way of an operation, unless the disease happens to be, which is rarely the case, limited to a very small area. And in necrosis, the rule is, save in exceptional cases, to wait patiently until the diseased bone is thoroughly loose. True it is that for this we may have to wait for months, and even years, but nevertheless surgical interference is not to be attempted, even with full knowledge of all the manifold risks which I have described, and which we know that patients must run in such protracted cases. By waiting patiently until the bone is loose, large portions may either come away, or be removed, without any risk. In the museum of St. George's Hospital, there are two pieces of necrosed bone, making up nearly the whole of the perpendicular portion of the frontal, which I removed, some time back, from an elderly woman, who, shortly afterwards, left the hospital quite well. And in one of the patients now in the hospital, large portions of the frontal bone have, at various periods, come away. This has been going on for twenty-nine years, but the disease has now stopped, and an examination of the parts shows a thin, transparent, newly-formed skin, through which the irregular, nodulated, and eburnated surface of the healed bone, with more or less marked excavations and shelving margins, may easily be felt.

In exceptional cases, as I said, the application of a crown or two of the trephine may become necessary—that is, when there is not sufficient space for the matter to make its way outwards, and which may thus become pent up between the bone and the dura mater. And occasionally, too, you may have to cut away pieces of overhanging bone, in order to remove a necrosed portion which is otherwise quite loose.

But in every case of diseased bone of the skull, especially must we bear in mind that by active surgical interference we may lead the patient into those very dangers which, by operating, we hope to save him from. I have seen the application of a single crown of trephine followed by inflammation of the membranes of the brain and death.

We are then to be very careful how we interfere surgically with such cases, but medically we may do much good; and for this all medical treatment must, as a matter of course, be based upon the peculiar condition which in each individual case may have led to the bone becoming diseased. In every case great care must be taken to keep the patient up by every possible means, and especially must great care be taken to avoid, as far as may be, every risk of erysipelas, and other liabilities which I have enumerated.

OBSERVATIONS

ON

GASTRO-COLIC FISTULA.

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IN a memoir published in 1857, in the *Edinburgh Medical Journal*, I called the attention of the profession to the occasional occurrence of fistulous communications between the stomach and the colon; and from an analysis of thirty-three cases, collected from various sources or observed by myself, I endeavoured to throw some light on the pathology and symptoms of this interesting lesion. It was shown that in the great majority of cases the fistula is a secondary result of cancer, or of simple ulcer of the stomach, more commonly of the former. As the disease extends through the coats of the stomach it occasionally excites plastic peritonitis, resulting in intimate adhesion to the colon; and if the ulcerative process be not arrested, it may perforate not only the coats of the stomach, but also those of the colon, without the contents of either viscus escaping into the peritoneal cavity. In twenty-eight out of the thirty-three cases the disease appeared to advance from the stomach to the colon in the manner now described. In only two cases was there reason to believe that the disease had commenced in the colon, and involved the stomach secondarily; while in the remaining three cases the fistula was apparently the result of an abscess, or of softened tubercular matter, at first external to, but ultimately bursting into, both viscera. When a communicating aperture has been formed between the stomach and colon, there is no barrier to prevent the contents of the one

viscus passing into the other: faecal matter from entering the stomach; crude and undigested food from passing into the colon, and so being voided per anum.

These results are what might have been naturally expected from the new condition of the parts; and they are what we actually find. Faecal vomiting and the presence of undigested food in the stools, or lenteria, are the characteristic symptoms of gastro-colic fistula. Faecal vomiting occurs in all cases of gastro-colic fistula, where the opening is sufficiently large to permit the regurgitation of faeces into the stomach, and when there is no disease producing great obstruction at the pylorus. When the pylorus is obstructed, there is no faecal vomiting for two reasons: first, because the stomach becomes overloaded with its own contents, and the vomited matters consist entirely of food; and secondly, because all the food which is not vomited passes at once into the colon, and none enters the small intestines to form faeces, to be regurgitated into the stomach through the fistula. In cases of lenteria depending on gastro-colic fistula, portions of undigested food may be observed in the stools within an hour or two after it is swallowed. This fact admits of demonstration, by administering with the food a pill containing some colouring substance, such as cochineal or indigo. In a case which I had an opportunity of seeing some years ago in the Edinburgh Infirmary, under the care of Dr. W. T. Gairdner, and where there was reason to believe that the patient suffered from gastro-colic fistula, with constriction of the pylorus, pieces of ham were found in the stools two hours after being swallowed, and indigo pills were given with a similar result. In one remarkable case, recorded in my essay, a converse observation was made: fluid enemata thrown into the rectum entered the stomach, and were vomited.

There are several minor symptoms of the lesion under consideration, such as a faecal odour of the breath, great emaciation, a peculiar alteration of the voice, &c., which need not occupy attention at present. Suffice it to say, that a careful study of the cases already on record leads to the conclusion, that the concurrence of lenteria and faecal vomiting, following on the symptoms of cancer, or of simple ulcer of the stomach, renders the diagnosis of gastro-colic fistula almost certain.

Since the date of my essay, a case of gastro-colic fistula, under the care of Dr. W. T. Gairdner, has been published by Mr. de Fabeck in the *Edinburgh Medical Journal* for July, 1858. The patient was a man aged forty-seven. The primary disease was cancer, probably originating in the stomach. There were two fistulous communications between the stomach and the colon. One of the openings into the colon was about the size of a shilling. Although the pylorus was free from disease and perfectly patent, no faecal vomiting occurred during life; but the absence of this symptom is accounted for by the circumstance that the fistulae were somewhat tortuous, and greatly obstructed by cancerous deposit, especially at the stomachal end, so as to prevent almost entirely the passage of matters either one way or the other. No careful examination of the stools was made during life, but it was noted that for several days before death they consisted of little else than fluid matter, "containing whitish masses exactly like curdled milk," the patient's diet at the time consisting almost entirely of milk. The condition of the parts which prevented faecal vomiting would, no doubt, also prevent the passage of solid food in any quantity from the stomach into the colon. It is probable that a similar condition of the parts existed in those cases of gastro-colic fistula alluded to by Bamberger,* in which faecal vomiting and lenteria were both absent. For the development of either symptom it is, of course, necessary that there should be a free communication between the two viscera.

Dr. Habershon, in the second edition of his excellent work on "Diseases of the Abdomen," records two cases of gastro-colic fistula. (pp. 177, 181.) In both the primary disease was cancer of the stomach; in both the disease involved the pylorus; and in both the fistula appears to have merely permitted the passage of a probe. It is not surprising, therefore, that there was no faecal vomiting in either case. Still one of the patients is said to have "vomited dark, offensive matter of almost faecal odour." The characters of the stools are not described in either case.

The two following cases possess some additional features of interest:—

Through the kindness of Mr. Morris, of Colchester, I had an opportunity in 1860 of seeing the first of the two patients whose cases are here given. For the particulars of her history I am indebted to Mr. Morris. The fact of the symptoms of gastro-colic fistula being preceded by pain at the epigastrium, vomiting and hæmatemesis, taken in connexion with the favour-

* Virchow's *Handbuch der Path. und Therap.* Bd. vi., Abth. i., p. 312.

able course of the malady, clearly points to simple ulcer of the stomach as the primary disease. Although no opportunity has been as yet afforded of making an anatomical examination of the parts, the diagnosis of gastro colic fistula is placed almost beyond doubt by the coexistence of faecal vomiting with lienteria. The remarkable feature of the case is the length of time that the patient has survived the formation of the fistula. Of eleven cases collected in my memoir above referred to, where the duration was ascertained, ten died within eight months after the first symptoms of the fistula; one only surviving for two years and three months. In the case about to be narrated, however, the patient has already survived the formation of the fistula upwards of four years; while the great improvement in the symptoms gives reason to hope that the disease has been undergoing a spontaneous cure. Such a termination of the case, so far as I am aware, would be unique.

Eliza S—, aged thirty-three, belongs to a very scrofulous family, and has herself for twenty years been the subject of lateral curvature of the spine, which only ceased to increase about five years ago. The patient is the victim of all sorts of hysterical symptoms, and all her statements must be taken with the reservation necessary in such cases. In the year 1858 she began to suffer from intense pain in the epigastric region, accompanied by vomiting of her food. The pain was always increased by eating, and relieved after vomiting; but she had often a week or ten days of constant retching, accompanied by a peculiar hoarse barking noise. These acts of retching brought up sanguinolent mucus, and occasionally—particularly at the catamenial periods—considerable quantities of blood. After these symptoms had lasted for some months, faecal vomiting suddenly ensued. This Mr. Morris discredited for some days, until he chanced to see it occur. At the same time, he discovered that portions of undigested food, such as toast and white of egg, were passed from the rectum within ten minutes after they were swallowed, being mixed up in the stools with solid faeces. The patient suffered much from fetid eructations. From Christmas, 1859, until she came under my notice at the end of September, 1860, she passed no stools, with the exception of one or two small dejections of dark hardened scybala, almost all the faecal matters being voided by the mouth. The vomited substances contained portions of faeculent matter as large as an almond, and often not unlike an almond in shape. The patient lost flesh, but was far from being greatly emaciated.

The condition now described persisted throughout the year 1861, but at the close of this year she began to pass occasional stools per anum; and during the following year the vomiting was less frequent and less often faecal, and the fetid eructations were less troublesome. Since the commencement of 1863 the patient has only vomited faecal matter once or twice, and then in small quantity. Once or twice she has vomited a bloody fluid at the catamenial periods. Before the faecal vomiting ceased, it was observed that the faeculent masses in the vomited matters gradually became smaller. The patient's general health has greatly improved, so that she is able to earn her livelihood by needlework; and according to the statement of her friends, she is soon to be married.

For the details of the next case I am indebted to Dr. C. R. Bree, physician to the Essex and Colchester Hospital, who attended the patient in February, 1860, in consultation with Mr. Joseph Partridge, of Colchester. The case is remarkable on account of the complete occlusion of the colon beyond the site of the fistulous opening, from which resulted faecal vomiting but no lienteria. The nature of the disease which led to the formation of the fistula is rather obscure. From Dr. Bree's account of the post-mortem examination, it was evidently not cancer. The obstruction of the colon, and the absence of disease in the mucous membrane of the stomach, might seem to indicate that the disease had commenced in the large intestine; but Dr. Bree's impression, from an examination of the parts, was that the constriction of the colon was the "result, and not the cause, of the fistula." And I am inclined to think that he is right in considering that the disease did not commence in the colon. Indeed, in the absence of cancer or of any history of dysentery, it is difficult to understand how the stricture could have resulted from primary disease of the colon. It is quite conceivable that a simple ulcer of the stomach may have proceeded to perforation, and to the formation of a circumscribed peritoneal abscess, which ultimately burst into the colon; not, however, before the surrounding plastic peritonitis had produced traction and matting together of the intestines and a constriction of the colon. It is also possible that an abscess, with circumscribed peritonitis, may have formed external to both stomach and colon, and after a time burst into both of

these viscera. In the twelfth volume of the "Transactions of the Pathological Society" (p. 85) I have recorded a case where a circumscribed cavity in the abdomen communicated by fistulous openings with the colon, duodenum, and gall bladder, and also with the external surface through the abdominal parietes. Here the colon was very constricted at the site of the opening, although there was reason for believing that the first link in the chain of pathological events was the escape of a gall stone by ulceration through the fundus of the gall-bladder. There can be little doubt that constriction of the bowel occasionally arises from external adhesions with angular inflection at the point of adhesion.*

Mrs. W—, aged fifty-three, had complained for about a year of irregularity of the bowels, and occasionally of tenderness at the epigastrium with slight sickness. Latterly she had lost flesh and strength, but still her symptoms were not sufficiently serious to induce her to have recourse to medical advice until about six weeks before her death. At this time she began to suffer from obstinate constipation, for which aperient medicines were employed in vain. When seen by Dr. Bree on the 2nd of February, it was noted that the patient had had no evacuation of the bowels for three weeks. During the same period she had vomited every second or third day a large quantity of fluid of a decidedly faecal odour. After each attack of vomiting she had experienced relief. She had an anxious pinched expression of countenance, but with the above exceptions she had no very urgent symptoms. She took her food as usual, and got up every day. The pulse was 80, and not weak. The urine was clear and acid; its specific gravity was 1.030 and it contained neither albumen nor bile. On examination there was found a hard, slightly movable, epigastric tumour, situated below and a little to the right side of the xyphoid cartilage. Pressure caused uneasiness in this situation, but not much pain. The abdomen was flat and flaccid, and returned the normal tympanitic sound on percussion everywhere, except in a space extending two or three inches to the right of a line drawn from the xyphoid cartilage to the umbilicus. In an upward direction this dull space was continuous with the hepatic dulness. The patient expressed great disinclination to take medicine, and a pill containing aloes and strychnine having been rejected after a second dose, all further remedies by the mouth were discontinued. An injection of cold water thrown up through a tube passed thirty-eight inches into the bowel produced no faecal discharge. The treatment was now confined to the administration of jellies and farinaceous food by the mouth, with the injection daily into the bowel of a pint of strong beef tea (containing the elements of a pound of beef), to which a few drops of laudanum were added. The bowels remained constipated to the last, and not a drop of the nutritious enemata was ever returned. On the 11th of February the patient had another attack of sickness and vomited a large quantity of semi-faecal matter. She gradually sank and died on the 16th.

On examination of the body after death it was ascertained that the tumour felt during life was formed by the matting together of the intestines at the part in question. The transverse colon was inseparably adherent to the pyloric end of the stomach and to the first portion of the duodenum. The stomach was much dilated and thrown upwards, so as to press upon the left lung. It contained a large quantity of the same kind of fluid faecal matter as the patient had vomited during life. On emptying the stomach there was found, close to the pylorus, an opening as large as a sixpence, forming a direct communication with the interior of the colon. When the finger was passed from the colon into the stomach this opening appeared to be separated from the normal opening into the duodenum merely by a narrow band of membrane. The gastro-colic orifice was surrounded by muscular fibres, so as to have all the appearance of a sphincter. There was no indication of any disease of the mucous membrane of the stomach, and no trace of cancer anywhere, but there was "total occlusion" of the transverse colon immediately beyond the site of the opening.

Wimpole-street, Feb. 1864.

* See Rokitsansky's "Pathological Anatomy," Syd. Soc. Transl., vol. ii., p. 49.

DR. THOMAS E. HEADLAM, of Newcastle-upon-Tyne, who occupied a prominent position in his native town as a physician and a member of the corporation, died on the 18th inst., at the advanced age of eighty-six. He was an active member of the local parliament, and a strenuous supporter of the Whig interest. His name is not associated with any medical discoveries or writings; but he was highly respected, and is deeply lamented.