But that the condition of acute gastric dilatation, when recognized early, is capable of being successfully treated, the following two cases distinctly prove:

In one, a woman of 35, recovering smoothly from cholecystotomy, which had been performed a week previously, was suddenly seized with pain in the epigastrium, followed by vomiting, which soon became ineffectual in emptying the stomach. Rapid dilatation ensued, and the stomach not only formed a large swelling, filling up the superior abdominal region, but also extended well below the umbilicus towards the pubes. This, owing to pressure on the diaphragm, and through it to pressure on the heart and lungs, led to great shock, quick and oppressed breathing, and a rapid, feeble pulse, with signs of lividity and imperfect blood aëration. The urine was scanty, and in fact almost suppressed. Strychnine was freely given subcutaneously, but no relief came until the stomach tube was used, when a large quantity of gas and several pints of brownish fluid were evacuated; the lavage was repeated several times during the next two days, during which time alimentation was entirely rectal. It was interesting to note that the pulse and temperature were paradoxical, the former running up to 150 and the latter down to 97.3°. All the symptoms passed off under treatment almost as quickly as they came, and in a week the stomach had returned to the normal size.

In another case, a patient of 29, who had had abdominal hysterectomy for a large myoma, and whose after-progress had been most satisfactory, the wound having healed by first intention, and the temperature and pulse having been normal throughout, was seized with pain over the stomach a fortnight after operation; this was followed by vomiting of frothy mucus with a few brownish streaks in it, and by distension of the abdomen beginning in the epigastrium. On percussion, the stomach was found to be down to the pubes, and on succussion a well-marked splash was easily obtained; the pulse became rapid and the face pinched, so that within thirty-six hours of being quite well, the patient presented every appearance of impending death. The urine was very much diminished, and for twenty-four hours almost suppressed. Strychnine was given subcutaneously, and rectal feeding was adopted, but no relief was obtained until the stomach was washed out, after which relief was immediate and the patient steadily improved, though no food was given by the mouth for three days. Within a week the stomach had returned to the normal size. Here also the temperature and pulse were paradoxical, the former being subnormal and the latter very rapid. The only cause that could be assigned was the eating of a raw apple, but that may have had nothing to do with the condition. The patient said that she had always been subject to a weak digestion since childhood, but at the time of operation nothing abnormal was noticed in the stomach.

I feel, Sir, that I ought to apologize for taking up a subject that almost necessarily from its magnitude has had to be treated in a discursive manner, and in a way that makes it merely suggestive rather than complete. But if my address should have the practical value of showing the importance of an attempt to make an early diagnosis with a view to speedy treatment in a class of cases which, if left undiagnosed, are prone to end fatally with great rapidity, I shall feel that your kind indulgence has not been imposed on.

A Clinical Lecture

ON

SOME OF THE RARER ASSOCIATIONS OF GALL STONES AND BILIARY OBSTRUCTION.

BY

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THE presence of several gall bladder cases in my female ward recently is an indication of a suitable subject to bring before you, but I will eliminate the consideration of ordinary cases, an adequate description of which can be found in modern surgical textbooks, and limit my remarks to some of the rarer associations, some of which you have had the opportunity of seeing.

A Congenital Peritoneal Fold as a Cause of Chronic Cholecystitis.

It is not uncommon to find the neck of the gall bladder connected with the lower margin of the foramen of Winslow by a fold of peritoneum, which is usually small. This was observed by Greig Smith,¹ and Dr. G. E. Brewer² noticed it in 3 per cent. of cases. In a patient recently

under my care this fold extended the full length of the gall bladder, reaching the top of the fundus, binding the gall bladder down in such a way that the cystic duct was kinked; its opening into the gall bladder was eccentrically placed (Fig. 1). The lady was three months pregnant, and had discovered a hard, globular lump about a year previously, with little tenderness and no symptoms referable to it. The fold was freely divided, and the gall bladder, containing thick, tarry bile, was drained, with complete relief to the condition. There seems to be an occasional tendency for the gall bladder to be enclosed in the free border of the gastro-hepatic omentum, which explains the anomaly referred to. In one dissection Brewer found the gall bladder between the two folds of the gastro-hepatic omentum, the free border of which extended well to the right, from the anterior margin of the right lobe of the liver to the hepatic flexure of the colon.

Fig. 1.—Congenital peritoneal fold.

General Peritonitis Originating from the Gall Bladder.

In the slighter degrees of inflammation of the gall bladder from contained stones and infection a little fluid is found around, and translucent, soft gelatinous lymph in contiguity, agglutinating the surrounding parts in the same manner as obtains in infective appendicitis. This may clear up; but in the more severe cases the lymph organizes into firm fibrous tissue, binding the parts firmly together by strong adhesions, which may also pervade the surface of the liver. The adhesions are conspicuous in old-standing cases, especially those with small, contracted gall bladders. In many instances the degree of local peritonitis is greater, although with rest and treatment it usually diminishes, when the surgeon may select a more favourable opportunity for cholecystostomy. General peritonitis without perforation is a rarer event.

A woman, aged 68, who had hemiplegia a year previously, was admitted with general peritonitis and vomiting, suggesting intestinal obstruction as a probable cause. The acute illness began five days previously with sudden abdominal pain and sickness. On making a subumbilical incision much fluid and lymph escaped, the appendix and pelvic organs were normal, some filamentous peritoneal adhesions were met with, and there was no evidence of intestinal obstruction. The hand was then passed to the right hypochondrium, whence much fluid escaped, and a large, tense gall bladder was felt containing stones. Three large faceted calculi were removed, the gall bladder and right hypochondrium were drained, and two very large drainage tubes were put into the pelvis. The patient made a good recovery.

I have dealt with the advantage of peritoneal drainage elsewhere,³ which I freely practise and strongly advocate in the treatment of general peritonitis.

Alternating Cholecystitis and Biliary Colic.

In the surgery of the gall bladder and common bile duct, the "ball-valve" action of floating stones is now well recognized, temporarily occluding the cystic duct on the one hand or the lower part of the common duct on the other hand. Fenger first drew attention to this mechanical occurrence in the common duct.⁴ When the gall bladder contains a large ovoid stone, as well as many small and irregular ones, it is conceivable that the large stone may act as a trap, which, when opened, will permit a discharge of fluid and small stones; and the latter, in their turn, lodging in the common duct, will give rise to attacks of biliary colic with jaundice. The distended gall bladder would contract at the time of the flux caused by the opening of the ball-valve. This is the obvious explanation of a case first seen with Dr. Flemming and since operated upon (Fig. 2, A and B).

The patient, a man aged 55, gave a history of two attacks of "indigestion" and vomiting without jaundice, but with enlargement of the gall bladder, during the previous year. At the end of the year he had several slight attacks, followed by a severe one, commencing with pain and vomiting and followed by dark urine and jaundice for the first time, but without enlargement of

the gall bladder. The faeces were then examined, and several small irregular gall stones discovered; the jaundice quickly cleared up. A fortnight afterwards he had an attack of vomiting and pain lasting twenty-four hours, but without jaundice; and

Fig. 2.—A, Stage of cholecystitis. B, Stage of colic and jaundice.

two days after that he had another attack of vomiting with collapse; no tumour could be detected.

On admission he was slightly jaundiced, and there was a little tenderness in the gall bladder region; but no swelling could be felt.

At the operation thirty small friable stones were removed from the gall bladder. A large ovoid stone blocked the cystic duct and bile flowed into the gall bladder on its removal.

Taking these facts into conjunction with the clinical history it is obvious that there was intermittent distension of the gall bladder from blockage by the large stone, and when there was no impaction of the large stone the gall bladder contracted and small stones were discharged into the cystic and common ducts. The features of this case are an observation of some clinical interest.

Spontaneous Disappearance of Gall Stones followed by Diabetes.

An interesting case is that of a married woman who was under my observation for several years and who became diabetic after the spontaneous discharge of gall stones, which I had the opportunity of proving by a train of fortuitous circumstances.

I saw her first as an out-patient with symptoms which led me to diagnose gall stones. During the time she was under observation she was admitted under my care (in 1904) for pelvic peritonitis from tubo-ovarian abscess which required an immediate operation. I took the opportunity of feeling the gall bladder through the abdominal incision and found it full of stones, but, owing to the condition of the patient, I did not remove them at the time. In 1905 she had symptoms of cholecystitis, and I then drained the thickened gall bladder, but all the stones had disappeared. In 1909 she was admitted into a medical ward with wasting and pronounced diabetes.

This case is a clear example of the irreparable damage done to the pancreas by the presence of gall stones in the biliary tract, although the stones may have been spontaneously discharged, as in this case, through the natural channels, or, as in a case related by Moynihan, by a fistula into the duodenum.⁵

Gall Stones Numerous or Large.

Gall stones vary much in number, from the solitary calculus of ovoid form to thousands which remind one of the epithelial pearls occasionally found in ovarian or cervical dermoids. As many as 7,000 have been counted in one patient. I removed 2,455 stones from a woman aged 40; of these stones, 2,257 were the size of small pearls, 194 were about $\frac{1}{2}$ in. in diameter, a few faceted but mostly globular, and four were $\frac{1}{2}$ in. in diameter, mottled, and irregularly globular in shape. The patient was slightly jaundiced at the time, and had been subject to "congestion of the liver" and attacks of biliary colic for some years, and her mother had suffered from jaundice.

Stones of enormous size are quite rare. I have removed one from the common duct of a woman measuring $3\frac{1}{2}$ in. long, 4 in. in circumference, and weighing $1\frac{1}{2}$ oz.

She was subject to bilious colic and jaundice for thirty-seven years, and on two occasions gall stones had been found in the stools. She was admitted a week after a severe attack of colic, with rigors and sickness. The jaundice cleared up, but again

increased, and a hard swelling could be felt in the right hypochondrium (Fig. 3).

When the abdomen was opened, a very hard mass presented in the common duct, which gave a ringing sound when percussed with a pair of forceps. The gall bladder, small, contained a solitary calculus, and the hepatic ducts were much dilated, easily admitting the forefinger. The patient made a rapid recovery.

The spiral groove upon the stone suggests that there had been a certain amount of rotation whilst in the common duct.

I have only come across the record of one stone larger than this removed during life—that reported by Bartlett.⁶ It weighed $2\frac{1}{2}$ oz. when removed, and measured 4 in. in length and $1\frac{1}{2}$ in. in breadth. A hard

mass could be felt in the right hypochondrium, just as in my case; but whereas my patient was slightly jaundiced and had a contracted gall bladder with a solitary calculus, Bartlett's was deeply jaundiced, and the distended gall bladder contained thousands of stones. Mayo Robson quotes Richter (1793) as having seen a gall stone removed from a patient after death weighing over $3\frac{1}{2}$ oz.; and even in this case bile surrounded the stone and must have passed into the duodenum.⁷ And it is a remarkable fact that jaundice may be slight although the common duct contains a large or several smaller stones. I have removed seventeen stones from the common duct although the patient was but slightly jaundiced at the time of operation.

Gall Stones associated with Cancer of the Ampulla.

Cancer of the ampulla of Vater is rare, and when it occurs the presence of gall stones is exceptional; whereas cancer of the gall bladder is frequently associated with stones. Fig. 4 is a sketch of the conditions observed at the time of operation on a patient 67 years of age who had symptoms of "hyperchlorhydria," with nocturnal pains and pain relieved by taking food. In addition the liver was large, with a hard swelling connected with it below.

There had never been any jaundice, but in former years he had many attacks of "colic." The very adherent gall bladder was fragile, and contained stones and a little pus. The common duct was very hard and fixed to surrounding structures, and was continuous with a cup-shaped swelling in the duodenum at the position of the ampulla. The infiltration of the common duct extended to the portal fissure, a hard mass could be felt to the left of the common duct, and there were a few small nodules visible in the lower aspect of the liver. The absence of jaundice in this case was interesting. The operation

Fig. 3.—Large gall stone successfully removed from the common duct of a woman, aged 64. It measured $3\frac{1}{2}$ in. long, 4 in. round, and weighed $1\frac{1}{2}$ oz. $\times \frac{2}{3}$.

Fig. 4.—Cancer of the ampulla, with gall stones in the gall bladder and secondary nodules in the liver.

was done a short time ago, and I hear that the patient lived for about seven weeks after the exploration, losing flesh very rapidly. The morning before his death he vomited frequently and passed blood by the rectum, together with some material which resembled broken-down growth.

Biliary Colic caused by Appendicitis.

The vermiform appendix, when inflamed, may be an elusive organ, and there is scarcely any part of the abdomen in which it has not been found unexpectedly. The following is a case in which it was evidently the cause of biliary colic with jaundice, as the sequel proved.

I saw a young man with Dr. Lucas eighteen months ago, who for the two previous years had been subject to attacks of colic on an average about once a month, which doubled him up, and were accompanied by jaundice, dark urine, and a tender spot just above the umbilicus. They resembled attacks of gall-stone colic, and became so severe that he willingly submitted to operation for their relief. At the operation a year ago I found the gall bladder whitish and tense, so tense that it could not be emptied until all the surrounding parts were made free. The gall bladder and cystic duct were firmly buried in strong adhesions which could only be separated with great difficulty. No stone could be found anywhere, even in the ampulla, but two large glands were seen, one being deep down on the duodenum. The gall bladder was drained, and he remained well for seven weeks. The sequel explained the case.

He then had some pain in the lower abdomen, followed by a temperature of 103° F., and on account of his previous experience of pain rather delayed in requesting medical aid. Two days after the onset he was taken with collapse and violent pain, writhing with agony. I was summoned, and found him with slight jaundice, a running pulse of 156, and signs of general peritonitis, for which I operated at midnight, providing multiple drainage.

A abundant curdy and bile-stained fluid escaped from the incision, and I removed a gangrenous appendix, with a concretion which had all but ulcerated through. Now the tip of the appendix was close to the spine, above the umbilicus, and pointing upwards in the direction of the sternum (Fig. 5).

Fig. 5.—Biliary colic with jaundice, caused by chronic appendicitis. × × Adhesions.

It was therefore quite evident that the appendix had been the cause of his previous biliary attacks and of the intimate adhesions found about the biliary apparatus at the time of the first operation, the explanation of which had been a mystery before. He is now, a year after the latter operation, perfectly well, and is rather proud of the fact that his biliary apparatus has been investigated, his appendix removed, and that he has been saved after general peritonitis with the aid of half a dozen drainage tubes.

I have referred to a few examples of the rarer associations of biliary trouble as a sort of sidelight on an important subject. We regard the possession of gall stones as a disease, for which suffering humanity has to pay its price. Chinese doctors regard gall stones from another aspect, use them as medicine, and purchase them from Australian cattle dealers at a somewhat fancy cost, varying from 1s. to 10s. each, according to their size.

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- ¹ Greig Smith, *Abdominal Surgery*, 1906, II, 970. ² Brewer, *Ann. Surg.*, 1899, I, 723. ³ Carwardine, *BRITISH MEDICAL JOURNAL*, 1907, II, 1565.
- ⁴ Fenger, *Amer. Journ. of Med. Sci.*, 1896, vol. cxi, 125. ⁵ Moynihan, *Abdominal Operations*, second edition, p. 729. ⁶ Bartlett, *Ann. Surg.*, 1908, XLVIII, 676. ⁷ Mayo Robson, *Diseases of the Gall Bladder and Bile Ducts*, 1904, 215.

THE New Year Honours were confined to the Indian Services. The only medical officer included is Lieutenant-Colonel Joseph C. S. Vaughan, M.B., Superintendent, Campbell Medical School and Hospital, Calcutta, who is awarded the Kaisar-i-Hind Medal of the First Class.

THE FREQUENCY OF ADENO-CARCINOMA OF THE BODY IN FIBROID TUMOURS OF THE UTERUS,

BASED ON A SERIES OF TWO HUNDRED CASES OF ABDOMINAL HYSTERECTOMY.

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IN the present short communication it is my desire to indicate the frequency with which fibromyomata are invaded by malignant disease.

This matter has been receiving increasing attention in recent years, and as a result gynaecologists are forced to admit that malignant invasion and degeneration are more frequent than was supposed. This opinion has not been hurriedly reached; it has been formed slowly and after many years of observation. A few years ago a fibromyoma was looked upon as an absolutely benign growth, and operation was only recommended if symptoms were producing great discomfort; but year by year we have been forced to admit that malignant invasion and degeneration is by no means infrequent—in fact, that it occurs in from 3 per cent. to 5 per cent. of all fibromyomata removed.

On looking over the records of my cases I find that I have performed abdominal hysterectomy for fibroid tumours 200 times. In these cases I have found malignant disease on 9 occasions (sarcoma 2, adeno-carcinoma of the body of the uterus 6, and carcinoma of the cervix 1).

Of the 2 cases of sarcoma, one was undoubtedly a fibroid, which remained for many years quite inert in the abdomen, and then took on malignant degeneration. I can speak of this case with certainty, because I saw the patient with her medical attendant eight years before her death. Another gynaecologist at that time recommended leaving the case alone, as the patient was then over 50 years of age and the tumour was causing her comparatively little trouble. I was opposed to expectancy, but the patient was very pleased to escape an operation, and expectancy was decided upon. After an interval of seven years I was asked to see this patient again, and I found her extremely emaciated, with an enormous hard, irregular tumour in the abdomen. As the case was too hopeless for operation she was admitted to a medical ward in the Western Infirmary, where she died a few weeks later. A *post-mortem* examination was made, and the whole tumour and uterus removed and microscopically examined in the Pathological Institute. The tumour presented the typical appearance of a round-celled sarcoma.

In the other case the sarcoma was also of the round-celled variety, and although I feel convinced the tumour was originally a fibroid, I had no absolute proof of this, as the patient presented no symptoms and was only under medical observation a few days before operation. The tumour was limited to the posterior wall of the uterus, and presented the typical appearance of a fibromyoma. Upon microscopic examination, however, it proved to be a round-celled sarcoma, and the patient died some eighteen months after operation of sarcoma of the lung.

Regarding the 6 cases in which an adeno-carcinoma had extended from the mucous membrane of the uterus, in four the fibroid tumours were of large dimensions and in two small and multiple. One of the cases had been under the care of another gynaecologist for four years. She was a lady 53 years of age, and it was hoped that with the menopause the tumour would shrink; but the menopause never came, and the tumour began to increase in size. I removed the uterus and she made a most satisfactory recovery from the operation, but she died some months later from a recurrence in the bowel.

In other cases it was impossible to say how long the fibroid tumours had been present before adeno-carcinoma developed.

My experience, then, in 200 fibroid tumours of the uterus removed by abdominal hysterectomy is that in nearly 5 per cent. malignant degeneration or invasion was present.

Turning now to some operators who have considered this subject, I find records of very similar experiences.