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DUODENAL AND GASTRIC ULCERS.

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I cannot altogether agree with those who think that, as regards the frequency of gastric ulcer, it is much more often suspected when it does not exist, than overlooked when actually present. But all are agreed as to the rarity of duodenal ulcers. Of this latter, it is doubtful if more than 70 authenticated cases are on record; while gastric ulcers, either cicatrized or open, are found in about 5 per cent. of persons dying from all causes. It may be very difficult to decide whether an ulcer which is believed to exist is gastric or duodenal in position. And this fact, coupled with the frequency of these ulcers, their dangerous character, and the great importance of proper treatment, leads me to report to you some recent cases.

It is true that you can diagnose gastric ulcer with confidence in cases attended with characteristic paroxysmal circumscribed epigastric pains extending through the back, coming on after eating, and disappearing only when the stomach is emptied by vomiting; with localized tenderness; with frequent vomiting, hyperacidity of the contents of the stomach, and with recurring hæmorrhages of bright blood in varying amount, with or without bloody discharges from the bowels. But it must be remembered that such

ulcers may be latent and cause only slight, if any, symptoms until sudden and, as I have more than once seen, immediately fatal hæmorrhage, or else sudden perforation occurs. Or, indeed, the ulcer may be unexpectedly found at the autopsy of a case in which no significant symptoms had been present. Many cases are on record illustrating these statements. The same may be said of the duodenal ulcer; and I am reminded of the following case, which I saw but once, as it was sent to me, in 1881, by Dr. W. K. Hull, of Williamsport, for examination.

Case 1.—Duodenal Ulcer; Obscure Symptoms, Death from Perforation and General Peritonitis.

Mr. A. G., æt. 43, a dry-goods merchant of excellent personal habits, had for six years been complaining of occasional attacks of indigestion and pain (not of much severity) over the right side of the abdomen. His general health had not suffered much, though he had lost flesh moderately. His height was 5 ft. 9 in.; his weight 126 lbs.; he was of a light, spare build. He knew of no cause for his trouble, which I regarded as duodenal catarrh with hepatic congestion. He had never suffered a burn of any severity; nor any injury to that part of his body. He had been in the habit of eating rapidly without properly chewing the food. He took frequent Turkish baths, but only since the appearance of symptoms. He had never had jaundice. The urine was at times dark, but when I examined him it contained neither albumen nor sugar. There was no vomiting; no intestinal hæmorrhage; no local tenderness. The appetite was rather craving; the tongue but slightly coated; the bowels sluggish; the area of liver dulness slightly enlarged. The lungs and heart

were normal; there was no marked atheroma of the superficial arteries.

I recommended the abandonment of Turkish baths; the constant use of a flannel belt around the body; a carefully restricted diet; and alternate courses of nitrate of silver and of iron, with belladonna and quinine.

I saw him on January 22. I heard from him in ten days that he was doing very well. On February 12, after a short and gentle ride on horseback, he was seized with atrocious pain in the upper part of the abdomen, followed by immediate collapse and rapidly fatal general peritonitis. The autopsy revealed an ulcer of the duodenum, which had perforated. It was seated on the anterior wall of the horizontal portion, about an inch from the pylorus. It was 3/8 inch in diameter, with sharp punched-out edges. There was no ulcer in the stomach.

I fear that it must be admitted that in this case it was impossible to make a correct diagnosis, as all the symptoms seemed adequately explained by the duodenal catarrh.

The next two cases I shall report were attended, on the other hand, with marked and alarming symptoms. They are specially interesting from their severity; from some unusual features; from the illustration they afford of the differential diagnosis of gastric and duodenal ulcer; and from their termination in recovery.

Case 2.—Gastric Ulcer; Gastralgic Pains; frequent Vomiting; Hæmorrhage; Septic Parotitis; Recovery after Desperate Illness.

Mrs. X., æt. 39, was seen in consultation with Dr. T. V. Crandall. She had been suffering for many months with uterine trouble, and had been

subjected to an operation for laceration of the cervix, following which there was a prolonged state of poor nutrition and neurasthenia. Her vitality and circulation were greatly depressed. She then suffered for three months from severe paroxysms of pain of gastralgic character, recurring frequently and irregularly. There was no vomiting, but progressive decrease in power of taking and digesting food, with quite rapid loss of flesh and color. There was also tenderness over the stomach. At the close of this time vomiting began, and almost at once became very frequent and proved uncontrollable by ordinary remedies. I saw her at this time. She was immediately put to bed, upon an absolute milk diet, with repeated small blisters over the stomach, and with minute doses of nitrate of silver internally. Rectal enemas were used from the first. The vomiting was not, however, controlled either by the silver nitrate, or by any other remedy that was used; opium by the rectum was required to relieve pain and to secure rest, but it produced no good effect upon the vomiting. It was also necessary to use hypodermic injections of morphia and atropia quite frequently. The tongue became parched and brown and deeply fissured; the anæmia grew intense, and there was occasionally oozing of blood from the nose, and from the gums. Vomiting of small quantities of bright, fresh blood occurred repeatedly. At the close of ten days slight febrile action set up, the temperature rising to about 101° at night. She became so emaciated and exhausted, that it seemed that death was imminent. She was then attacked with parotitis, undoubtedly septic in character, first upon one side and then upon the other. Fortunately this ended in resolution. All internal medication was aban-

doned, and for many days no attempt was made to administer food by the mouth. She was anointed assiduously with sweet oil, and for four weeks was maintained exclusively by rectal enemas. Veratria ointment was used externally, in conjunction with morphia hypodermically, and opium by the rectum to control suffering. Despite her desperate condition she began to improve; vomiting grew less frequent, and blood ceased to be ejected. The fever subsided. As resolution of the parotitis advanced, she became able to bear teaspoonful doses of skim milk. This was cautiously increased, and she was kept upon an absolute milk diet for about three months. She was then able to be lifted from bed, and moved carefully to the seashore. After seven weeks of illness, recovery was complete, but was marked by protracted and obstinate constipation with troublesome rectal fissure.

Case 3.—Ulcer, Probably Duodenal; Gastralgic Pains; Persistent Vomiting; Severe Repeated Hæmorrhages altogether Intestinal; Circumscribed Tumor; Recovery after Desperate Illness.

Mrs. P., æt. 38. Was seen in consultation with Dr. H. A. M. Smith, of Gloucester City, N. J. She had enjoyed general good health, but during the autumn of 1888, had been overtaxed and worried greatly in connection with business affairs. She was attacked December 14, with severe gastralgic pain, which recurred regularly every afternoon at about the same hour. Vomiting began on December 29, and at once became frequent and was attended with marked exhaustion, so that she took to bed on January 1, 1889. In spite of various remedies and careful regula-

tion of diet, the vomiting persisted. It presented itself rather as a frequent raising of small quantities of dark colored mucus, which at times had a purulent appearance. There were rapidly progressive emaciation, weakness and anæmia. On February 5 she had a large hæmorrhage from the intestine. The blood was dark, but not offensive. This caused extreme debility. Between that date and February 14, there was continued discharge of blood from the bowel, including six large hæmorrhages. There was not a single drop of blood vomited.

I saw her first on February 5. She was profoundly anæmic, and partially collapsed. During the ensuing ten days it seemed scarcely possible that she should survive. Examination showed tenderness to the right of the median line, and there was a distinct circumscribed induration below the lower edge of the right ribs, corresponding to the position of the duodenum. This could be outlined as a painful lump of about two inches in diameter. There was no jaundice at any time. She continued to raise frequently small amounts of dark mucus. There was no melæna after Feb. 14. Fortunately the rectum continued retentive, and the nutritious enemas were evidently absorbed. She remained in a desperate condition for nearly three weeks, and even then her improvement was so slight and gradual, that her recovery seemed doubtful for some time longer. The lump described above gradually decreased in size, and now, May 1, is no longer perceptible. She continued to eject mucus in decreasing amounts until early in April, since when it has stopped entirely. The stomach rapidly regained its digestive power, and she is now able to eat quite freely and without any distress, meat, vegetables, bread and butter. All is well di-

gested, and the bowels are moved daily with a healthy stool. As soon as she sat up, and her legs became pendent, she suffered very severely from numbness and anæsthesia, with a distressing sense of restlessness in them; there was no œdema. This has gradually disappeared under the use of veratria ointment with bandaging, and she is now able to walk about her room quite freely. In the treatment of this interesting case, rectal injections were used from February 1, until the last week in March. They occasioned no special inconvenience, and on no occasion did they induce an evacuation. For two weeks prior to the first hæmorrhage no nourishment whatever was retained. Reed and Carnrick's liquid peptonoids was then administered in small and frequently repeated doses. It proved acceptable and for some time was the chief reliance in feeding her, and she still continues its use. The rectal injections were given every four hours, and consisted of 8 ounces of peptonized milk, and of peptonized beef-tea alternately. Nitrate of silver was ordered on February 6, and its use was continued until 16 grains had been taken, grain ¼ t.d. being used. She then took oxalate of cerium grain 1½ four times a day for two weeks, and then resumed the nitrate of silver in small doses, $\frac{1}{10}$ t.d., which has been continued until the present date. Her complete recovery now seems assured.

It cannot be doubted that ulcer existed in each of these cases, as severe recurring pain, tenderness, vomiting, and finally hæmorrhage, were present. The interesting question arises whether, in Case 3, the position of the ulcer was gastric or duodenal. It is evident that we cannot place much reliance upon the location or character of

the pains. In some cases of gastric ulcer there is severe paroxysmal pain strictly localized in a circumscribed spot in the epigastrium, coming on soon after eating, increased by pressure, and disappearing as soon as the stomach is relieved of its contents. But there are many cases, of which Cases 2 and 3 are good examples, where the paroxysms of pain assume the usual diffuse gastralgic type. It is comparatively rare that there exists such definite localized pain as will enable us to determine accurately the site of the ulcer. Nor can it be said, as will be shown in Case 4, below reported, that the character or frequency of the vomiting is conclusive. Vomiting may be absent from first to last, in either gastric or duodenal ulcer. This is, to be sure, rare. It is the rule more constantly in gastric than in duodenal ulcer that vomiting occurs repeatedly and soon after the ingestion of food. The argument is vitiated by the impossibility of determining the amount of coexistent gastric catarrh. In all the above cases this was present in marked degree; and especially in Case 3 did the character of the ejecta indicate that the vomiting was chiefly due to catarrh of the mucous membrane.

Not even when hæmorrhage occurs can we always decide. Still, it is a general rule that, in gastric ulcer, some of the effused blood—unless it escapes very slowly and all passes into the intestine, is vomited; and that on the other hand, in duodenal ulcer, unless the blood escapes very rapidly, so as to overcome the pyloric resistance, or unless the ulcer is seated very close to the pylorus and is accompanied with pyloric incompetence, the blood is discharged by stool. Case 4 will illustrate the latter statement; and Case 3, judged by this rule, would seem to be also one of duodenal ulcer. There are too many exceptions

to permit a dogmatic assertion; yet here this view is confirmed by the existence of a small but distinct tumor in the duodenal region. It is important to remark that, though not a common symptom, tumor may be present in simple ulcer, either gastric or duodenal, and more frequently in the latter. The tumor is due to peritoneal exudation and adhesions, associated, in old cases, with thickening of all the tissues involved.

Even when no thickening or swelling can be detected by palpation, it is common enough to find a circumscribed spot of tenderness on pressure, which may be attributed to the sensitive state of the peritoneum outside the base of the ulcer, and which therefore may serve, when present, as a guide to the position of the ulcer. Great care is required to avoid being misled by mere epigastric hyperæsthesia, which is so common; and by tenderness of the nerve points in the abdominal walls. The position of the small tender swelling in Case 3 indicated that it was due to local peritonitis about the first portion of the duodenum; and the lesions in Case 4 showed clearly that there probably had been a distinct sense of resistance and thickening, if not of actual tumor, in the same region. Upon the whole the evidence seems to indicate that the ulcer in Case 3 was in the duodenum. There had been no severe pain —but this is merely of negative value; though it is far more usual to have recurring spells of varying intensity, as in Cases 1 and 4. There had been no jaundice, which occurs, as would be expected, in some cases of duodenal ulcer, from occlusion of the bile duct from extension of catarrh, or from thickening of the duodenal tissues. But this symptom is often absent, as in Cases 1 and 4. It should be noted also that the restoration of the tone and activity of the stomach was,

in Case 3, more prompt and complete than is seen ordinarily in cases of gastric ulcer ending in recovery. Before leaving these cases, the fever in Case 2 should be carefully noted. Simple ulcer of the stomach or duodenum is not often attended with fever. Still, this may develop from the occurrence of local peritonitis; or it may be septic, as it apparently was in this case. The complicating parotitis confirms this. The fever which occurred during the last few days of life in Case 4 was too brief and depended upon too many factors to have any special significance. The case is, however, full of clinical and pathological interest.

Case 4.[1]*—Duodenal Ulcer; Gastric Catarrh of long Standing; Persistent Vomiting; Gastralgic Pains; Repeated Copious Discharges of blood by Mouth and Rectum, followed by Death from Sepsis and Exhaustion.*

I was called to see Mr. F. on the morning of Saturday, March 2, immediately after an enormous hæmorrhage from the stomach, which had been followed by almost fatal collapse. He was 32 years old, and a man of fine physique, who had formerly for many years indulged excessively in athletic sports. It was believed by many that he had often overtaxed himself. He had also been careless in his habits of living, especially in regard to his meals, which were irregular, and eaten hastily. He had used wine freely. He had never met with any serious accident, nor received any severe burn. For fully five years he had suffered with violent gastralgic attacks, recurring frequently and irregularly. The pain was referred to the epigastrium; not rarely

[1] This is the same case which was reported partially in the Medical and Surgical Reporter for April 20, 1889.

pressure seemed to afford relief. His spells of pain were not brought on directly by food; and he had learnt by experience that the rapid drinking of large quantities of cold milk would afford temporary relief. It was clear that gastric catarrh had long existed. Vomiting became a symptom three or four years ago, and had continued quite frequent. It would usually occur in the morning, when he would bring up without much effort considerable amounts of mucus and acid liquid. During the day, however, he would not infrequently raise small quantities of liquid, so acid that it would bite the mouth. There had never been any jaundice. Local tenderness was not complained of, but there was often distressing abdominal distension. He had been under the treatment of several physicians, but had derived no special advantage from any remedies. Most relief was obtained from restricted diet largely composed of milk. Noting this, he had continued to use milk in large quantities, especially as excessive thirst was another prominent and distressing symptom in the case. He also ate a considerable amount of solid food, while at the same time he drank as much as eight quarts of milk in twenty-four hours, taking it for the most part very cold, and in very large draughts. At times his thirst was so intense that he would raise the pitcher to his lips and drink as much as a quart at a single pull. He lost flesh moderately; had a bad color; and began to tire more readily. There had never been any blood vomited until the sudden large hæmorrhage above mentioned. He was at his office desk when this occurred, and fell upon the floor in syncope from the shock. The amount of blood which escaped cannot be estimated accurately, but an experienced physician who saw him immediately after-

ward says it was certainly over a quart. I saw him for the first time two hours after the hæmorrhage. He was deathly pale, with a miserably small and running pulse; and was complaining bitterly of intense thirst. There was no vomiting; the bowels had not been moved; the belly was moderately distended. He had taken a large dose of Monsell's solution. Nutritious and stimulating enemas were given. Digitalis was injected under the skin; smaller doses of the astringent were continued internally. He reacted gradually through the day, and by night seemed much better; but early on Sunday morning became restless and distressed, and soon had another enormous discharge of blood from the stomach. This again was certainly over a quart, and was soon followed by a large discharge of black tarry blood from the bowel. Alarming collapse again ensued. Monsell's solution was repeated; a bag filled with cracked ice was bound tightly upon the epigastrium; hypodermics of ether and digitalis were administered. He reacted imperfectly toward evening. No further hæmorrhage occurred. But during Monday he sank in spite of all efforts, and at 1 o'clock Tuesday morning, in consultation with Dr. J. William White and Dr. Judson Daland (whom I had placed in constant attendance upon the case), it was decided to transfuse. Dr. White injected into the left median basilic vein 32 oz. of hot saline solution, composed of sodium chloride ℥ij; potassium chloride gr. xij; sodium phosphate gr. vi; sodium carbonate ℈ij; alcohol ℥ss; distilled water, q. s. ad Oij. The temperature of the liquid injected was 110° F.

The patient's condition was desperate when the injection was given. So exsanguine was he that when the vein was opened, it lay col-

lapsed on the grooved director with not even an oozing of blood. Within a few minutes after the injection, blood began to flow from the distal part of the vein and it soon became necessary to ligate it. Its immediate effects were gratifying, and were especially marked upon the pulse, which became slower, stronger and fuller. His thirst was constant and intense. The transfusion did not help it. The good influence of the transfusion did not last many hours, and, in fact, its effect was so transient that at no time until the occurrence of death upon the following Saturday, March 9, did we feel encouraged to repeat it. The stomach continued retentive. The patient's demands for liquids were incessant and imperative. They were resisted with difficulty, and only small quantities of milk and lime water and of a mixture of one part of champagne with two of Apollinaris water (kept frozen in an ice-cream freezer), were given alternately. Rectal enemas of peptonized liquids were given at intervals of four hours. The rectum proved unusually tolerent. It appeared probable that all the enemas were absorbed, although from time to time large quantities of horribly offensive decomposing blood were discharged from the upper bowel. Listerine was added to the enemas as a disinfectant. The medication was exclusively by hypodermic injection. Morphia, atropia, digitalis and ether were used with great discretion and with excellent result by Dr. Daland, according to the indications from hour to hour. On Wednesday, March 6, the temperature began to rise, and on Thursday and Friday it ranged from 101°.5 to 102°.5. It sank again on Saturday prior to death. No local cause for the fever could be determined; it seemed chiefly septic, though intes-

tinal irritation played a part. The pulse continued extremely small and weak, and rapid.

Auscultation showed a distinct systolic murmur, heard over the sternum. This was regarded as at least in part organic, and due to disease of the aortic valves. The urine was examined several times after Tuesday, the 5th. It contained a very small amount of albumen; no sugar. There were a few leucocytes, but not sufficient to account for the albumen. There were no tube casts or blood. Death occurred gradually from exhaustion and heart failure.

Autopsy showed moderate enlargement of the heart. There were short fibroid vegetations on the free surface of the aortic valves. No other cardiac changes were present. The lungs were normal. The diaphragm was unusually thick and powerful. The spleen and pancreas were normal. The kidneys were very large; there were two small retention cysts on the surface, but no serious organic change. The liver was enlarged, weighing 4½ lbs. The gall bladder was distended with 5 ozs. of dark bile; the bile ducts were normal. The stomach was greatly dilated, its capacity being over 3 quarts; its walls were thickened, and the mucous membrane showed evidences of chronic catarrhal inflammation. No ulcer or cicatrices were found. The duodenum was tightly adherent by old and firm adhesions to the liver, the gall bladder, and adjoining parts. It was greatly distended and its walls were softened, so that they readily broke upon traction. Upon its anterior face, about ½ inch from the pylorus, there was a large irregularly round ulcer, with a diameter of almost 2 inches. The tissue of the duodenal wall at this point was much thickened and fibroid. About the centre of the ulcer the pancreatico-duodenal artery was ulcerated

through, each portion of the vessel containing a soft thrombus. The ulcer was shallow, with slightly terraced edges. At about the beginning of the ileum there was a small fibroid growth projecting into the bowel. The stomach and small intestines contained no blood, but, in spite of the frequent and large bloody discharges during five or six days, the colon still contained a large amount of black fæcal matter and of decomposing blood. It is evident, therefore, that at the time of the discharge of blood by vomiting, there was also an enormous amount of blood which passed down into the bowel.

There are many points of interest in this case which, for want of space, cannot be considered. Gastric catarrh had lasted so long that the patient had become accustomed to symptoms which should have caused constant alarm. The ulcer seems never to have been suspected by any of the numerous physicians he had consulted, and it is, of course, idle to speculate as to its duration, or as to whether it might have been recognized if the case had been studied carefully with suspicion alive, as it should always be where recurring pain and vomiting occur. His straight abdominal muscles were enormously developed, but the lesions about the duodenum indicated that, with proper care, the local thickening and hardening might have been detected.

All of these cases illustrate the difficulty of the treatment of simple ulcer of the stomach or duodenum. It is clear that, whenever suspicion is aroused as to the existence of ulcer, treatment must be prompt, rigid and persistent. Even when symptoms are mild, the gravest danger is lurking in the case. Taken thus, most cases recover. Strict rest; rigidly regulated feeding; full courses of nitrate of silver, alternating with oxalate of

cerium, with bismuth or with copper, seem the most important elements of treatment. Careful attention to coexisting gastric catarrh by diet, by mild mineral waters, or even by lavage, may be demanded. Complications and accidents must be met promptly. Even the gravest cases may terminate favorably, after recovery seeming wellnigh impossible; so that the prognosis must not be a hopeless one as long as life lasts. The disease affords a good field for, and at times most imperatively demands, judicious hypodermic medication and rectal alimentation. The value of the latter cannot be exaggerated. In very bad cases, it may be associated with systematic inunction, and, as shown in Cases 2 and 3, life may be thus sustained for long periods, until happily the progress of cicatrization permits the resumption of feeding by the mouth.