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ORIGINAL COMMUNICATIONS

ON ULCERATION OF THE STOMACH, AND ULCERATION OF THE ŒSOPHAGUS.

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(Read before the Harveian Society, May 6.)

It is very necessary to place some guard over that weakness of our minds, which causes positive events to take a much firmer hold on the memory than negative ones, which allows the seeing a thing a few times to outweigh the hundred times we do not see it under similar circumstances, and consequently causes false inferences to be drawn. With the intention of placing such a check on the fancy, I think it always desirable to select cases, if possible, from a definite number taken consecutively, and to let that definite number be the whole that have come under notice during a certain period. We shall thus get a fair notion of the real frequency or rarity of the phenomena we are observing, and of their consequent importance; and we shall have a source of statistical information, scanty perhaps, but ten times the worth of a collection of facts made sporadically, or with the view of proving a predetermined point.

With these views, I have arranged for our consideration this evening all the cases of ulceration of the stomach and ulceration of the œsophagus, which have been found in the bodies examined at St. George's Hospital, from January 1, 1841, to December 31, 1850; and at St. Mary's Hospital, from its opening, in June last, to the present date. The number examined during the first period was 2,210; and, in the latter, 55. At St. Mary's, these were the whole of the deaths; but at St. George's, the objection of friends, and other circumstances, have prevented the opening of 329. Our table, therefore, will represent the times which each phenomenon has appeared in 2,265 *post-mortem* examinations, made in 2,594 fatal cases.

ULCERATION OF STOMACH.

CLASS A. ULCERS NOT IN THEMSELVES FATAL.

No.	Age.	Sex.	Description of Ulcers and Stomach.	Chronic History.	Causes of Death and Recent History.	Reference to post-mortem books.
1	25	F.	Punched holes through the mucous membrane, near the lesser curve, with sharp edges; stomach vascular and livid, but not thickened.	Viscera healthy.	Inflammation and ulceration of intestines.	St. George's, 1841, p. 62.
2	35	M.	Two ulcers in front between the two curves, as big as a sixpence, and as a pea.	Encephaloid disease of the pelvic organs, but not elsewhere.	Pelvic disease.	St. George's, 1846, p. 216.
3	22	M.	One small ulcer of mucous membrane.	Phthisis pulmonalis.	Pneumothorax.	St. George's, 1846, p. 170.
4	62	M.	Superficial ulcer near pylorus; stomach vascular, but not thick.	Dropsy from diseased heart, liver, and kidneys; no stomach symptoms.	Dropsy, etc.	St. George's, 1846, p. 220.
5	47	M.	Ulcer near pylorus, as big as a crown piece, with rough abraded edges.	Anasarca, albuminuria, ascites; diseased kidneys, liver, and spleen; no stomach symptoms.	Peritonitis, epistaxis, and increased dropsy.	St. George's, 1849, p. 235.
6	57	M.	Superficial ulcer near pylorus; stomach vascular, but not thick.	Dropsy from diseased heart and liver; no stomach symptoms.	Dropsy, dyspnoea, bronchitis.	St. George's, 1860, p. 27.
7	30	M.	Superficial ulcer near pylorus, in lesser curve.	Cirrhosis of liver; no stomach symptoms.	Fracture of femur, and consequent peritonitis.	St. George's, 1860, p. 127.
8	61	F.	Three ulcers through mucous coat in centre of lesser curve, as big as a shilling, a sixpence, and a three-pence, thickened edges, and vascular stomach.	Thickened capsule of liver; phthisis pulmonalis six years; pain in left hypochondrium, and fanciful appetite.	Increased cough and emaciation, with anasarca.	St. Mary's, vol. I, case 26.
9	41	F.	One ulcer near pylorus, one inch across, with raised edges.		Inflammation of colon, duodenum, and peritoneum, with pericarditis and pleurisy, consequent on an operation for strictured rectum.	St. Mary's, vol. I, case 44.

CLASS B. ULCERS FATAL BY PERFORATION.

10	20	F.	Perforation of posterior surface of stomach, surrounded by slight thickening.	Circumscribed abscess in right hypochondrium.	Circumscribed abscess in right hypochondrium, which perforated into the bronchi.	St. George's, 1842, p. 87.
11	25	F.	Smooth-edged perforation an inch below the middle of the lesser curve; stomach rather vascular.	Circumscribed abscess in left hypochondrium; other viscera healthy.	Pericarditis, pleurisy.	St. George's, 1849, p. 12.

12	23	M.	Perforation, with hard edges, in lesser curve; adhesions to liver and pancreas prevented escape of contents of stomach.	Painter's colic and blue gums.	Peritonitis.	St. George's, 1844, p. 35.
13	21	F.	Perforation of posterior wall, somewhat larger than a shilling, with smooth bevelled edges.	Adhesions to pancreas and old peritonitis; pain in left hypochondrium for many years, worse after food; four years before death, hæmatemesis.	Peritonitis, pleurisy, pneumonia.	St. George's, 1845, p. 274.
14	46	F.	One perforation on anterior, one on posterior wall, as large as shillings, larger inside than out.	Three years' pain in epigastrium; two years ago, hæmatemesis; old peritonitis; other viscera healthy.	Recent adhesions to pancreas; peritonitis, pneumonia, pleurisy; six days' rigors, and violent pain.	St. George's, 1845, p. 276.
15	37	M.	Perforation of anterior wall opening into gall-bladder; stomach thick and contracted.	Rheumatic disease of heart; disease of kidneys; no stomach symptoms.	Severe rigors, vomiting, and collapse; peritonitis, but no escape of the contents of the stomach.	St. George's, 1847, p. 49.
16	58	M.	Ulcers round pylorus, and thickened walls of stomach; a perforation of lesser curve, as big as a crown piece.	Old adhesions to gall-bladder, liver, and pancreas; granular kidneys; two years' pain in epigastrium; four months before death, hæmatemesis.	Six weeks' pyrosis; ten days before death, hæmatemesis; sinking, but no peritonitis.	St. George's, 1849, p. 35.
17	16	F.	A punched perforation, wider inside than out, as big as a bean, in lesser curve of stomach.	None; viscera healthy.	Circumscribed peritonitis, acute bronchitis, pleurisy; chest symptoms, and pain in right side twelve days.	St. George's, 1849, p. 71.
18	10	F.	Perforation one inch from œsophagus in lesser curve; another ulcer near; walls of stomach thick.	Viscera healthy; general health good.	Peritonitis, acute bronchitis, pneumonia.	St. Mary's, vol. I, case 27.
CLASS C. ULCERS FATAL BY HÆMORRHAGE.						
19	34	M.	Ulcer on posterior inferior wall, perforating, but blocked up successfully by pancreas; opening into splenic artery.	Cirrhosis of liver.	Weight in epigastrium two weeks; fatal internal hæmorrhage.	St. George's, 1845, p. 159.
20	42	M.	Ulcer in smaller curve, two inches from œsophagus, as big as a shilling, edges slightly thickened; no open vessel could be found.	Emaciation, but no pain anywhere.	Hæmatemesis and collapse therefrom.	St. George's, 1844, p. 152.
CLASS D.						
21	38	M.	Ulcer in pyloric region.	ULCERS FATAL BY EXHAUSTION OF VOMITING.	Exhaustion.	St. George's, 1844, p. 186.
22	24	F.	Ulcer on posterior surface two inches long, one and a half broad, edges rounded off, and not thickened.	Enormous distension of stomach; cicatrix of an ulcer which had healed; for some months occasional hæmatemesis, nausea, and vomiting.	Exhaustion.	St. George's, 1845, p. 46.

I lay these cases before you, in the hope that they may be viewed as *mémoires d servir*, though of course not a complete history; and that they may suggest observations from others, while I read the details of three of them which I was myself responsible for, as occurring in my practice, and make references to the others under our notice, illustrative of the more interesting points.

CASE. The first notes I shall read are on No. 8, a laundress, aged 61, who had suffered for upwards of six years from cough, dyspnoea, and debility. She had undergone much privation, and was greatly emaciated. There were signs of a cavity in the apex of the right lung, slight anasarca, albuminuria, and progressive weakness and emaciation. The appetite was capricious; pain was felt on taking some kinds of food, especially potatoes, though rice was taken with ease; and there was pain, on pressure, in the left hypochondrium. She died of exhaustion, and was opened in the dead house at St. Mary's.

NECROPSY. On examination of the corpse, an old large cavity, with scarce any tubercular matter in its circumference, was found at the apex of the right lung; and one the size of a nut, which appeared to be in the course of contraction, in the left. The capsule of the liver was thickened, and projections of the thickened capsule extended into the substance. The structure of the kidneys was confused in appearance, and the tubes were filled with epithelium. In the centre of the lesser curve of the stomach were the three ulcers you see in this bottle, with the edges raised and thickened; and the rest of the mucous membrane vascular, but the walls of the organ not increased in substance.

OBSERVATIONS. I have classed this case along with eight others of a somewhat similar character, and in which the termination, at least, was exactly similar, namely, in which the ulcers were not in themselves the cause of death. We might, perhaps, hope to learn something of the symptoms of the disease and its concomitant pathological states, uncomplicated with those arising from the severe accidents to which it gives rise. But there is little of this hope realised. In three of the cases, it is specially recorded that there were no symptoms referrible to the stomach; and in the others, none were prominent enough to have attracted the attention of those in charge of the patients, except, indeed, that the old woman whose case I have just detailed had a pain in the left hypochondrium, and a fanciful appetite, which preferred rice to potatoes; but no pyrosis, or any other symptom of aggravated dyspepsia. Nor are the symptoms more marked in the cases where the ulceration has been directly fatal.

There may be several explanations given of this absence of local phenomena. First, that where other diseases of a more painful nature exist, the less may be masked by the greater; as, for example, when we are having a tooth drawn, we do not feel the dentist treading on our toe. Or it is possible that the confinement to bed, and the restricted diet imposed on the patient by the more important diseases of which people usually die, may tend to heal up ulcers of the mucous membrane, and so render its morbid states a greater rarity to the pathologist than to the practitioner. So we find it in a mucous membrane visible to the eye; abraded, and even ulcerated sore throats, constitute an appreciable fraction of our annual practice; yet I find that, in the 2,210 *post-mortem* examinations made at St. George's in ten years, the pharynx was found

reddened by inflammation only thirteen times, and ulcerated six times, and the tonsils ulcerated but eight times. So, too, the pharynx of a young woman, whose case I shall relate as one of ulcerated oesophagus, presented three weeks before death a decided abrasion, which after death was not to be seen. Or it may be, that the want of common sensibility in the organ touched, makes it irresponsive to our modes of examination. I am inclined to attach much importance to this last explanation; and for this reason, that where pain does exist, it seldom points out the exact locality of the injury, being referred in several cases to the left hypochondrium, when the ulcers were found after death in a different situation. It is very probable that disordered sensations, proceeding from the mucous membrane of the stomach, are felt only at its outlets, in an analogous manner as irritation of the colon is felt at the anus, of the bronchi at the glottis. The same, however, does not happen where the peritoneal covering or the cellular tissue of the organ is involved, as in malignant disease; the pain proceeding from which will, I think, usually truly denote its locality.

Is ulceration of the stomach an idiopathic lesion, or is it a proof merely of the existence of some other morbid state? Now, if it is found constantly, or even frequently, associated with a certain class of diseases in life, or unnatural appearances after death, we might be led, even by the small number of examples before us, to put them together as cause and effect. But the evidence we have seems to show the reverse; for if we look down the column appropriated to chronic history, we shall see that the concomitant degenerations of the viscera are so various, and in so many cases, where the accidents arising from the local disease have proved fatal, are the other organs quite healthy, that I think we may fairly consider ulceration of the stomach, as in all cases, an independent disorder, and not a symptom or a consequence of other affections.

The only remark on treatment which I have to make in connexion with this case, is that low diet alone will not remove the disorder, for the poor woman had been sadly starved before her admission, yet retained, as you see, her ulcers. No special treatment was directed to the stomach, while she was under my care.

CASE. I shall next call your attention to No. 18. E. M., aged 19, a maid of all work, had usually, by her own report, enjoyed good health till a week before her admission to St. Mary's, Nov. 26, 1851, when she had slight pain round the fore part of her waist. On the noon of the 26th, this pain greatly increased, and was accompanied by great pain in the shoulders, dyspnœa, and tenderness of the lower belly. On admission, the lips were livid, she could hardly breathe, the pulse was 120, and the skin dank and chill. There were loud sibilant râles on both sides of the chest, but most strikingly on the right, on the lower part of which lung there was also fine crepitation. When warmth was restored to the skin, she was bled, and antimony given in full doses, without producing sickness. On the 28th the pulmonary symptoms were much relieved, chief attention being drawn to agony in the shoulder-joints and abdomen, which was very tender when touched. The patient, however, lay on her side, and stretched out her legs if she lay on her back. There was also absence of vomiting, so that the diagnosis of peritonitis would have been a doubtful

one, had it not been confirmed by a peritoneal rubbing sound, produced by the very partial motion of the diaphragm in the right hypochondrium, and by the fixed condition of the abdominal walls during respiration, as shewn by my friend Dr. Sibson, the inventor of the most ingenious instrument we have for measuring minute motion. The patient was leeches on the belly, and calomel with opium and antimony given. Early on the 30th, she died rather suddenly, having pronounced herself better shortly before.

NECROPSY. Of the right lung, the lower lobe was slightly crepitant on the surface, but internally quite solid, sinking in water. There was livid congestion of the bronchi. The left lung was also loaded with blood, and presented some points of solidification, especially in a portion of the centre of the upper lobe. There was injection of the bronchial tubes, but in less degree than in the right lung. In the peritoneum, there was much recent fibrin and soft adhesions, and an injected state of that part of the membrane which covers the bowels. There was much fluid in the cavity of a fæcal odour, in which also some small pieces of yellow fæcal matter were floating. In the lesser curve of the stomach, two inches from the Œsophagus, there was a hole the size of a threepenny-piece, larger inside than out, surrounded by thickened and contracted walls of the organ; and a little lower down there was another ulcer, extending through the mucous coat.

OBSERVATIONS. We have here an instance of an ulcer, which, from the state of the surrounding stomach, may fairly be supposed to have lasted some time, producing little or no symptoms, and terminating by the fearful accident, which these lesions, when they are fatal, usually end in. In the list before you, it will be seen that perforation had occurred in eleven of the thirteen cases, in which ulcer of the stomach had been the cause of death; and in nine it had been directly fatal by the super-vention of peritonitis.

Perforation, therefore, is the most natural end of ulceration of the stomach, if it runs its full course. And what a fearful end! I protest that when treating cases where ulcer of the stomach is likely, I have shuddered at the thought that there ~~is~~ possibly but a piece of gold-beater's skin between the invalid and death.

Perforation, as a consequence of ulcer, seems more common in youth than in middle life. Seven of the eleven instances occurred under twenty-five years of age. I do not, however, think there is anything *sui generis* in the ulcer of this period, nor do I call "*perforating ulcer*" of the stomach a disease of the early part of full growth, as softening of the stomach is of infancy. All ulcers seem to me to be "*perforating*", if they have their own way; and their greater frequency in youth, may be due to the greater vigour and activity which all morbid processes then assume, or perhaps to the strong chemical action of the gastric juice.

The same tendency to strike deep and perforate, exhibited by ulcers in youth, is equally seen in ulcerations of other parts of the intestinal canal besides the stomach, and, moreover, appears quite independent of the disease which has given rise to the ulceration; it is the young and vigorous whose intestines become perforated, whether the first origin of the evil was pulmonary consumption, dysentery, fever, or chronic inflammation. This fact is proved by the same decennial collection of

2,210 *post-mortem* examinations at St. George's Hospital, which I before quoted. In 129 of these, various parts of the intestines, not including the rectum, were ulcerated, in connexion with tubercular disease in the lungs and elsewhere; and in ten of the 129, perforation had taken place. The ages of the ten were as follows, placed in order of their youth, namely, 15, 16, 17, 22, 22, 25, 29, 33, 34, and one young man of age unknown. In eighty other cases, non-malignant ulceration had occurred from various causes, chronic and acute,¹ independent of tuberculosis; and perforation had occurred in several parts (exclusive of the rectum) in sixteen instances, as a consequence of the extension of the ulcer outwards.² The ages of these sixteen patients were, 7, 16, 16, 16, 20, 21, 22, 24, 24, 28, 30, 30, 30, 35, 37, 56. These examples suffice to show exactly the same fact as our table of ulcerations of the stomach; namely, that *all* ulcers tend to penetrate the peritoneum more in youth than in declining years, but that such a tendency is not by any means confined to one period of life, nor to one peculiar species of ulcer.

It is also a common observation, that ulceration of the stomach is more common among females than males. This is quite borne out by the fact that seven out of ten persons under thirty years of age, in whom it was found, were of the former sex. The difference in the proportionate frequency with which the sexes are attacked, is not sufficiently striking to lead to the supposition that it arises from any mysterious connexion between the stomach and those organs which distinguish man from woman. I should prefer attributing it to some of the habits of half-civilised life which females, voluntarily or involuntarily, persist in; such as wearing ill-fitting stays, with rigid beams in front pressing upon the viscera; leaning forward to work immediately after food; swallowing their meals unmasticated; keeping decayed teeth in their heads; allowing mental emotion to check digestion; and a variety of other well-known causes of the difficulties into which their stomachs fall.

It may be remarked, that perforation of other parts of the intestinal canal seems very impartial in its choice. Among the ten cases mentioned above, connected with tuberculosis, there were six males and four females; and of the sixteen arising from other various causes, seven were males, and nine females.

In the case I read, we could elicit no history of chronic pain or indigestion. Possibly the poor girl's memory of minor pains was blunted by the intensity of present sufferings; or it may be that they really did not exist. But sometimes vomiting, pyrosis, and occasional hæmatemesis, are experienced for months before the fatal result. One young woman of 21, (No. 13,) had pain in the left hypochondrium, worse after food, "for years" before; a man of 46, (No. 14,) had felt pain in the epigastrium three years, and hæmatemesis two years before; a man of 58, (No. 16,) had very similar symptoms. Sometimes the

¹ Cases of typhoid fever are fairly included, because, though the primary solution of continuity in the intestines is of the nature of slough, yet the perforation of the peritoneum is the consequence of ulceration following that slough, and occurs usually after the fever is gone.

² This latter clause is to exclude cases of perforation from injury and from external causes, as, *e. g.*, from a gall-stone eating its way into the duodenum.

hæmatemesis is very considerable in amount, and in two cases in the list before us was the cause of death. Sometimes the exhaustion consequent on the vomiting and want of nourishment is so great, as to cause death without any other accident, as happened in Nos. 21 and 22.

Where we have such a long history in a case of suspected perforation, it is a great guide to our diagnosis. But we must not look for it, or consider that the absence of precursory symptoms is a proof of the absence of the lesion we fear.

In this woman, we may observe that the most prominent symptoms at first were those referrible to the chest; she had acute bronchitis and pneumonia. Acute bronchitis also occurred in No. 17, a girl of sixteen years old; and pleurisy with pneumonia in cases 13 and 14. Now acute bronchitis is a very rare disease: its occurrence therefore twice, and that of pleuro-pneumonia twice, I cannot but consider as something more than a coincidence. But why an inflammation, commenced in the peritoneum, should not only affect the bronchi, but affect them in such a degree as almost to conceal the chief disorder, I am unable to explain. One peculiar symptom, arising from the state of the lungs, I must call your attention to, namely, the pains in the shoulders. This I am in the habit of viewing as a sign of pneumonia of the upper lobes; but I will not dwell on this extraneous remark further than to observe that the diagnosis was borne out by the dissection. As respects the peritonitis, in most cases it is present; but in one it was not (I refer to case No. 16). The probability is, that death occurred so rapidly, that there was not time for it. The sudden collapse from the shock was fatal.

In Nos. 10, 11, 17, 19, and 22, general recent peritonitis did not happen, because there were old adhesions in the membrane, which prevented the escape of the contents of the stomach. Here we have examples of the prolongation of life, by means of the natural cure of perforation, obviously the only cure which can take place, namely, by means of adhesions to the surrounding viscera. In another instance, (No. 15,) an adhesion to the gall-bladder was effected, which prevented the escape of the contents of the stomach, but did not prevent peritonitis.

In a list, the terms of admission to which are that the cases should have been fatal, it is not to be expected that many instances of *effectual* cure should be placed; but still, the above examples suffice to give us hope, that even perforation is not an absolutely fatal accident.

It may interest some, to compare the chances of perforation from simple ulcer, and from malignant disease of the same organ. In the decennial period at St. George's Hospital, ending Dec. 31, 1850, there died thirty-four cases of malignant disease of the stomach, and in these perforation occurred thrice; there were nineteen cases of simple ulcer, and perforation was found in nine of these. The difference is sufficiently marked to make the smallness of the numbers of no importance.

Besides perforation, another very intelligible danger consists in the liability of the blood-vessels of the stomach to be eaten into. Hæmorrhage existed in six cases, and in two it proved fatal. I say hæmorrhage, and not hæmatemesis, because once (No. 20) the bleeding was wholly internal, no blood being vomited.

Under what circumstances excessive vomiting and emaciation occur in simple ulcer of the stomach, I am unable to say. Though the rule

in malignant disease, they are certainly here the exception, having proved fatal to but two patients (Nos. 21 and 22).

I have now, I think, reviewed the forces of the enemy, and it is worth considering what chances we can see before us of his being overcome. Supposing we knew ulceration of the stomach to exist, what likelihood is there of life or recovery? If superficial, we see by the example of the pharynx that it may, and, I believe, often does, depart without leaving its footsteps. If deep, so as to penetrate beneath the mucous membrane, it may heal up, contracting the surrounding tissue of the stomach by a cicatrix. This was the good fortune of No. 21, in whose stomach was the cicatrix of an ulcer, such as I have described. It is true he died afterwards of others, which did not heal; but that does not invalidate the fact. If complete penetration is effected, the surrounding viscera prove good allies. If you refer to Nos. 19 and 22, you will see two instances where the pancreas was a friend in need, and successfully blocked up the path of death with its own body:—*successfully*, in so far that no escape of the contents of the stomach took place; and life was prolonged till the ulcer divided the splenic artery in one case, and the patient was worn out by exhaustion in another. In Nos. 13 and 16, there were old adhesions; and in No. 14, a recent attempt to secure the same result, but ineffectual.

While speaking of finding the contents of the stomach in the peritoneum, I may observe, that we are not certain all we find there had escaped during life. *Post-mortem* digestion is readily distinguishable; and I do not allude to that accident, but to obvious cases of perforation, like the one before us now. Something doubtless escapes in life, to cause peritonitis; but something more after death. You may have observed, in the case I read, that what we found was not the contents of the stomach, but fecal matter. Now, no fecal vomiting, or indeed any vomiting at all, had occurred; so the regurgitation of that matter from the lower bowels had not taken place during life, but must have been the consequence of the manipulations of those who laid out the corpse.

Again, life may be prolonged to the natural term, by the non-supervention of any of the accidents to be dreaded; and death may come at a good old age, from other causes. This is clear, from several of the first nine cases; fifty-seven, sixty-one, and sixty-two years of age, being nowise early for persons to die, who have chronic diseases of the viscera.

As respects treatment, I think that those cases, occurring as frequently as they do, should teach us rather more caution in our management of indigestion, than it is the fashion to exercise. The diagnosis of ulcers of the stomach from irritable, hysterical, or hypochondriac dyspepsia, is difficult; and I think we should not be so decided in our medication of these latter diseases, in obscure cases, as to risk doing harm, in the event of the organic lesion existing. Leeching, cupping, and blistering the epigastrium, so often does good, even in hysterical and anæmic patients, who suffer from gastralgia, that I think it quite compensates for the slight loss of strength it may occasion; and if by these means we may prevent a slight inflammation of the stomach from running on to ulceration, or an ulcer from spreading, we ought to use them. In some cases of strongly-suspected ulcer with gastralgia,

though unaccompanied by pyrosis, I have found trisnitrate of bismuth of such great benefit, that I cannot but think it acts beneficially on ulcers of the mucous membrane. This is confirmed by what I observed in an example I am shortly about to relate to you of ulcer of the œsophagus. This young woman experienced so much relief from bismuth, that by its aid alone she was able to swallow food, which otherwise was impossible to her. The irritability of the ulcer was apparently blunted by the drug, so that the constriction and reversed action naturally produced by a foreign body, did not take place. Nitrate of silver, sulphate of copper, prussic acid, and other remedies, had no similar effect. As an encouragement to the use of bismuth, may be cited the advantage which is gained from its use in phthisical ulceration of the bowels, which is often so checked, that the diarrhoea ceases; as also in chronic dysentery, which even in India, as Dr. James Bird tells me, gets quite well by this means alone.

ULCERATION OF THE ŒSOPHAGUS.

No.	Age.	Sex.	Post-mortem appearances.	Case.	Reference to post-mortem books.
1	40	M.	Aneurism of arch of aorta opening into œsophagus.	Pain in back in the situation of the two upper thoracic vertebræ, greatly increased by swallowing, and pyrosis; death by vomiting florid blood.	St. George's, 1845, p. 13.
2	64	M.	Long ulcer quite through the œsophagus, but not perforating any viscus; hepatisation of the base of the left lung.	Incessant vomiting on taking food or liquids; great emaciation.	St. George's, 1843, p. 37.
3	25	F.	Ulcer of œsophagus perforating pericardium, inflammation of the right bronchial glands and root of lung; ecchymosis of cardiac end of stomach, which was enormously dilated; waist contracted.	Vomiting three months, difficulty of swallowing, pain in epigastrium, sensation of lump at the top of the gullet; rapid death from perforation of pericardium.	St. Mary's, vol. 1, p. 43.

I will now proceed to detail the case I have just alluded to, of ulcer of the œsophagus, and to compare it with two other cases from St. George's Hospital.

CASE. E. S., aged 25, (No. 3 on the table,) a housemaid, was admitted into St. Mary's, Jan. 23, 1852. She was pale and somewhat reduced, and had a slightly anxious look. She said that three months before, without being able to assign any reason, she had begun to vomit her food almost immediately after taking it, and that when these symptoms had lasted four or five weeks, she found a difficulty in swallowing, and at the same time a pain in the pit of the stomach, aggravated by pressure. At the time of admission, she evidently could get scarcely any food down to her stomach, as what she took came up again in from one to five minutes, seeming quite undiminished in quantity. There was an aching "digging" pain between the shoulder-blades, worse when warm in bed; but the epigastric pain was less than it had

been. There was redness and slight abrasion at the back of the pharynx, and enlarged tonsils. As I said before, bismuth alone seemed really to relieve her. By taking ten grains before eating, she was often able to pass a moderate meal of beef-tea, eggs, and chocolate, into her stomach. Of all drinks, chocolate seemed easiest to swallow. Blisters to the epigastrium checked also, in some degree, the vomiting. These means, and the use of enemata of beef-tea, prevented the emaciation from increasing during her residence in the hospital.

One puzzling part of the diagnosis was, that there was evidently some obstruction to the entrance of the air into the right lung; it was resonant, and expanded freely, but the breathing throughout was much less loud than in the left; and Dr. Markham, whose ear is very delicate, remarked a difference in the resonance on percussion in the two sides, at a point between the scapulæ, corresponding to the root of the lung. At the end of February she seemed to me to have contracted a catarrh, and coughed a good deal, and the throat was relaxed. As the cough got worse, she was able to swallow better, and was not sick. On March 1st, the cough was increased, and there was much fever, with a small pulse of 120, and great depression. The heart was only cursorily examined, and no remark made about it. On the morning of the 3rd, the lips suddenly became blue, the pulse ceased, the abdomen became excessively distended by wind, and she died in about an hour.

NECROPSY. On opening the abdomen, the pyloric end of the stomach was seen to reach down to half an inch below the level of the anterior superior spinous process of the ilium; it was nearly vertical in position, and much distended. The liver extended four inches and a half below the ribs; these two organs, and a small coil of intestines, being all that was seen on this section. The waist was very small, and the lower outlet of the thorax much contracted. On opening the chest, there were found some slight adhesions between the left lung and the pericardium, and also some in the back part of the pleura. The pericardium was distended, as if from air; and from a puncture made at the upper part, fetid gas and a thin yellow fluid exuded, having a sour smell, and being acid to test-paper. On laying open the pericardium, it was found full of this thin, yellow, curdy fluid, and the visceral layer was rough, with a deposit of recent fibrin. On raising the heart, there was seen a small opening in the pericardium, at a point corresponding to its reflexion from the pulmonary vessel, to the left auricle; and, on pressing the stomach, fluid and air passed through this hole into the pericardium. Opening the œsophagus from behind, we found it ulcerated in its entire circumference, from the level of the bifurcation of the trachea, to half an inch above the diaphragm; and, through a sinus in this ulceration, a probe could be passed obliquely into the pericardium. There was another ulcerated opening, communicating with a small inflamed patch in the left lung, which was separated from the cavity of the chest by easily-broken adhesions. There was a cluster of enlarged bronchial glands bound down on to the right bronchus, and somewhat diminishing its calibre. On opening the stomach, considerable ecchymosis of its cardiac end was remarked, but there were no ulcers in that or any other portion of the intestinal canal. The liver, kidneys, ovaries, and uterus, appeared healthy, except that the mucous membrane around the os uteri was slightly abraded.

Non-malignant disease of the œsophagus is rare; and I have had to class this case along with two others which resemble it in no other point except the destruction, without malignant disease, of the structure of the tube. The first records the forcible invasion of the gullet by an aneurismal tumour, the pressure of which caused ulceration and absorption of the walls. Two instances of the same catastrophe are recorded in the *Medico-Chirurgical Transactions* (vol. ii, p. 244, and vol. xvi, p. 339). It must be fatal, but still is not necessarily so immediately; the patient mentioned in vol. xvi having survived for eight weeks. Within eight weeks it is possible for any of us to be called upon to make an accurate diagnosis; and it is worth while to bear in mind the possibility of this lesson when examining cases of bloody vomiting. In another case (No. 2), death occurred from the patient being worn out by emaciation and vomiting—starved to death, in fact.

Ulceration of the œsophagus seems to have been little written about, while hysterical or spasmodic dysphagia, and paralytic dysphagia, receive so much notice that we fancy them very much more common than they really are. The reason probably is, that they are more curable, and curable in a very pleasant, striking way, delightful to describe. Van Helmont says he was called to see a noble lady, who had not been able to swallow for three months: “Accessi,” says the medical Cæsar, “malum cognovi, et confestim sanavit illam Dominus”!¹ Similar exploits are recorded in more modern writers. Ulceration, however, is not to be cured in this “veni, vidi, vici,” manner; indeed, I should doubt whether it is to be cured at all, usually ending in the awful tortures of gradual starvation. Life, however, may be sometimes protracted to a very considerable period. In a case recorded by Sir Charles Bell, consequent on swallowing caustic alkali, the patient lived for twenty years after the accident. How long death might have been postponed, in the case before us, it is difficult to say; the patient was able to swallow better, and she was not losing flesh, when the ulcer took the turn which proved fatal.

I am not aware that there is any other instance on record of simple ulceration penetrating the pericardium. But how easy and natural the passage is from one viscus to the other, is shewn by a case brought before the Pathological Society by Dr. Quain, where a juggler, in swallowing a sword, thrust the weapon into that serous membrane, and caused it to inflame.

Pericarditis, too, but not perforation, I can quote as happening in malignant tumours of this part of the alimentary canal. In ten cases of such degeneration, which died in St. George's Hospital during the decennial period before alluded to, pericarditis was found in two (year 1841, pp. 229 and 257); and it existed in the one example of malignant disease of the œsophagus which we have had at St. Mary's, under the care of Dr. Sibson.

I would not have dwelt on this subject, if it had not a practical bearing; and have drawn your attention to it, principally because, though a mere pathological fact, it may still teach us something useful in our management of the sick. It may teach, I think, caution in the introduction of instruments into the gullet. Several medical men saw

¹ In capitulo “Asthma et Tussis”, No. 31.

this patient while in hospital; and all of them with whom I spoke, asked me whether a probang had been used to explore the throat. I got quite ashamed of my remissness in research, and that shame and my own curiosity were strong temptations to make the trial. But the power which remained, of occasionally retaining food under the influence of medicines, rendered immediate action unnecessary; and, moreover, confirmed me in my original diagnosis of simple ulceration, and in resistance to the temptation. Thus was avoided the painful feeling which would have been left upon the mind had an instrument been passed, and death soon followed the operation. Let me not be understood as objecting unreservedly to the use of the probang or œsophageal tube; for where the dysphagia is spasmodic, and, possibly, in some cases where permanent stricture has followed a bruise or other cicatrix, and of course in every instance where starvation is imminent, the use of these means is a duty. But where morbid action, as indicated by pain, is still active, and life can yet be kept up by some portion of food being administered, I do not think we are justified in such forcible interference. And when we *are* called upon to rush in, let us tread in fear, remembering the neighbours by which our patient, the œsophagus, is surrounded. A false passage in the urethra is a bungle and an inconvenience; but here it goes into the very fountains of life.

A NEW METHOD FOR THE STUDY OF THE NERVOUS SYSTEM.

By AUGUSTUS WALLER, M.D., F.R.S.

THIS method of study is equally applicable to the anatomical distribution of the nerves, to the functions of the nervous system, and to the diseases of this system, during life and after death.

The process consists in the section of different parts of the nervous system, either of the nerves or of the spinal marrow, so as to interrupt their connexion with the central parts. After having kept the animal operated upon alive, for a period which may vary from one to three or four months, the changes which take place in the peripheric and central parts are determined by the assistance of the microscope.

We know that when the connexion of a spinal nerve with the spinal marrow is interrupted, its elementary parts become disorganised. These experiments have been made on the sciatic nerves of frogs and rabbits. In making the experiments, the preparation of these nerves for microscopic examination presents considerable practical difficulties, on account of the extreme facility with which the soft and pulpy substance, of which the intratubular part of the nerve is composed, loses its transparency and is disaggregated. These difficulties are such, that although an advanced state of disorganisation is easily recognised, it is not the same with merely a slight disorganisation, for the altera-