sedativus was usually prescribed. Ergotinine was also given hypodermically in doses of gr. $\frac{1}{16}$ every fourth hour.

Cardiac Asthenia.—Cardiac asthenia with hypostatic congestion of the lungs proved a most frequent, dangerous, and trying complication to deal with, owing to its sudden onset and rapidly fatal termination. Stimulants were given freely, and also combined with tincture of digitalis $\frac{1}{2}$ x and liquor strychninæ $\frac{1}{11}$ in $\frac{3}{8}$ ss of brandy freely diluted. The most satisfactory results were obtained from the hypodermic injection of strychnine in doses of $\frac{1}{16}$ gr. every four hours until some improvement was observed in the first sound of the heart and in the pulse. I have no hesitation in saying that many lives were saved by these injections of strychnine. In many of the cases it had to be exhibited from the first day of admission.

Hyperpyrexia.—Hyperpyrexia caused anxiety in several cases. It was treated by ice sponging, ice pack, ice to the head and neck, with ice trays suspended over the abdomen; and internally mistura diaphoretica, with small doses of potassium bromide. Powerful antipyretics were carefully avoided owing to their depressing effects on the circulation.

Secondary Bronchitis and Pneumonia.—These complications were usually treated with diffusible stimulants and expectorants; counter-irritation by means of mustard and linseed-meal poultices, turpentine fomentations and dry cupping.

Tympanites.—Tympanites was rare, and occurred in very few cases to anything like an excessive extent. It was readily controlled by the ice cradles suspended over the abdomen. Hot flannel stupes of turpentine and opium liniment also were used, and internally ol. turpentine in $\frac{1}{2}$ x doses every fourth hour.

Diarrhoea.—Excessive diarrhoea gave very little trouble and caused no anxiety; it was easily controlled by ordinary astringents, while the amount of milk was diminished, peptonised, or alkalis as the symptoms indicated.

Nervous Symptoms.—Nervous symptoms in the majority of cases were slight and quickly yielded to opium, potassium bromide, and tincture of hyoscyamus judiciously administered.

Phlegmasia.—Phlegmasia occurred in four cases; the foot of the bed was elevated and the affected limb painted with equal parts of glycerine and belladonna liniment and then wrapped in cotton wool kept in position with a wide flannel bandage.

REMARKS.

The following favourable signs appeared after the administration of the acid:

1. A rapid cleaning of the tongue with the abolition of the characteristic unpleasant enteric odour from the breath.
2. A sustained and remarkable lowering of the febrile temperature with a well-marked morning remission in many cases.
3. Marked improvement in the unpleasant odour from the stools, which in a few days become practically deodorised.
4. Tympanites, diarrhoea, and delirium were rarely excessive and easily under control.
5. A most favourable convalescence with a sound recovery.

NINE CASES OF HEPATIC AND BILIARY SURGERY.

By RUSHTON PARKER, M.B., B.S., F.R.C.S.,

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THE cases to which I desire to draw attention belong to three categories, abscess of the liver, hydatid tumour, and impacted gall stones. The diagnosis was in each case usually made by a physician, who also suggested the treatment which I followed. It is chiefly with regard to the operation performed that I relate the cases, which have a never-failing interest now that modern surgery so largely rescues them from the unfortunate fate formerly awaiting most of them. Three were cases of hepatic abscess, four of hydatid cyst, and two of gall stones. I might have added a few where obstruction was caused by malignant disease in the biliary passages, but they possess chiefly an incidental pathological interest in contrast

with the curable cases of cholecystotomy, and will therefore be omitted on this occasion.

HEPATIC ABSCESS.

CASE I.—A man, aged 38, had been a sailor for twenty years, but had never had dysentery or other disease accounting for the abscess, which had only troubled by pain for nine weeks. His temperature was 100° F. on the evening of admission into a medical ward in March, 1894. The next day pus was drawn off by exploratory puncture and the temperature rose to 101° , where it remained for two days, falling next day to 100° , and on the fourth below 98° . The abdomen was opened that day, the tumour tapped with a long curved trocar, the liver sewn to the abdominal wall and then incised, washed out and drained with two glass tubes. An uneventful recovery took place and complete healing resulted in six weeks.

CASE II.—A seafaring man, aged 45, had been told three years before that he had abscess of the liver. On admission in February, 1896, to a medical ward his temperature went up to 100° and 101° some evenings, but most evenings not higher than $99\frac{1}{2}^{\circ}$. Exploratory puncture revealed pus. He was transferred, and aspiration was practised at intervals for five weeks, on four occasions the amount drawn off varying from 12 to 22 ounces. These operations, including the exploratory puncture, were done through an intercostal space. On some of these occasions salt solution, glycerine and iodoform, and zinc chloride, were injected; but although the sensation and health of the patient improved, and the temperature became normal, the contents of the abscess did not diminish, as much as 22 ounces coming away on the last occasion. So, on March 30th, 1896, incision was made along a costal cartilage, that structure being then removed. On passing inwards, layer by layer, complete adhesion was found between the diaphragm, pleura, and liver, so that the affected organ was simply opened without further precaution, and washed out. A large cavity remained and gradually closed. After twenty-four days the patient got up daily, quickly improved in health, got fat, and healed completely some weeks later.

CASE III.—In August, 1897, a chief officer of the mercantile marine, aged 34, came under the care of Dr. Bradshaw, who expressed the opinion that hepatic abscess existed, deep in the right hypochondrium. Here there was no fever, and preliminary puncture was deliberately avoided until the arrangements were made for the complete evacuation by incision. I wondered if the absence of fever were consistent with the existence of hepatic abscess; but Dr. Bradshaw informed me that such concurrence had been referred to by Dr. Murchison. Aspiration was performed through an intercostal space, giving vent to fetid pus, and incision was made over a rib as in the previous case. Part of the rib and its cartilage were removed, and on incising further the pleura was exposed, and no adhesion found. The diaphragm was closely sewn to the thoracic wall and then incised, exposing the liver, on which the peritoneum was also found free from adhesions. Some clear fluid escaped, and then the liver was aspirated, with issue of about a pint of fetid pus. The liver was then incised, and the edges stitched in a few places to the diaphragm and peritoneum. About two pints of pus now escaped, and the resulting large cavity was washed out, and drained with glass tubes. The patient has gone on uninterruptedly well, and has changed from emaciation to stoutness.

HYDATID.

CASE IV.—A girl, aged 12, was tapped by me in four places with an exploring trocar on October 11th, 1895, in three places on November 13th of the same year, and in one place in March, 1896. She was brought to me by Dr. Dimond of Liverpool, and the operations were performed without chloroform in my house. Hooklets were found in the fluid by Dr. Abram, and the patient was reported free from disease early in 1897.

CASE V.—The same treatment was attempted in a woman, aged 49, two simple tappings in January, 1897, having let out clear fluid containing hooklets. On February 1st the fluid was yellowish and turbid, and on March 4th purulent and fetid. On March 5th the liver was opened and the cyst pulled out. The cavity in the liver was treated with glycerine and iodoform, and healed gradually without suppuration in a couple of months.

CASE VI was of unusual interest, having been admitted into a medical ward with dulness in the right side of the chest, suggestive of a tumour of the pleura, in December, 1896. She was 26 years of age, and by September, 1897, had undergone considerable expansion of the right side of the chest and region of the liver in the upper abdomen. By this time there was no difficulty in recognising the case to be one of hydatid of the liver, for which operation was performed on September 29th. A preliminary tapping in the epigastric region revealed the clear saline fluid of hydatid. An incision was made in the middle line, and on exposing the liver a further tapping was done, to reduce the size of the cyst, which was then incised, liver substance to the thickness of half an inch or more having to be divided. The cyst membrane was unusually thick, but easily removed. After attaching the liver to the abdominal wall, the cavity was drained as in the previous case, and she rapidly gained flesh and strength.

CASE VII was sent to me by Dr. Seagrave, of Milnthorpe, a boy, aged 14, who occupied a private ward in the Royal Infirmary. He arrived at my house in good health on October 30th, 1897, when I drew off about half an ounce of the usual clear saline fluid with a fine trocar. The operation of incision and evacuation was performed at the hospital some twenty-two hours later. On opening the abdomen fluid escaped, which I was surprised to find already purulent; while the omentum and all the neighbouring parietal and visceral surfaces were brightly injected. The liver was opened and the cyst extracted, slightly purulent fluid escaping also from it; the opening in the liver was attached to the abdominal wall, and all the upper peritoneum well washed out. A long glass tube was then passed from the epigastric opening down into the pelvis, and hot water washed through, when I was somewhat dismayed to find abundant flakes of puriform lymph escaping. The abdomen was then opened in addition above the pubes, and copious hot irrigation of the whole cavity through both openings carried out for a prolonged period, with a little zinc chloride and tincture of iodine in the water. There was universal peritonitis, as evinced by vascular injection everywhere, and by the purulent fluid above referred to; but there was no adhesive lymph anywhere. The abdomen was closed in the epigastric region above and below the opening in the liver, and also at the suprapubic wound except where a glass tube drained the pelvis. A certain amount of collapse occurred on the day of operation, and some sickness a couple of days later by the intrusion of a knuckle of intestine into the wound beside the tube. But this was reduced, the tube removed, two spare stitches tied, and the abdomen finally closed. The patient was convalescent in a few days, and returned home in good health after a month with a small packing of cyanide gauze in the much-reduced hepatic cavity. He wrote in January, 1898, reporting himself fully healed and well.

GALL STONE.

CASE VIII.—A woman, aged 42, had suffered for more than 15 years off and on from hepatic pains and occasional jaundice, with latterly tenderness and swelling over the gall bladder. After treatment at many hands, with temporary relief, she was admitted into a medical ward in the Royal Infirmary, and transferred to me after a period of observation. On April 1st, 1897, the abdomen was opened over the obviously distended gall bladder and the latter incised, with issue of many ounces of fetid pus and afterwards bile. The opening was stitched to the peritoneum and muscles in the middle of the wound, while omentum was drawn into the opening and attached to the wall above and below the aperture in the gall bladder, to prevent leakage of the septic discharge into the serous cavity. With the fluid that first escaped there was a single gall stone about half an inch wide. The patient recovered quickly without notable incident, and left hospital in less than four weeks. After a period of convalescence at the seaside, she resumed her duty as cook, in excellent health.

CASE IX.—A woman, aged 43, was sent to me from Kendal by my brother, who, in consequence of a two years' history of pain in many attacks and a state of intense jaundice of three months' duration, concluded that the case was one of gall stones. On May 26th, 1897, the abdomen was opened over the gall bladder, which could not at first be seen, and only with

difficulty felt, under the liver in a very contracted form. On feeling further the common bile duct and gall bladder, and I think the cystic duct also, were manifestly packed with numerous concretions. The anterior end of the gall bladder was opened and many small gall stones removed with a small lithotomy scoop. One much larger, over half an inch in width, was broken with the scoop, and then dislodged from the common duct. In all 73 were taken out, and on probing downwards the instrument passed a long way, evidently into the intestine. The gall bladder was stitched to the deeper parts of the wound and a glass tube put in. The patient made a slow but excellent recovery. Retention of urine necessitated the catheter for a few days, during which she had also uneasiness about the wound. The jaundice disappeared very gradually, but was gone in a month's time. After a fortnight the tube was replaced by a packing of cyanide gauze dipped in warm water. At the time of operation a scanty brownish biliary mucus escaped, but afterwards a copious discharge of green fluid filled the dressing. She was healed in less than five weeks and returned home. On November 15th, 1897, I heard that she had had occasional twinges of pain in the affected region, and some flatulent distension, due to habitual constipation, but that otherwise she kept well. I saw her on August 31st, 1898, in perfect health.

REMARKS.

The cases of hepatic abscess resolve themselves chiefly into questions of technical surgery; and yet not altogether, for although the diagnosis was in each case confirmed by exploratory puncture, that incident did not occur in the third instance until the moment preceding the complete evacuation by incision. Moreover, the absence of fever, although the abscess proved to be fetid, and the total absence of adhesion in either peritoneal or pleural cavity, are significant facts; the former in the medical analysis of symptoms and the latter in relation to the details of surgical treatment.

In the cases of hydatid the question of puncture is evidently one of considerable importance. In Case iv that act sufficed, though several times repeated, to get rid of the disease without any ill-effect on the patient's health. She was a mere child, which may have been in her favour. And puncture is a recognised mode of treatment, formerly relied on almost as a matter of routine, but one that may now be profitably reviewed as fit subject for discussion. In Case vi no puncture was made until the moment preceding incision, and therefore without possible harm. In Case v puncture was performed on several occasions, without local or constitutional injury. But although twice at intervals the fluid evacuated was clear and saline as usual, on the next occasion it was turbid, and on the last purulent and fetid, on which incision and evacuation were arranged for the morrow. Case vii appears to me, however, to have been in great jeopardy, owing to universal peritonitis, purulent and flaky, which is apparently traceable to nothing but the puncture performed less than twenty-four hours before. It is not easy to understand how this could result from issue of the clear saline fluid ordinarily filling a hydatid cyst. Be the cause what it may, it appears, as I am informed, to be the experience of our Australian brethren, who are understood to meet with hydatids on a much larger scale than we do; that cases submitted to mere puncture, single or repeated, prove fatal in a by no means insignificant proportion—a statement which, coupled with this example, will make me very chary of puncturing in future, except when prepared to incise and evacuate immediately.

AMMONIUM CHLORIDE IN THE TREATMENT OF TROPICAL DYSENTERY.

By SURGEON-GENERAL WILLIAM STEWART, M.D.
R.A.M.C. (Retired).

FOR some time past various letters have appeared in the BRITISH MEDICAL JOURNAL in which ipecacuanha is described as "useless," and sulphate of magnesia is lauded, at least in one instance, as practically a specific in the treatment of tropical dysentery. In the BRITISH MEDICAL JOURNAL of May 7th, Dr. W. S. Attygalle, of Colombo, Ceylon, in an interesting letter, offers to place chloride of ammonium in the same list.