ACUTE PANCREATITIS FOLLOWED BY PANCREATIC ABSCESS: OPERA- TION: RECOVERY.

By CARRICK H. ROBERTSON, M.B., B.S.LOND.,
F.R.C.S.ENG.,

SURGEON TO THE WAIHI DISTRICT HOSPITAL, NEW ZEALAND.

Up to the present time there are few men who have had the felicity of diagnosing a case of acute haemorrhagic pancreatitis before abdominal section; but in order that this privilege may be transferred from the few to the many it is necessary that these somewhat obscure cases (though not, it seems, so very uncommon) should be reported, in the hope that some points may be elicited which will help to make the clinical picture of this disease more complete.

The following case of acute haemorrhagic pancreatitis was followed subsequently by a pancreatic abscess and eventual recovery:

M. R., a married woman, aged 46, was admitted to the Waihi Hospital, New Zealand, on June 24th, 1908.

History of Attack.

Early on the morning of June 23rd she was seized with acute agonizing pain in the abdomen, accompanied by very frequent vomiting and sweating. She vomited about every half-hour, and, from the description, it was evidently very severe. The bowels moved once just after the pain began. At the end of twenty-six hours the pain lessened and the vomiting stopped; she was then brought to the hospital, a distance of some eight miles.

Condition on Admission.

The temperature was 100° and pulse 90. She complained of severe pain just above the umbilicus, and there was a little general abdominal distension. She would allow only the gentlest pressure on the abdomen, but it was not anywhere rigid. There was no jaundice; the face was rather pinched but not in any way "Hippocratic"; in fact, she did not look very ill.

Previous History.

It appeared that she had frequently had attacks of abdominal pain, the first occurring about seven years ago. Later the attacks had become more frequent, and after the last one, three months ago, she became jaundiced. The attacks were usually associated with diarrhoea. Dr. Cheesman, of Karangahake, had told her she had gall stones, and advised removal, but her aunt had died after an operation for gall stones, so that she was reluctant to undergo one. She had for a long time suffered from "indigestion."

Progress.

On admission enemata were given without result. The next day she seemed a little easier, although the pulse was a very little faster. On June 26th the bowels had not moved and the distension was increasing. The distended transverse colon showed below the umbilicus. No flatus had been passed. The pulse had increased to 120 and the tongue was very furred; she had not vomited but felt a little sick. There was no jaundice and the liver dullness was present. Pain was still definitely located at a spot about 1 in. above the umbilicus in the middle line. The upper part of the abdomen moved better in respiration than the lower. Rectal and vaginal examination proved negative. A few hours later she began to vomit again and immediate operation was decided on.

First Operation.

June 26th, 1908. An incision was made in the middle line, cutting out the umbilicus. On opening the abdomen, fat necrosis of the omentum was immediately noticed. The incision was now extended upwards, and a large quantity of blood-stained fluid was found free in the abdominal cavity. In the region of the head of the pancreas a large hard swelling, feeling about the size of a Tangerine orange, was palpated. On lifting up the stomach and omentum, many necrotic patches were seen in the fat round the region of the duodenum. In spite of gentle handling a hole was torn in the gastrocolic omentum, just below the pylorus; this exposed the head of the pancreas, which was seen to be intensely engorged and of a dark red colour. The tear had caused considerable oozing from vessels on the surface of the pancreas. It was now seen that all the structures in this region (except the pancreas) were unduly softened and friable, due to the action of the digestive ferments; this would account for the tear in the gastrocolic omentum. Two small swabs soaked in adrenalin were passed into this tear, and attention turned to the distended condition of the bowel. It was not so distended as to warrant puncture, and a long rectal tube was therefore passed and a limited quantity of light yellow faeces evacuated; on massaging the bowels more ran out. The gall bladder was small and thickened, and had two enlarged tortuous veins running over the surface; one stone was felt in it. The swabs were now removed from the rent in the pancreas; the bleeding had stopped. A gauze tube was passed down to the head of the pancreas through the hole in the gastrocolic omentum and brought out of the upper end of the wound. A second tube was put down towards the pelvis. A small incision for drainage purposes was also

made through the abdominal wall about the level of the tip of the tenth rib and a tube passed down from here into the right kidney pouch. This tube was removed in forty-eight hours.

The next day the pulse was 100 and temperature 99°. There was a little vomiting but no pain since the operation. The patient felt comfortable. Rectal saline injections were given every four hours for two days. Sips of water and champagne were given for twenty-four hours. Tympanites was still troublesome but it could always be relieved by the rectal tube. On June 28th a turpentine enema was administered with good result. She was now on peptonized milk. The wound required dressing twice a day. The patient got on well, and had a normal temperature until July 7th, when she had occasional attacks of pain, which reminded her of the pain she had experienced with previous attacks of "gall stones." At this time also the temperature began to rise, until on July 12th it was 102.8° and the pulse over 100. The abdomen once more became tender and tense. As the discharge coming away from the tube leading down to the head of the pancreas was becoming less and the temperature rising, further operative interference became imperative in spite of the low general condition of the patient; in fact, she was now in a worse condition than she had been since entering the hospital, and the following operation was performed as rapidly as possible; the time occupied was about thirty-five minutes.

Second Operation.

July 13th, 1908. Mayo Robson's incision for exploring the gall bladder was made with the patient on a sand pillow. Firm adhesions were met with fixing the liver to the colon and the great omentum. The great omentum still showed patches of fat necrosis, but they were yellower and smaller than on the first occasion. There were also small filamentous adhesions about every patch of necrosis seen in the field of operation. The adhesions were separated with some bleeding, exposing the fundus of the gall bladder and part of the duodenum. A probe was then passed down the sinus leading from the original median incision, and it was found to end in adhesions just above a small hole leaking pus in the region of the head of the pancreas. Swabs were packed into the kidney pouch and all round the site of the operation, and with the finger the opening in the pancreas was gradually enlarged. About an ounce of foul pus escaped, and the finger found itself in a cavity with smooth walls containing a necrotic piece of pancreas; this was removed with forceps, and was found to be about an inch and a half long by half an inch wide. Considerable arterial bleeding was now encountered from somewhere about the mouth of the abscess cavity; this was very troublesome, but finally stopped on pressure with a swab soaked in adrenalin.

Stones could be felt in the cystic duct and two in the common duct, but as the patient was in anything but a favourable condition I simply incised the thickened gall bladder, and tied in a small tube, hoping that some of the stones would eventually come out. No bile escaped, showing complete blockage of the cystic duct. The incision was closed after sewing the fundus of the gall bladder to the peritoneum and passing a large drainage tube well into the abscess cavity in the head of the pancreas and another into the right kidney pouch. The sinus in the original median incision was closed with fishing gut; 1½ pints of saline were then put into the right basilic vein, and the patient put back to bed.

The next day flatus was passed, and the bowels were moved; but there was considerable pain in the wound, and for the first time blueness of the lips and blue spots in the cheeks were noticed. From now on the temperature gradually came down to normal, but it was not until a fortnight after this operation that the temperature kept steadily on the normal line. The gall bladder drainage tube came out about seven days after the operation, and the tube from the pancreatic abscess was removed after the temperature became normal. A small gall stone came out of the wound about a week after the operation, and seemed to give the patient much relief; ten days after this six small pale stones appeared in the dressings, which were unfortunately thrown away by the nurse before I could examine them, but from the glimpse I had of them I should think they were pancreatic calculi.

On August 27th the temperature again rose suddenly to 103°. This was due to an abscess in the left forearm, which discharged the following day just before I had arranged to incise it. No other rise of temperature was observed. Several times during the illness the urine was tested for sugar, but none was found. Camidge's reaction I was unable to try.

She was discharged from the hospital on September 6th, feeling quite well.

Up till the time the abdomen was opened I must admit that the diagnosis of pancreatitis had not entered my head. I have thought since that if I had seen her in the first twenty-four hours when the vomiting and pain were so intense I might have considered it, but she did not come to the hospital until this had subsided. The reason for operation was that the symptoms of obstruction were becoming marked and the general condition of the patient worse. The diagnosis made before operation was obstruction due to an impacted gall stone, on account of the comparatively gradual increase in distension and the previous history of the patient. A symptom which has been described in these cases is that the abdominal distension

is more marked above the umbilicus, whereas in this case the abdominal swelling was more marked below the umbilicus, owing to the distension of the colon. No pancreatic tumour was felt, owing perhaps to the difficulty of palpation due to the general tenderness of the abdomen. The only symptom which seems now to have pointed strongly to pancreatic inflammation was the constancy of the tender point 1 in. above the umbilicus. A perforated gastric ulcer might have caused this, but in this case the liver dullness was always present, and neither the appearance of the patient nor the abdomen was at all suggestive of this latter condition, for the abdominal wall, though tender, was not rigid, and the distension was very slow in becoming marked, making the clinical picture more one of intestinal obstruction than peritonitis. I do not think this case would have required the second operation for the pancreatic abscess if I had made a deeper incision in the pancreas; as it was, the drainage tube must have lifted away just enough to prevent free drainage.

On October 19th, 1908, I saw this patient again, and she was in good health and felt quite strong, but is troubled with a small fistula leading from the gall bladder out of which a small quantity of mucus issues. At date of writing, November 16th, 1908, the patient is quite well, and the fistula has been healed for about three weeks.

ARROWS AND ARROW WOUNDS IN NORTHERN NIGERIA.

By ALLAN C. PARSONS, M.R.C.S.ENG., L.R.C.P.,
WEST AFRICAN MEDICAL STAFF, N. NIGERIA.

THE weapon of war most generally used among pagan races of Northern Nigeria is the bow and arrow; even the more civilized races, who fight on horseback with spear or sword, generally include a strong company of archers among their forces. The arrow is also used in the chase, and is then, as far as one can learn, anointed with the same poisonous substances that are prepared for human quarry. Native big game hunters, who may have access to gunpowder, fire their arrows (which are much stouter than the ordinary bow arrow) out of Dane guns at close quarters; the hunter in this case is often the first to fall! There seems to be no objection among the natives to eating the flesh of game killed by these weapons. The arrow consists usually of a simple barb made from local iron mounted on a shaft of stout reed, the whole measuring about 2 ft. in length. They are usually very neatly made, and as many as thirty or forty arrows can be carried in one quiver. A winged arrow is practically unknown, but this is explained by the fact that the arrow is not meant to kill, but is simply a poison carrier: consequently they are generally discharged at close range, though instances are on record of men being hit at ranges varying from 150 to 200 yards.

Usually the first intimation that hostilities have commenced is a shower of arrows shot into the air, but there is no doubt in the bowmen's mind as to where they are to fall, and a few generally find their billet. Other tribes, especially hill pagans, adopt other tactics and go in for sniping at close quarters—a most unpleasant experience for those sniped at.

The bow apparently does not come in for nearly the same amount of care in its manufacture as do the arrows, though it seems to fulfil its purpose quite well.

There is great difficulty in extracting from the natives any reliable information as to the composition of their poisons, and there seems to be a different recipe for each district. Evidence is accumulating to show that in nearly all the Northern Nigerian poisons some form of *strophanthus* plays a part. The composition of the poisons, however, is never simple, but consists of various animal and vegetable ingredients which may have a local reputation for being nocuous. Thus the inspissated juice of various cacti and *euphorbiae* is a favourite ingredient with hillsmen, while the roots, leaves, and fruit of other wild plants are often incorporated.

Animal secretions in a state of decomposition are said to be used by some of the more savage tribes. The people in one district are credited with the manufacture of a poison so deadly that only the very aged and feeble are allowed to make it. Others, again, adopt the simple method of

using a decomposing carcass as a sort of pincushion for infecting their arrows. Finally, there would appear to be districts where the tetanus bacillus abounds, and arrows are rendered poisonous by merely planting them head downwards in the soil.

The native is particularly reticent (and often cunningly misleading) about a matter that affects him so closely, but the results of sending home all available specimens of poisons is encouraging. The poison paste, as seen on the arrow heads, has a dark and often varnished appearance; it is partly soluble in water, a resin-like substance being frequently precipitated. In all probability old paste loses most of its poisonous properties; injections into animals with old material generally produce no result. It would seem that the natives themselves realize this fact, for they generally "brew" a fresh supply of poison before starting on any raiding expedition, or in anticipation of a visit from the white man and his troops. On more than one occasion I have noticed that the marksmen are accompanied by poison bearers, who carry the poison in a fresh and liquid state enclosed in small gourds. The Bowman then inoculates each arrow as required by dipping it into the poison cup.

Nearly all the samples of arrow poisons from Northern Nigeria that have been sent to the Imperial Institute for analysis have been found to contain *strophanthus* and strychnine, besides several other substances physiologically unimportant. Both poisons are derived from plants growing locally.

The injuries from arrows range in severity from a mere skin scratch to the transfixion and laceration of some deeply placed organ; and the seriousness or otherwise of such wounds depends upon the part of the body hit and the character of the poison used. As far as my observations go, the individual powers of resistance on the part of the patient need not be considered, as the troops sent on an expedition are all picked men in sound health. The temperament and fatalistic tendencies of the native soldier, however, should always be remembered, as these factors certainly affect the prognosis.

The range at which an arrow is fired greatly affects, of course, the degree of its penetration, and the resulting wounds are proportionately serious. A deep artery may be wounded, or fatal haemorrhage may occur from the transfixion and laceration of some internal organ. I have come to believe, too, that the toxic effects of a poisoned arrow are enhanced by the depth of the wound it causes. In the first place, the poison is more easily rubbed off under such circumstances; secondly, the arrow head must necessarily remain a certain time *in situ*, thus allowing the poison to be absorbed; and, lastly, remedial measures are more difficult to adopt if the wound is deep.

A wound from a poisoned arrow should always be considered serious, however slight the injury may appear, and whatever part of the body is affected. Perhaps wounds of the limbs are less dangerous than most others, while wounds that affect serous membranes or vital organs are naturally graver on account of the attendant complications.

As mentioned above, the age of the poison is important; it may be old enough to be inert, or the paste may require a little time in contact with the blood and fluids of the body to be dissolved and absorbed. It may be taken for granted that no surgically clean arrow ever leaves the bowstring, so that sepsis has to be guarded against in any case.

The clinical symptoms vary considerably, as might be expected from the composite and uncertain character of the poison. Slight wounds that do not penetrate far beneath the skin generally do well, and give rise to no symptoms if treated on sound surgical lines. Deep wounds, however, are more serious, and the accompanying table, which is extracted from the medical report on the Chibbuk expedition in 1907, shows briefly the history of the 10 fatal cases which formed 20 per cent. of the total casualties on that occasion.

It will be seen that the dangerous cases arrange themselves roughly into three groups:

Group I includes those cases in which death follows rapidly (quarter of an hour to two hours) upon the injury as the direct result of the poison, or from haemorrhage. The clinical symptoms here are those of a failing heart, and it is not always easy to say whether the patient is dying from a heart poison or from internal haemorrhage.