A skiagram taken two weeks after the first operation with a probe passed to the cyst bottom showed the point very close to the optic foramen.

Between the first and second operations I had the advantage of reading Mr. D. J. Wood's paper in the *British Journal of Ophthalmology* (January, 1925). Here he described three cases of orbital hydatid which he had seen during the last few years. This experience, judging by the literature on the subject, must be unique, for authorities are agreed as to the comparative rarity of the condition.

Microscopic examination of the scrapings showed the presence of hooklets. I am indebted to the Department of the Director of Veterinary Research, Pretoria, for the report that the parasite was apparently *Echinococcus granulosus*.

The condition of the patient four months after operation was as follows: Right vision=6/6. General health excellent; no squint; occasionally fixation (binocular) is not well maintained, and a slight outward deviation can be detected. She has no discomfort, and admits to no diplopia. Proptosis, though much less, persists, and the eye, as before, is on a lower level than the other; in fact, owing to orbital asymmetry, its position has been little altered by the operation.

All ocular movements are good and free, except up and in; here the horizontal level is barely exceeded. An unfortunate feature is paresis of the levator palpebrae superioris. This I attribute either to injury of the superior division of the third nerve—which supplies both levator and superior rectus muscles—or to trauma of their combined tendinous origin in the apex, done, no doubt, during the second operation, when the implantation area was removed. However, within the last week or so I have noted with pleasure a distinct improvement in levator function. The hard swelling in the trochlea region persists.

Points of interest in the case were:

1. Absence of pain and head symptoms.
2. Flaccidity of cyst; reported cases usually tense.
3. Presence of hooklets. "Presence of heads and hooklets is noted in only a small minority of cases of human echinococci."—(Leuckart's *Parasites of Man*.)
4. The marked orbital asymmetry—congenital, no doubt.

LITERATURE.

Trans. Ophth. Soc. of United Kingdom, vols. xv (Lawford), xvii (Hill Griffith), and xxiii (Werner).
Casey, Wood in his *System of Ophthalmic Operations*, p. 858 et seq. summarizes the literature of the subject and mentions that up to 1910 over a hundred cases had been reported.

ABDOMINAL CASES ILLUSTRATING IMPORTANT SURGICAL PRINCIPLES.*

BY

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THE following four cases considered together illustrate different conditions, and convey valuable surgical lessons.

CASE I.—Rupture of Spleen.

A woman, aged 37, was seized with violent pain in the left side of the abdomen and chest after getting out of bed to pass urine at 8 a.m. on March 22nd. The pain shot down to the upper part of the left leg. When seen by Dr. Dykes at 9 a.m. she was so collapsed that he would not sanction her removal to the hospital. Later in the day she improved sufficiently to be sent there, and arrived between 3 and 4 p.m. On admission she was very blanched and restless. Her pulse could not be felt at the wrist; her heart sounds were very feeble, and 150 to the minute. The temperature was subnormal, the abdomen painful and tender. The uterus reached up to the umbilicus, and other signs of pregnancy were present. She had not menstruated since October. There had been no haemorrhage from the vagina. A tentative diagnosis of extrauterine gestation had been made, with which I did not agree. It was evident that she was suffering from intraperitoneal haemorrhage.

She was immediately taken to the theatre and the abdomen was opened by a right paramedian incision 6 inches long, starting just above the umbilicus. When the peritoneal cavity was opened it was found to contain about 4 pints of blood and clots. The uterus was intact, the tubes and ovaries were normal. No bleeding point could be discovered in the omentum or the mesentery. Both kidneys and the liver were normal. On further examination a bleb about 2 inches in diameter was found on the spleen near the splenic notch, and blood was issuing from an aperture in this bleb about the size of a No. 1 catheter.

The spleen was removed, the blood and clots were sponged out, and the wound was closed in layers. A pint of normal saline solution was infused. The patient gradually improved and, except for an acute attack of parotitis, made an uninterrupted recovery.

On examination of the spleen after the operation a tear 1½ inches long was found under the bleb. It is difficult to account for the rupture of a spleen that appeared to be normal. A portion of the organ was submitted to the pathologist for examination and he reported it normal.

* These cases were described at a meeting of the Kidderminster Medical Society on Friday, April 9th, 1926.

There was no history of any injury, and I cannot conceive that the act of getting out of bed to pass urine would cause the rupture. When I thought the matter over it occurred to me as possible that the rupture might have been due to excessive violence during the act of coition. The woman had gone as house-keeper to a very strong, virile man, and she was apparently five months pregnant. I interviewed the man, and ascertained that coition did take place that morning between 5 and 6 o'clock. I think it is more than possible that the rupture of the spleen occurred at that time. The bleeding was under the capsule of the spleen and the action of getting out of bed caused the bleb to burst.

CASE II.—Perforated Gangrenous Appendix.

A man, aged 50, was seized with violent pain in the epigastrium at 5 p.m. on March 15th. When Dr. Robinson saw him he was so collapsed that it was not thought wise to send him to the hospital. Later in the evening his condition had improved sufficiently to render his removal justifiable. He arrived at the hospital about 9.30 p.m. He stated that the pain had come on without any warning, and that he had vomited frequently since it began. The abdomen was immobile and rigid all over. His pulse was 72, temperature 96°. The diagnosis was perforation of the stomach or duodenum. When I saw the patient the rigidity appeared to me to be more marked to the right of and below the level of the umbilicus, and I expressed the opinion that the perforation was in the appendix. I performed an operation immediately. When the abdomen was opened cloudy fluid escaped. There were numerous old adhesions binding the appendix down behind the caecum. The appendix was gangrenous with a perforation at its tip. The abdominal cavity was mopped out and drainage tubes were inserted. While sewing up the abdomen I remarked to the house-surgeon that there might be a perforation of the stomach or duodenum as well as of the appendix (I believe one or two instances of this are on record), but it was such a very remote possibility that I did not consider a further exploration justifiable, as it might cause the patient's death. He made an uninterrupted recovery.

CASE III.—Obstruction of Intestine by a Band.

A woman, aged 45, upon whom I had operated twelve years before for tuberculous peritonitis, was sent into the hospital on the evening of December 17th, 1925. For twelve months she had been suffering from pains in the abdomen and loss of flesh, and for the past four days from diarrhoea and vomiting; the vomiting had increased considerably in the last twenty-four hours.

The abdomen was found to be distended and rigid. The condition had been tentatively diagnosed as a recurrence of the tuberculous peritonitis. I did not agree with this diagnosis, and expressed the opinion that it was probably an obstruction of the small intestine due to a band. On opening the abdomen I immediately found a band, which partially obstructed the small intestine. But the gut was not extremely distended immediately above this band, and consequently I felt that there must be another constriction higher up. On tracing the intestine I found another constriction, by which the bowel was completely obstructed. This constriction was divided, and the patient made an uninterrupted recovery. If I had not continued my exploration she would certainly have died.

CASE IV.—Abdominal Haemorrhage probably due to Rupture of Omental Vessel.

In June, 1925, I operated for Dr. Smeeton Johnson upon a boy, aged 10, who was suffering from the effects of an accident. The abdomen was full of blood, but I was unable to discover where the bleeding came from. Before closing the abdomen a drainage tube was inserted into the peritoneal cavity. I thought the haemorrhage was probably due to the rupture of a vessel in the omentum, which had become sealed. This supposition was strengthened by the fact that there was no more bleeding, and the boy recovered. I had had a similar case in a man many years before.

Case I illustrates the necessity of exploring every possible source of a haemorrhage found in the abdomen, and of dealing adequately with it if it is discovered. To plug the region of the supposed source of a haemorrhage with packing is not surgery. When the source has been found and controlled the abdomen must be sewn up.

Case II illustrates the reverse procedure. When a perforated organ is found in an acute abdominal case it is not right to seek for another lesion, although there is a possibility that it might exist. The further exploration might cause the death of the patient; it is certain that a surgeon who regularly adopted such tactics would have a very high rate of mortality.

Case III illustrates the supplementary truth that even in an acute abdominal case the surgeon must not desist from his efforts until he is satisfied that he has found the root cause of the trouble.

Case IV illustrates the fact that though the cause of haemorrhage into the abdominal cavity must always be looked for, cases do sometimes occur in which it is not possible to find it. In these cases a tube should be inserted into the peritoneal cavity to give immediate warning should any further bleeding occur.