1. All the stitches are placed and the posterior row tied before the bowel is opened, and it remains open just long enough to control the haemorrhage.
2. The size of the newly-formed pyloric opening is limited only by the mobility of the stomach and duodenum and by the judgement of the operator.
3. Unless the stomach is very much dilated or has descended to an unusual extent, the lower limit of the new outlet is at or near the level of its most dependent portion. Should the stomach be very much dilated, a gastropexy or gastroplication can be performed at the same time.

Clinical Observations

ON A

KIDNEY WHICH CONTAINED MORE THAN FORTY THOUSAND IRIDESCENT CALCULI.

By J. BLAND-SUTTON, F.R.C.S.,
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Middlesex Hospital.

IN July, 1904, Mr. T. F. Long, Chesham, placed under my care in the Middlesex Hospital a printer, 38 years of age, on account of persistent pain in the right loin. The man was so stout that nothing abnormal could be made out by the fingers. The urine contained microscopic traces of blood and pus cells, and the blood and pus became markedly increased after the patient walked about the garden; exercise of this kind also intensified the pain in the loin. We had no doubt that the kidney contained a calculus, and after two attempts Mr. Mann obtained an excellent skiagraph indicating the presence of a large amount of calculous matter in the kidney.

Fig. 1.—A sacculated kidney with an inadequate ureter. The largest sacculus contained more than 40,000 calculi.

At the operation the kidney was found much enlarged and very movable and its lower half stuffed with calculi. As the organ was completely disorganized it seemed a prudent course to remove it. This presented no difficulty, and the man easily recovered.

The kidney is somewhat noteworthy in itself: during the operation I noticed the ureter to be particularly narrow, and that it exhibited the anatomical peculiarity of which I have described many examples under the name "inadequate ureter." It is well recognized that the junction of the renal

pelvis with the ureter proper is indicated by a marked narrowing of the lumen of the duct, which may conveniently be called the "ureteral strait." Occasionally the ureter from this point downwards is very narrow, and is sometimes even less than one-fourth the average dimensions of an adult ureter. Abnormally narrow ureters of this kind are termed—and not inappropriately—inadequate.

All the calyces of this kidney were widely dilated and sacculated, but the largest sacculus, which constituted more than half the organ, contained a great multitude of stones, which rolled about almost like quicksilver as soon as the sac burst, and a large number of them escaped and could not be recovered.

The calculi require consideration in two groups. Thus, the first consists of ten calculi of varying sizes and shapes. The largest calculus is of the size and shape of a child's astragalus with well-marked facets, indicating that these stones had been subject to considerable pressure. A few had the more regular contour of beans, a further proof of the pressure to which they had been subject (Fig. 2). The remaining concretions are fairly spherical, and all of a bright colour, like old gold. These bodies were carefully dried and measured. The total quantity is 10 drachms, and an average drachm contained 4,120 discrete calculi. The counts were carefully made and controlled, and the total, 40,000, is probably far below the real estimate, without considering the large number unavoidably lost.

Fig. 2.—Separate calculi from the sacculus shown in the preceding drawing.

Fortunately I was able to interest Mr. A. M. Kellas, Lecturer on Chemistry at the Middlesex Hospital, in these concretions, and he has furnished me with an excellent report, of which the following is a summary: Mr. Kellas points out that the larger bean-shaped bodies, whose iridescence he compares with that of stannic sulphide, consist of three parts: (1) A husk consisting in the main of calcium phosphate; (2) a harder part or kernel composed of concentric layers enclosing (3) a small white central body. The laminated portion of the kernel consists mainly of calcium oxalate with traces of calcium phosphate. The central body is almost pure calcium oxalate. The small spherical calculi consist of a thin husk and a nearly white central body. Calcium oxalate and calcium phosphate are present in both portions. Epithelial matter exists in the concretions, but is more abundant in the husk than in the kernel.

The iridescence of these calculi is as remarkable as their great number; those who are interested in this phenomenon will find it considered in a paper of great interest by Mr. S. G. Shattock in the *Transactions of the Pathological Society*, vol. xxxvii, 325, Iridescence in Calculi.

The chief clinical features in the case appear to be these: This man had pain in his right loin for a period of fifteen years. He never remembers to have passed a calculus, yet the small spherical bodies found in his kidney seemed to be made to traverse the ureter. The sac which contained them appeared to communicate with the renal pelvis by a small orifice, barely allowing the passage of a thin bristle. It seems probable that the sacculus which contained this collection of renal stones was of congenital origin, and that for many years urine had slowly filtered among them, and drained away through the minute orifice into the pelvis of the kidney; the retarded flow through the pouch was a means of adding to the number of the concretions, whilst the anatomical conditions of the sacculus hindered their escape.

The only other specimen of this kind with which I am acquainted is a collection of light brown renal calculi in the

Museum of the Royal College of Surgeons. They were taken after death from a man 19 years of age, whose "kidney was hydronephrotic and the ureter narrowed." The calculi in this case probably amount to 40,000. None exceeds $\frac{1}{4}$ in. in diameter. In structure the concretions are crystalline at the centre and laminated towards the exterior; they are composed of nearly pure oxalate of lime.

CANCER OF GALL BLADDER DUE TO IRRITATION OF GALL STONES: CHOLECYSTECTOMY AND PARTIAL HEPATECTOMY.

By J. HUTCHINSON, JUN., F.R.C.S.,
Surgeon, London Hospital.

THE following case possesses many points of interest:

A woman, aged 66, was sent to me by Dr. Miles Milley of Hampstead with the diagnosis of gall stones. There could be no doubt she had suffered from a collection of these in the gall bladder for over two years. During this time she had repeated attacks of abdominal pain; each attack lasted upwards of twenty minutes, and was accompanied by retching and followed by sweating. A warning of each attack was given by her becoming somewhat yellow, and subsequently slight jaundice became more obvious. She was constipated, and the stools were of light colour after the attacks. She was not known to have passed any calculi, but the operation showed that these were mostly small and would readily escape notice. After each attack there was much prostration, and for a time some distension of the abdomen.

When I saw her first, in July, 1904, there was a deep-seated rounded swelling in the right hypochondrium, which moved downwards an inch on deep inspiration. The dullness over it was continuous with that of the liver. The tumour could be moved from side to side to some extent and had all the features of a distended gall bladder. Her urine was normal. In the right lung at the apex were some signs suspicious of tuberculous change. The patient was thin, and attributed her weakness and wasting to the sufferings which attended the attacks of biliary colic. I admitted her to the London Hospital and operated on July 22nd. A free vertical incision through the right rectus muscle showed a distended gall bladder overlapped by the liver edge. The latter being raised, the fundus of the gall bladder was incised, and over eighty calculi removed from its cavity. Most of these were small and faceted, but there were two or three larger ones, the largest being $\frac{3}{4}$ in. in diameter. The gall bladder was entirely cleared with the scoop and by irrigation. It was then found that the fundus was thickened and rendered hard by carcinomatous growth, with small papillary projections of the mucous membrane. Examination showed that the cancer had extended into the liver immediately above, where it formed rounded lumps, but the infiltration appeared to be limited to the immediate neighbourhood of the gall bladder. I therefore determined to excise a wedge-shaped piece of the liver with almost the whole gall bladder. When this was done considerable haemorrhage followed, but was controlled by pressure and ultimately by deep catgut sutures, bringing the sides of the extensive hepatic wound together. The neck of the gall bladder was then sewn to the peritoneum and two drainage tubes were inserted, one in the right loin and the other in the anterior wound, most of which was closed by silkworm-gut stitches.

The patient recovered from the shock of the operation fairly well, but two days later an interesting complication occurred, namely, acute dilatation of the stomach, which bulged forwards and downwards nearly to the left iliac crest. By means of washing out and the administration of strychnine this dilatation subsided, and for three weeks she went on well. The wound required daily attention. The temperature was normal during this time, but after the fourth week it was of the hectic type, without anything being found to account for it. The biliary fistula remained. She was ultimately sent to Felixstowe, where she remained some months. The hectic temperature continued, and I heard in November, 1904, that there was evidence of extensive recurrence of cancer in the liver.

At the time of operation I was in doubt whether it was worth while to attempt excision, and the sequel confirms the view that such an operation is hardly justifiable. The patient possibly lived a few months longer than she would otherwise have done, but she was an invalid the whole time, requiring the most careful nursing.

It certainly appeared that the affected area of liver was wholly excised, but naturally it is almost impossible to make sure of this. On section it was seen that the nodules shaded off into the hepatic tissue. I do not think the correct diagnosis could have been made before operation; in the more common cases of cancer around the common bile duct it is more easy to do so.

The fact that post-operative acute dilatation of the stomach was recovered from in this case is noteworthy, it being one of the gravest complications that can occur. It should also be noted that whilst the gall bladder was packed with stones and the fundus invaded with cancer, yet there was no cholecystitis, this being contrary to the accepted teaching on the subject.

That the existence of the calculi preceded for long the development of cancer there can be no doubt, and it is reasonable to suppose that their irritation led to its production. Lebert and Cornil and Ranvier, however, hold that the cancer leads to the formation of gall stones. Surely such a view cannot be correct when the fundus alone is the site of the morbid growth. Mr. Roger Williams¹ seems to admit that cancer may be caused by gall stones, though very rarely:

When gall stones and cancer of the gall bladder are concomitant I submit that all the indications point to antecedent morbid conditions of the cystic mucosa, as being the determining factor of these concretions.

What the "antecedent morbid condition" referred to is Mr. Williams does not explain. Presumably it is a form of chronic inflammation such as we see so often in the tongue as a forerunner of epithelioma. In the case just reported the mucous membrane of the gall bladder, except where it was cancerous, was to all appearance healthy, and there was no trace of cholecystitis.

I am able to adduce two other items of evidence which bear on the controversy. The first shows that cancer of the gall bladder fundus may originate independently of any calculi. A man, aged 70, died in my wards at the London Hospital as the result of severe injuries sustained by being run over. In the fundus of his gall bladder (otherwise normal and containing no calculi) was a firm nodule lying in and beneath the mucous membrane. The nodule was solitary, oval, and about one-third of an inch in diameter. For the careful microscopic report I am indebted to our pathologist, Dr. Salaman. "The small swelling consists of tubular and more or less cystic epithelial growths surrounded by strands of muscular and fibrous tissue. Some of these are purely adenomatous, and the entire growth would appear at its origin to have been an adenoma; however, changes have taken place in two directions. The subcolumnar epithelium has grown in some tubules into the lumen and converted them into solid masses of cells, whilst the fibrous external coat remains good. In others they have grown through the connective tissue and are definitely invading the stroma."

This case is of particular interest as being one of the earliest stage of cancer in this region that has been recorded.

The remaining case is one in which gall stones had given rise to typical symptoms for five years in a woman aged 42 years. It resembled so much the case first given that full details are unnecessary. I performed cholecystectomy and removed the calculi, but finding a growth in the fundus of the gall bladder, did not attempt more. She died three days after the operation, and at the *post-mortem* examination an irregular mass of cancer was found growing from the fundus into the liver. The glands in the lesser omentum were also involved: "The mucous membrane of the fundus was greatly thickened, consisting of large open alveoli lined with columnar cells, many of which are vacuolated. In the musculo-fibrous wall of the bladder are several dilated alveoli of similar nature."

It will be noted that calculi had existed in the gall bladder for several years before the growth developed. This case also confirms the grave outlook of any surgical interference in cancer of this region. The only hopeful treatment is to remove the gall stones early, before their irritation has induced cancer.

REFERENCE.

¹ BRITISH MEDICAL JOURNAL, December 31st, 1904.

TWO CASES OF SUPPURATION OF GOITRE.*

By THOMAS EVANS, M.D.,
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IN the district in which I have practised for many years simple goitre among women is not uncommon; but I had never seen a case of suppuration of goitre until 1902. However, a second case occurred in my practice within twelve months of the first. The medical brethren nearest me had not seen any such cases. The medical and surgical literature within my reach is also silent with regard to such a complaint. But in the Memoranda of the BRITISH MEDICAL JOURNAL for October 15th, 1904, p. 1005, Dr. Arthur G. Wilkins of Ashton-under-Lyne refers to a case of suppurative goitre in an old man of 74.

CASE I.

Mrs. M. T., aged 54, wife of a master mariner, childless, was in fair

* Communicated to the South Wales and Monmouthshire Branch of the British Medical Association.