaware of what he was doing. At the first landing the obstruction seemed to give way suddenly, and he felt the food pass down into the stomach. At the same time the feeling of suffocation passed off, and he could breathe freely. The whole affair lasted probably 10 or 15 seconds, but at the time seemed much longer to him.

This was not repeated till Dec. 29th, then much the same in duration and sensation as before—again on the 12th and again on the 14th of January— the smaller difficulties persisting all the time very frequently during the course of each meal.
making eating a very slow and troublesome affair.

As a result of the repeated sore throats of the summer of 195, his tongue, the size of which was not previously noticeable, had become very much elongated - it is in length, and trailing on the floor of the mouth. It does not seem to have been unduly sensitive in any way. As it was thought by the patient's then medical attendant that possibly this was the cause of the trouble in deglutition, it was removed in November, after the first 'big choke' referred to - but no benefit was found to result. Its removal was followed by acute pain in both ears for several days, followed by duller pain for some weeks.

During Nov. and Dec. electricity (interrupted current) was tried in throat, but without success.

On or about Jan. 14th (the time he first came under observation) he began to be aware, in addition to what he describes as a feeling of 'tiredness or weariness' in the muscles of the back of the mouth and pillars of the fauces - when eating, after a few mouthfuls, they seemed quite unable, without a several - time,
repeated effort to pass the bolus from the mouth into the pharynx and esophagus. At this period he also complained of great dryness and a 'cotton woolly' feeling in the throat.

The patient was first seen on Jan. 14th - the evening of the last 'big choke.' He was then very anaemic, but brisk and vigorous - his appearance and manner markedly nervous and excitable. On being questioned he gave clearly enough though in rather an excited manner the facts detailed above. On examination the throat with the exception of a very thick white fur on the posterior third of the tongue, seemed normal. Mastication he said was always complete. For that reason I did not fully examine his teeth - a mistake, as will afterwards be seen. The want was gone, not the slightest trace of it remaining. On examination by laryngoscope a very slight amount of laryngitis found. On examining posterior nares, a small projection could be seen from the septum of the nose on the right side, about the size of a split pea - not interfering in any way with respiration.
On passing a long, zigzag, oesophageal\footnote{The passage of the endoscope was arrested at about level of the cricoid cartilage, and for a few seconds it was impossible to get it to proceed any further. However, on making steady, continuous pressure through the tube, it passed fairly into the stomach. On withdrawing it, one could feel the instrument gripped to a slight extent until the former obstacle was passed. After that no difficulty until just at very upper extremity of oesophagus, when it was again gripped to a varying extent—usually pretty tightly—but sometimes hardly perceptibly—no obstacle at this last-mentioned site is perceptible on tongue being passed down—only on withdrawal. As regards other organs, there was slight acidity and frequent but not severe flatulence. Pulse regular but a little weak. Slight neuralgia present and excessive nervous sensibility.

The next day, as he was in a very excited and alarmed state, it was judged advisable to send him to consult a throat specialist. Who was of opinion that in all probability the trouble was reflex, and due to the nasal 'spine' or projection,
fore said, and proposed its removal by operation. The patient, however, not being inclined to go this length, consulted in a few days another specialist, who again examined him carefully, and found a little general angina and pharyngitis, and probably on the symptoms some oesophagitis. He added that there must be a hyperaesthetic condition of the nerve centres, as the objective condition was not sufficient to account for the severity of the symptoms. He attached importance whatever to this nasal outgrowth, and recommended general treatment, with: (1) some briskness in a mucilaginous mixture, he supposed slowly before meals (on the assumption of some oesophagitis being present), (2) inhalations of fumes of benzoin, (3) short, only sedative measures.

About this time, as he noticed that attacks seemed much worse and more liable to occur with meat than with a diet, which meat did not appear to him entirely kept off. He confined himself to broths and soups, puddings and other soft foods, which he knew by experience to be not so apt to encourage a spasm. For breakfast his usual ice was shirred toast without the
crust, and boiled eggs - with this he never had the slightest trouble. The chief difficulty appeared at lunch and dinner - the only meat he could take was a slice of the breast of a fowl or game, which caused no bad result. Lunch he took at domestic home, with a number of fellow-officials - and noticed that here the difficulty was much more marked - so much so that at last he became afraid to take anything except a little soup. The same thing happened whenever he felt himself observed, when there were more than usual at table at home - or when annoyed by the condolences of sympathetic friends - when by himself he could eat with much more immunity than at any other time.

The advice given above was followed carefully for a fortnight - with no benefit. At the end of which time, as had at been arranged, the second specialist was again consulted. This time he was inclined to attach less importance to the local inflammatory condition, and more to the general. He stopped the sedative measure, and instead recommended the daily passage of a large sigmoid bougie into the stomach, beginning this himself - also a pill of
Strychnine, Valerianate of Quin, and Asafoetida. — (the patient had never had the slightest difficulty in swallowing pills).

The tongue was passed daily (with one or two exceptions) during the whole of February — but without producing any appreciable diminution of the phlegm. By means of the revised diet he managed to exist in tolerable comfort, and without a recurrence of the 'big chokes' — but no improvement could be seen in the smaller. By the use of the strychnine however, his general health improved remarkably — until by the middle of March he had quite lost the excessive nervousness and sensibility which characterized him when first seen. His appetite was good, and vigorous and capacity for work better than for years. The feeling of exhaustion in the pharynx above spoken of was also much lessened by the adoption of a soft diet — but did not entirely disappear.

About the beginning of March, his attention was drawn to his teeth — by the fact of the plate of a set of false teeth which he wore in the upper jaw becoming displaced, and slipping down. On making for the first time a close examination of
the whole of his teeth, I found that with
the exception of the incisors, and one molar
of each jaw on each side, there was actually
no approximation whatever of the rest of
the teeth — and that the masticatory powers
with such a set must necessarily be of
the slightest — much less than if he had
had no teeth at all, as then the gums
would have been able to come into apposition.
He himself was not conscious of any
defects in that direction — and had always
expressed the opinion that his masticatory
powers and performances were in excellent
order, as was mentioned before.
On the state of things being discovered,
he was advised to have a new set put
in at once — this he did — the new set was
most carefully studied and made, and
fitted perfectly in every part — it was
finally applied on March 17th.
Since then his condition has shown
a very material improvement — the beginning
of which was immediate — On the 19th he
ate three meals — for dinner, without the
shadow of any interference with deglutition
and although unfortunately this state of
things did not last, and at various times
since he has had recurrences of the smaller
spasms, yet he has always been able to explain them by excessive haste in swallowing of his food - or by its unusual hardness. At no time has there been any recurrence of the 'big chokes'. From time to time before the new teeth were got he had tried a meat diet - but always with the same result - an aggravation of the spasms. Now (April 20th) they are much fewer in amount, are only momentary, are overcome by a slight effort, and without the necessity for clenching some point of support; his general health is very good, the irritability and nervousness being quite gone - and he is able to enjoy life fully again.

This case appears to me to be due to a combination of various causes, none of which by themselves can be regarded as being sufficient to explain the symptoms - but which when joined together, have by their united action produced them.

I think general hyperaesthetic state left by the repeated attacks of influenza on a system always very subject to influenza must be looked upon as the necessary preliminary, without which the other causes would in all probability have been quite unable to produce the symptoms.
The slight amount of pharyngitis and laryngitis observed, joined to the general condition, may possibly have been a large factor. But the pharyngitis itself may have been due to imperfect mastication, which it seems to me we are bound to accept as the chief cause. Whether it acted by causing a pharyngitis, or an oesophagitis, or by mere mechanical over-stretching of the oesophageal walls inciting them to over-contraction will not here be discussed. This however was not the only cause—as is proved by the fact that the condition of the first set of teeth must have precluded complete mastication for many years, but the stomach and oesophagus were strong enough to resist the irritation of imperfectly masticated food until their tone was lowered and the scales turned by repeated attacks of Influenza.

The gastric tendency, much insisted on by several observers, as will be afterwards seen, may have been a cause. How this tendency acts is not yet agreed upon, perhaps by causing a chronic congestion or inflammation of the mucous membrane of the oesophagus from the presence of acid or other irritating matter in its blood.
The 'big chokes' must be taken to mean simply that the spasms on those occasions extended to the larynx, instead of confining themselves to the oesophagus, and perhaps also were more general even in the oesophagus.

V. The persistence of the spasms after the removal of the exciting cause must be explained by the increased reflex irritability engendered by the continuance of the condition for some months. (V. afterwards. Propriosis.)

There only been able on looking over the records of cases of oesophagismosis & found one other where imperfect evacuation may with a fair amount of reason be looked upon as the exciting cause. This case was published by Dr. Thornton in the Lancet, 1881, p. 617. In it, the case of a lady of over 60, four days previously to her being seen by Dr. Thornton a piece of meat had stuck in her throat while at dinner. With great difficulty she managed to pass it down. But since the accident had felt continuous pain in the right ear, had been troubled with a constant collection of frothy phlegm, and had only been able to swallow liquids drop by drop. She was in good health at the time of the recurrence, and had never before experienced any difficulty in taking
food. She had been able, she acknowledged, to go through her meals, though unable to masticate her food properly, her teeth not being in good order. Her ordinary medical attendant had been unable to pass a tongue. Dr. Thornton also failed to do so at first visit, but on the second he says, 'I could pass a tongue down the left side, the right still remaining closed.' She made a complete recovery, the pain in the ear also gradually disappearing, and had no relapse.

Dr. Thornton in his remarks on the case, does not commit himself to any diagnosis. He points out that the age of the patient, pain in ear, and history of phlegm would have justified in the first instance, the diagnosis of cancer. He finds a difficulty in accepting that of peristaltic structure, on account of the obstruction persisting for some days on the right side, after it had disappeared on the left, unless as he says by supposing 'a very slight and old-standing constriction of the mucous wall on the right side.' But recent weeks.

Dr. H. T. Butler (Lancet 1/81, 678) says. 'I would suggest as the most probable solution that the piece of meat which lodged in the oesophagus was still there.
when the bougies were passed - and was
the immediate cause of the obstruction in
the right side. This seems much more
probable than the idea of the old-standing
muscular constriction. At any rate, the case
resembles to some extent the first one.

Imperfect mastication is given by
Semon Brown (Diseases of Throat and Nose, 1871, p. 209) as a cause of spasm of the pharynx.
but I fail to find it mentioned anywhere as a cause of the esophageal condition
- except under the category of foreign bodies in the esophagus. As one might perfectly
describe the large and imperfectly masticated
pieces of meat.

Etiology. The first time spasm of
the esophagus appears in medical
literature is in the writings of Hippocrates
(De mortui, Bk. III, Ch. 12). But he confines
himself to the spasm accompanying Letœns.
Then Friedrich Hoffman (Opera omnia, vol
III, 1761) has a long and most minute
account of the spasm in a case of Escher's
after him come Stevanow (Med. Phis. Jour-
naly 1802) and Vaudrie (Arch. Sep. De ved.
Aph. 1833), which last was for long the
standard article on the subject and has
not been far passed until pretty recently.
since then many cases and lectures have been published - the best perhaps being Morell Mackenzie - (V. afterwards).

Anatomy and Physiology of the esophagus -
swallowing, as far as the esophagus at least is concerned, is a purely reflex action - there is first irritation of the terminal branches of the sensory nerves of the mucous membrane of the pharynx by the food mass - this sensation goes to the medulla, and from thence by motor fibers to the ganglionic plexuses demonstrated by Messac and Buerjac in the esophageal wall, causing a peristaltic contraction, beginning at the upper end - thus peristaltic contraction - depending on its continuance downward either on a repetition of this process, the food as it passes downward successively irritating new portions of the mucous membrane and the stimuli passing the bulb as before or by direct stimulation of these ganglionic plexuses, by the contraction of the heart immediately above them.

The motor nerve for the esophagus in the human subject appears to be the vagus - by fibers from the trunk of the nerve, but besides these branches.
direct from the trunk of the nerve, others are derived from the recurrent nerve, as well as from the sympathetic. These are all concerned essentially with the movement of the muscles, which are thrown into a state of spasmodic contraction from the increased irritability of the vagus, due to its excessive stimulation, or the stimulation of the bulb or of various peripheral nerves.

(Heberden, Mem. Trans. Gazette 1764-489)

From the researches of Golgoth and Pfluger (Pfluger's Arch. 1773, vii. 616), the brain and spinal cord in these appear to exercise an inhibitory influence on vagal contraction; section or destruction of the brain and spinal cord in the sensitiveness of the nervous system, as the sciatic and mesenteric, has the same effect. The mode of action being probably that a powerful influence is transmitted to the bulb. According to Golgoth, this is not a true reflex action, but the effect is due to a loss of power, or some kind of reflex, in the bulb, during which the vagal excessive contraction and irritability to the slightest cause is taken place as is
seen in section of the bulb or its removal. In this there is a great resemblance to what we know of the workings of the heart. The same phenomena as occur in the esophagus under these conditions occur also in the stomach.

The existence of a 'moderator center' such as Horsley has described would explain the effect of irritation of the peripheral nerves in causing spasm in the human subject. But these facts as far have been observed only in frogs, and no certain deductions can be drawn from them as to the mechanism in the human subject.

Hulthén (Med. Jahresthichte 166 i p. 116 quoted by Osgood, Bart. Med. Journ. vol. 120) has made extensive experiments on dogs and cats, with a view to discovering more exactly which nerves actually preside over the esophagus, but he had finally to decide that the manifold anastomoses even before leaving the craniatal cavity of the vagus with the spinal accessory (these anastomoses continuing in the latter course of these nerves) also the numerous anastomoses of the vagus with the glossopharyngeal...
facial, and sympathetic, make it quite impracticable from an anatomical standpoint to decide as to which of these nerves were really motor nerves of the oesophagus, though it is impracticable to deny a functional participation of one or the other in its innervation. Roughly the results were as follows.

In dogs (a) irritation of the roots of the pneumogastric within the cranium cavity causes violent movements of the pharynx and oesophagus in its whole length. These roots therefore supply fibres which are in part strictly motor and in part reflex. (b) Irritation of the glossopharyngeal within the cranium causes in the oesophagus movements which are wholly reflex. (c) Irritation of accessory produces a doubtful effect, as any root the motor peculiarities of the nerve can be attributed only to the upper root fibres which lie nearest the vagus—(d) of all nerves anastomosing with the vagus, the facial is the only one which possesses an undoubted motor influence upon the oesophagus, and this is decidedly confined to the upper half of the tube—

In cats, probably the fibres of the
accessory are chiefly concerned—certainly not exclusively those of pneumogastric.

**Definition**

1. Mondini (Arch. Gen. de Med. 1873) says, "oesophagism consists in a constriction more or less complete and lasting of the pharyngo-oesophageal canal, producing either an absolute dysphagia, or else an impediment to deglutition either of solid or liquid food. The spasm may be limited to the oesophagus or pharynx, or affect both.

2. Bernheim (Dict. Encycl. des Bein. 1886, Paris, t. XIV, p. 530): "Oesophagism or phasmody consists of a neurosis, either (a) existing by itself, or (b) as a symptom of other affections of the oesophagus, or (c) accompanying affections of other parts.

3. Valentin (Guide du Praticien 1884): "A convulsive constriction of the oesophagus, whose explanation cannot be found in that or neighboring organs, then evidently only (a) of the second definition is referred to."

In this account, the causes of the condition will be considered under the
three heads mentioned in the second definition:
(a) Idiopathic - where the condition exists by itself, as the manifestation of a general condition, without (as far as can be made out) proceeding reflexly from any local condition in the oesophagus or thyroglossum - that is to say, oesophagism where no definite anatomical lesion can be demonstrated.

The commonest cause of this is without doubt Hypochondria - therefore it is much more frequent in females than in males, especially in young and delicate girls of the upper classes but women of all ages and social standing are liable (H. B. Engis, loc. cit.) Hypochondriasis also a common cause. In such cases, the condition may be the only morbid one present or it may be accompanied by a greater or smaller number of other manifestations of the same constitutional diathesis. Very often the actual exciting cause lies in some mental or moral emotion - imagination, fear, anger, grief - acting usually on a hysterical or hypochondriacal nature or on a constitution predisposed to it by anxiety or debility by mental changes or heredity.
Imagination. 3. Brunner (Acta Helvetica, Basle, t. ii, p. 94) case of a priest into whose windpipe once a few drops of breath fell, and who from that time in, in spite of the greatest efforts, was never able to swallow more than a drop at a time of a similar liquid; of also de l'Epin Black, Brit. med. journal 2/69, 231.  
Fear. 4. Bibliothèque médicale, t. xxxii, p. 234 quoted by MacKenzie base of a man who returning to France after an absence of 20 years, heard that his brother had died from the effects of the bite of a dog who had also bitten him. shortly after hearing this, he was seized with spasmotic state of the pharynx, entirely preventing him from swallowing, which ultimately killed him.  
Brief 5. 5. Good last case (Dab. med. jour. Ap. 174) was attributed
In this cause - also seen a second case (Thiers, de Paris 173) in conjunction with menstrual troubles.

Anæmia and debility of Dr. Walter Smith (Oub. Med. Journ. Apr. 174) give a case where the condition supervened on an attack of cholera - compare also the case beginning this account, where the debility and anæmia resulting from repeated attacks of inflammation must have had an important influence.

Heredity & Mackenzie - Lassard (Med. Jour. Gagette 2/76 - 456) tells of a young lady under his care, whose mother and grandmother both suffered from the same complaint.

9 Stevenson - (med. and Phys. Journ. July 1802) in which the daughter of a very obstinate case (to be referred to) also suffered from the same condition.

10 Eloy (Guy. Histoire de Med. et de Thir. Nov. 180) - Died 515. Who suffered from oesophagia as well as menstrual troubles - whose mother also formerly suffered from both conditions.
(b) As a symptom of other affection of
the oesophagus - or of affections causing
direct irritation of the oesophagus.

These, as a rule, are connected with
fibrous and cancerous strictures, which
are temporarily aggravated from time to
time by spasm, rendering a partial stenosis
complete. Some have thought that a
long-continued spasmodic constriction of
the oesophagus may produce thickening
of the connective tissue, and be itself the
cause, not the result, of an organic one.

(Béhin, bonf. de blin. méd. Paris 164-
quoting by teney). Also Mackenzie (loc.cit.)

It has also been considered whether the
irritation from long-continued inflammatory
processes reflexly causing the spasm at
the upper end of the oesophagus might
not push its influence far enough to
cause increase of fibrous tissue, and a
consequent organic stricture. But no
proof has been adduced for this - and it
is very rare for even the most severe
inflammation of the pharynx to extend
to the oesophagus. As is seen by the fact
that even after erosion of the pharynx
the oesophagus is invariably found normal.

(forbid. Arch. blin. de méd. 162)
Hypermesthesia is probably present in many cases, but its presence is difficult to prove. It might be either the primary cause of the spasm, or a manifestation of one and the same exciting cause, as Hysteric, Hydrophobia — in both of which diseases analogous conditions may be observed in the pharynx and larynx — the improvement frequently noted under the administration of Bromide of Potass would also favour this hypothesis. The observations of sommerbrodt (Berl. Klin. Wochenschrift) also favour the supposition that hyperesthesia is a frequent cause of the condition.

Dermampitits, as far as least as is at present known, is a very rare condition outside traumaatism. Judging from the analogy of similar conditions attacking mucous membranes elsewhere in gout, its possibility in that condition may be recognized. Brinton (Lancet 1/66 p. 2) believes the spasms to be produced by some irritating matter in the blood, either alone or aided by any decomposing secretion or ingesta which may chance to be present, and to be almost invariably
gouty. Mackenzie (loc. cit.) also gives as a cause irritation of the oesophageal wall by blood charged with acid salts.

Ulcer in mucous coat may be a cause.

(Reynolds's Dyspep. & Med. Vol. IV, art. 803)

Mackenzie gives as an occasional cause a rheumatic affection of the oesophageal muscles, and Folin (Etudes des rétrécissements de l'oesophage, Paris, 1853) a hypertrophy of the muscular walls which he claims to have recognized on several occasions post mortem.

It may be due to direct irritation of the walls by foreign bodies, as in the two cases with which this paper began, in both of which the foreign body was imperfectly masticated food. Other causes assigned have been : oesophageal cicatrix, injury to the neck, irritation from a mediastinal tumour, from an aneurysm (Spring, Symptomatologie, Bruxelles, 186) - a bronchocoele - enlarged bronchial glands, disease of the cervical vertebrae (Genkens von Graissnov, in Gr's Handbuch) - certain toxic substances, chief among which are belladonna, hombene, arsenie and mushrooms.
whether by local action in all cases or
through an effect produced on the
central nervous system, there is no
evidence to show. The action of cold
may cause it, probably only with a
strong constitutional predisposition.

Cases of cancer of lower end of
oesophagus, causing a spasmodic structure
in the upper part of the tube - on
passing a bougie this could be
overcome, but second obstacle at cardiac
end could not be overcome (Gaillard Lacombe,
reported in Brit. med. Jorn. 1/85, p. 713).
Perhaps this ought rather to have come
under the head of (c).

12. Fibrous strictures - Juvesson (Gay
des Hopitaux, Jan 1/48) - but considered
by subsequent observers very doubtful, from the absence of all trauma or
symptoms of an idiopathic oesophagitis,
and to have really been functional.

Foreign body, in a gouty subject,
Moorhead (Lancet 2/81, p. 161). In this
case a bolus of large size stuck near
the cardiac end - after difficulty a large
seized bronchic was passed into stomach, but the spasm persisted and lasted for 24 hours. It would have been interesting in this case to know the state of the teeth.


16. Bronchocele - Ganghofen (Vortrag Prager med. Wochenschrift, 176, no. 7, 576) relates two cases, both in women, in both of which a bronchocele of medium size was present but expresses some doubts as to whether the oesophageal condition had any connection with them.

17. Enlarged bronchial glands - Atthill (Dub. Med. J. Nov. 174) relates a case in a boy of 12 in which the presence of enlarged cervical glands would suggest that the condition might be due (in the absence of any other discoverable cause) to irritation of the oesophagus by a similar enlargement of the bronchial gland.

man who dated his trouble from a severe squeeze of the neck received in a drunken scuffle.

19. Ulceration extending from larynx - hornia - (Arch. Gen. de Med. 1851, p. 367) also Boroughs (quoted by him, ibid) two cases in which the condition co-existed with ulceration of the larynx and pharynx.

20. bold foot (loc. cit.) first case in which, in a neurotic subject, the cause assigned (by the patient) was cold.

In many of those cases, and especially in the last, there must necessarily be a large amount of speculation as to the correct diagnosis, and very little certainty.

(C) As a reflex symptom of affection of other parts.

Like all phenomena of the same order, spasm of the oesophagus is in the immense majority of instances a reflex act. Many such are produced when there is any change in the normal balance and receptivity of the nervous system. The number of affection which have been reported as causing the spasm is a formidable one. I shall here consider them in four groups.
(1) Those connected with the structure at the upper end of the oesophagus - e.g. pharynx, larynx, mouth, nose, ear.
(2) Uterine and menstrual conditions.
(3) Affection of the abdominal viscera.
(4) Affection of the nervous system.

11. Tonsilitis. 21. Seney (Thiers de Paris, 1873) has a most fully-observed case, in a man of 45, slight dysphagia for 14 years before coming under observation, with frequent sore throat and attacks of tonsilitis since childhood, latterly 3 or 4 every winter. In this case the symptoms were very much modified by removal of an enlarged tonsil.

22. Osborn (Boston Med. and Surg. Jour. 1872). Report of six cases. He says: "In my cases the affection has been invariably reflex. I have never failed to discover the co-existence of follicular hypertrophy of the pharynx, accompanied in two instances by intestinal catarrh."

23. Ulcerated sore throat. 23. Stevenson (Med. and Phys. Jour. July 1802) had a case in which the patient, a woman,
of 140, dated the commencement of his trouble from a violent attack of 'dysmenchial maligna,' 12 years previously — but Stevenson was inclined to consider this merely as a coincidence. The case is very interesting, not only on account of its relation to heredity (i.e.), but because Stevenson proposed and practised as a last resort mechanical dilatation by the oesophageal probe. 'A practice none of the faculty had before been suggested.' He was led to advise this from a consideration of the analogy between this condition and a natural stricture.

Diphtheria — 24 — Thamoulard
(Journ. de med. et de clin. Prat. 146-311)
had a case in a girl of 15, convalescent from Diphtheria.

25 — José of Mont-Doné (Rev. de
Larynx. d'atol. et de Rhin. Aug. 15: 190)
reports a case due to hyper trophy
of the so-called fourth tonsil, or mass
of lymphoid hypertrophy at the base
of the tongue. The same observer
reported in 189 several cases due to
various nasal conditions.
26 Worms in ear (Boucheville, Velpers, Diet, de Meid., art. Uroseph.)

Another cause, mentioned by himself, is 'hernia', in children; in delayed dentition in children.

(2) Ulcerus and menstrual affections.

Pregnancy - 27. MacKney (loc. cit.)

I have met with two cases, who always suffered from this condition when pregnant, but were relieved immediately after parturition. Also a case in which the usher came on after suckling, and recurred to such an extent at the birth of each child that the mother was obliged to wear her infants.


Menstrual troubles - 29 & 30. - Leney's second case, and Eloy (Sany. Heb. Nov 80) were both coincident with menstrual suppression, ceasing on the return of the flow being established.

(3) Affections of the abdominal viscera. The majority of these cases are associated with dysphagia; but some coexist with affection of the heart, liver, or lungs.
Dyspepsia - very frequently gruity. Brinton (Lancet 1/66. p. 2) says: "These cases are almost invariably associated with gruity dyspepsia, and attended with great acidity and the loathing of the urine with a urine acid and urates - and often connected also with lymphatic distension of the stomach and intestines." Later on he says: "I have not found any case of spastic diarrhoea resist remedial suits above the above variety of dyspepsia." Macqueney (Med. Jour. N.S.W. 174) says of his case: "very distressing dyspeptic symptoms were occasionally observed, with flatulent distension."

Foot (loc. cit.) has a case (2nd) with various dyspeptic symptoms - the esophageal condition disappearing with the dyspepsia under bismuth and hydrocyanic acid.

Cancer of stomach, pancreas (spring) and urine.

32, 33 - Nowshap (Pract. Remarks on Indigestion, London 1825) quoted by McKeen - gives two cases in
which cancer of the stomach was found, the esophagus being perfectly healthy. Bompard also Aird (Edin. Medical Essays, vol. i.) and Monro seconded (Chir. Anat. of the Human Body, Edin., 1811, p. 224).

34 follies. (Trans. of Brit. Journ. and Rhin. Ass., 193. iii. 50-52.) report a case occurring in the course of a cancer of the liver.

Spasm of the esophagus can be a symptom or sequel of prolonged vomiting—a muscular cramp can attack the esophagus as well as the stomach, according to Brinton (Loc. cit.) and Vigla (Gaz. des Hopitaux, Sept. 1879)—corresponding to the vagus neurinum occurring in some intestinal diseases—

Taenia (intestinal). 35th case quoted by Bettali (Vellema, Diet. de med. art. occ. 1.)

The heart, lungs, and aorta are given by Bamberger (Wien. Path. and Ther. Bd. vii. 15, Abth. 1, p. 24) as among the organo affections of which reflexly cause the spasm—heart and aorta also mentioned by
Habershon (Sundriemaker, locut. 1876. p. 489) says, 'In some cases of heart disease, spasm-periodic irritation of the esophagus is produced, coming on suddenly and with most distressing sense of obstruction. Some refer the reflex action to the branches of the cardiac plexus uniting with the pneumogastric—others to the recurrent nerve, which sends a branch to the cardiac plexus—others to a mechanical cause, the distension of the left auricle, which is in close proximity with the esophagus.'

(4) 

Nervous affections of the stomach—Romberg (here, Krankheiten 2, 5. Aufl. p. 18) mentions a patient who suffered such intense pain in the pharynx with dysphagia that she was convinced that there was a tumor there. There was a tumor, but connected with the pituitary body, not the pharynx.

34. Shauket. (Bull. Soc. de Thé. vol 25, Paris 183) gives a case of sudden right facial paralysis with embarrassment of speech and
demienation of tongue accompanied by rhogophagal spasm, fits of suffocation being excited by an attempt even to swallow the saliva. The condition disappeared in a few weeks, the cerebral condition persisting.

Injury to head - 38 Ronn (Thiers, de Paris 173) records very fully a case where the patient had, one year before the condition supervened sustained a severe injury to his head from a 'projectile de guerre'.

Epilepsy, amnesia, chorea, have all in their course been accompanied by spasm of the oesophagus which also occurs in tetanus, as is mentioned by all writers on the subject, from Hippocrates onwards - also in hydrophobia 'rabique et moral' as Trousseau says. The second of which has been already considered. In a case 39 related by Peter, (Gaug. de Mol. 175, p. 675) it appeared as a prodroma of general paralysis.

Spring has recorded a case in which alternation of the attacks...
with neuralgia was noted — the patient (a woman) being only able to eat solid food when attacked by migraine or dental neuralgia.

In all these cases, however, it is not sufficient to assign the affection to the exciting causes mentioned above. We believe that, in the great majority, if not all, there is a super-added predisposing cause, in the shape of an abnormal nervous susceptibility, hereditary or acquired. This state being present, a very feeble moral or physical impulse will suffice to induce the spasm.

The field of etiology which we have just gone over is as one can now see vast — almost too vast to make diagnosis of the correct cause in any given case anything but a very uncertain and by no means easy affair. To return to the case with which this paper opened — we can recognize in it, of those causes detailed above, which might with a fair amount of probability be looked upon as active factors in the
Condition -

1. a general nervous condition
2. the imagination
3. anaemia and debility
4. pharyngitis
5. laryngitis
6. oesophagitis
7. foreign bodies in oesophagus (from imperfect mastication)
8. the presence of a possible nasal source of irritation in the small spaces above referred to
9. a possible sequela of diphtheria
10. diaphresia
11. gout - and
12. an alternation with the neuralgia - besides several of the other causes, with less

As regards the Prognosis of the condition - this it will easily be seen will vary very much indeed, according to the cause which has been able to be made out. In (b) and (c) the prognosis is simply that of the cause - in (a), in the great majority of instances it is good - becoming worse the longer the condition lasts.
and the hopes of a complete cure becoming smaller—but never or practically never becoming dangerous to life. The same consideration applies to long-standing cases of (b) and (c) where the cause has not been removed until after a long period of continued irritation. In such cases the spasm is very apt to persist in a modified form, perhaps for a few years, perhaps for life. This is explained by the assumption (which is justified by our knowledge of other spasmodic affections) that the cerebrospinal reflex existent as ability has got beyond its physiological limits by the long and frequently repeated irritation which it has had to bear and now reflex with an altogether abnormal intensity to all stimuli from without.

Although practically the fatal event occurring in the affection apart from any organic changes anywhere is unknown, with the exception of the case of false hydrophobia cited above, and the fatal case of H. Power (Lancet 1/66, 252) which
as will afterwards be seen is by no means inconceivable. Still such a fatal termination is always possible, the chief danger being inanition. In Borgiotti's case, previously referred to (case 2), the spasm lasted without interruption for 520 days. Albert (40) (Annales de Montpellier, 1812) tells of a hysterical woman in whom it lasted uninterruptedly for 8 months, reducing her to an extreme pitch of emaciation. At the present time, with improved methods, such an event as death by inanition is hardly to be feared, in a purely functional case. In the intermittent form, on the other hand, it may last very much longer, the danger to life being less, from the periods of freedom from the spasm and opportunity of regaining to some extent strength, before the next attack.

In Senecio's case it lasted 15 years. In others, all the patient's life.

To draw attention more forcibly to the fact that the prognosis in cases of (a) varies very much with their duration, Senecio...
(loc. cit.) proposed to call those belonging to the first category— that is to say those in which either the condition disappears entirely after a short time, or the intermissions are very long— by the name of *oesophagism*, reserving the name of *spasmodytic structure* for those in which either there are no intermissions at all, or they are quite unimportant in length compared to the length of the spasm. One can see that the prognosis of each of these two divisions differs from the other very considerably. But this suggestion has never been adopted, and now both terms are used equally for both conditions.

There is another element of danger in cases of long-standing, according to *Woolf* (loc. cit.) when the affection is of very long standing, like many other nervous affections, it becomes intractable, is apt to lead to narrowing of the oesophagus, and possibly either predisposes to cancer or determines the seat of its development. This secondary structure is in
consequence of that law in virtue of which every membranous canal, as soon as it no longer fulfills its function of transmission, tends to contract on itself; the same thing being seen in obliteration of the extremity of the urethral canal, consequent to establishment of a fistula.

As regards fatal cases, that of Sir H. Power, above referred to, which is given in every work as a proof of the possible fatality of the affection was during life thought to have been associated with some organic change; and a most rigorous post-mortem, however (at which Mr. Paget was present) was unsuccessful in detecting any change whatever anywhere - but as is pointed out by Yenter and von Griesen (Ziem. Byrol. Vol. VIII., 210) the bull was unfortunately not examined - and as several of the symptoms bore a close resemblance to those of bulbous paralysis, the explosive cough during swallowing, the troublesome mucus, and the paralysis of articulation which occurred latterly.
there must always be some doubt as to the correctness of the diagnosis of spasmotic stricture.

To sum up then once more: supposing we were to adopt some such classification as that of Henry, we should say that the prognosis in the first group of (a) (oesophagus of Henry) was good, and quite free from gravity. In the second (spasmotic stricture of Henry) also good, but depending more on the length of time it has lasted before being checked than on any other consideration. Even where the spasm has persisted for years, the prognosis is still good as regards life, though the probability of a total cure grows ever smaller and smaller. The same holds for cases of (b) and (c). After the direct or reflex exciting cause has been got rid of.