absorbed, instead of being thus excreted, they exercise the typical effect of protein bodies on metabolism—that is, they stimulate metabolism to a degree considerably in excess of their mere calorific value. The same fate also overtakes the fatty amino-acids. The second factor to be noted is this: that if we can assume that the source of adrenaline is to be found among the amino-acids in the intestine produced by the digestive ferments, the failure of the putrefactive organisms still further to split up this precursor into an excretable substance again has a specific bearing upon the increase in the basal metabolic rate, for it is now generally conceded that adrenaline is the sensitizer of the sympathetic nervous system, “the katabolic nerve of the body.”

A CASE OF TORSION OF THE GALL BLADDER.

BY

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SINCE torsion of the gall bladder is, and from the nature of the case must always be, an extremely rare accident, every case is worth recording.

A woman, aged 67, under the care of Dr. Seal, of South Molton, was taken suddenly ill at 10 p.m. with acute pain, distributed over the abdomen generally. She vomited and was collapsed, but not with the intensity seen in a case of perforation; there was a slight action of the bowels during the night or the early morning. The pain was not relieved, and from about 8 a.m. she was unable to pass flatus. The vomiting increased, and became green with bile; it was never stercoraceous, and never offensive. Dr. Seal could feel a tumour on the right side of the abdomen on the following morning. There was no rise of temperature.

She was seen in consultation with Dr. Seal at 6.30 p.m., when her expression was anxious but not intensely so; the pulse was just under 100, of fairly good volume and regular. The general condition was such as to give any prospective surgeon a reasonable hope of a favourable result of surgical interference.

The abdomen moved badly with respiration, but still it did move. There was a distinctly visible swelling on the right of the middle line. There was no distension, and no visible peristalsis. The mass on the right side was sausage-shaped, with the lower end blunter and more pronounced than the upper. Its long axis was tilted so that the lower end was slightly to the right of the vertical and the upper to the left. It did not appear to move with respiration, and was freely movable in all directions; the hand could be got between it and the liver above the tumour. Auscultatory percussion gave no indications of any connexion with the liver.

It was obvious that some acute abdominal condition was present, and the history pointed more to an intestinal obstruction than either a perforation or an inflammatory process, and it was thought probable that it was a case of growth in the colon, although the fact that the lower end was the more defined and the upper the less mobile was rather against this.

The physical signs connected with the very obvious tumour were distinctly puzzling. The swelling was exactly in the position of the gall bladder, but it was movable, seemingly in all directions. The liver could be felt moving with respiration and the tumour seemed not to move with it. Auscultatory percussion failed to show any connexion between it and the liver. There was no history of any previous trouble in the gall bladder, and there was no temperature to suggest a cholecystitis. The question of torsion or volvulus was never considered.

Operation.

The patient was with considerable difficulty persuaded to submit to operation; it was performed the same evening. Before the peritoneum was opened a dark red mass was seen, exactly like one seen when operating for extrauterine gestation. As soon as the peritoneum was opened a very little serous fluid escaped, and it was found that the tumour was a large gall bladder, quite black and nearly gangrenous from strangulation by two half-turns of the neck just at the edge of the liver. The turns were from left to right. After reducing the twist the gall bladder was removed with the greatest ease, since the point of constriction could be readily brought out of the abdomen, and the ligature could be applied to perfectly healthy tissue. The patient made an uneventful recovery.

The organ when removed was about the size and shape of a large pear. The walls were very much thickened, and it was quite black with extravasated blood. It was tightly distended with blood-stained bile, and it contained ten or twelve moderate-sized gall stones. Three of the larger of these were tightly lodged behind a valve or fold of mucous membrane; from their position and the thickness of the wall, they might easily have been overlooked during the course of an ordinary cholecystotomy.

Irwin in recording a case has collected seven previous ones, in only one of which were gall stones found. He also comments on the difficulty of diagnosis. Judging from the case under consideration, the difficulty would seem to lie chiefly in the fact that the possibility of its

occurrence is not taken into account. In spite of the fact that the tumour did not move with respiration, and that it seemed to be free from the liver, there is no doubt that at the time of examination the lower rounded end of the mass and its position were distinctly suggestive of gall bladder, and if the surgeon had in his mind the possibility of this condition being present it is more than likely that he would arrive at a correct diagnosis.

With regard to success of laparotomy, which Irwin also mentions, if all cases were as easy and straightforward as the one under discussion the surgeon could have nothing to fear, so far as mortality is concerned, beyond the ordinary anaesthetic risk.

ILEO-COLIC INTUSSUSCEPTION CAUSED BY MECKEL'S DIVERTICULUM AND SIMULATING ECTOPIC GESTATION.

BY

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THE two features in the following case which seem to warrant placing it on record are, first, the mimicry of ectopic gestation and the absence of the usual signs and symptoms of an ileo-caecal intussusception, and, secondly, the impossibility of reducing the intussusception by the ordinary methods, on account of the tight grip of the ileo-caecal valve.

A woman, aged 30, who had been married for three years, and during that time, and indeed all her life since puberty, had had no menstrual irregularity, ceased to menstruate three months before she was taken ill. As she was in good health at the time, she concluded that she was pregnant.

On June 16th, 1922, she was seized with acute abdominal pain, definitely located in the right iliac region, and occurring in spasms of variable duration; in the intervals she was not entirely free from pain. On that day she vomited once, but not afterwards. On June 18th she called in Dr. Young, who suspected a tuba-

FIG. 1.—Diagram of abdominal findings; T=tumour, U=uterus.

FIG. 2.—Diagram of removed ileum.

gestation, threatening rupture; when I saw the patient with him later in the day I concurred in the diagnosis and sent her in to Victoria Hospital, Swindon, for operation.

Her condition then was highly suggestive of a tubal gestation; she was in great pain at intervals, the spasms lasting only a few minutes, and her expression was one of “fear of impending catastrophe.” The pulse was not rapid (80), but small and feeble, the temperature 98° F. There was no general distension of the abdomen, and rigidity was confined to the right rectus muscle below the level of the umbilicus.

The bowels had acted normally up to that time; there was no diarrhoea, neither mucus nor blood in the stools, no tenesmus, and no swelling typical of an intussusception. On bimanual examination the uterus, enlarged, but somewhat indefinite in outline, could be felt pushed over to the left by a large elastic swelling which bulged down into the right lateral fornix and was felt to be continuous with a similar swelling in the right iliac fossa. This abdominal swelling reached nearly to the level of the umbilicus, was tender, and did not vary in size. The rigidity of the rectus over it rendered precision of palpation impossible.

Operation.

With the assistance of my colleague Dr. Young, at 9.30 p.m. a paramedian incision was made below the umbilicus, and the uterus, of the size of a three months' pregnancy, together with the appendages were found lying over to the left and physiologically normal. The appendix, presenting nothing abnormal, was drawn out of the wound. There followed the caecum, so mobile that it was easily pulled completely out of the abdominal wound after being dislodged from the pelvis in which it had lain. After packing off the rest of the abdominal contents the caecum was more closely examined; it was found to be very large and soft, and within its lumen could be felt a harder, more elastic, and slightly movable tumour. The entering ileum was also swollen to double its normal

diameter, its walls thickened and rigid. Realizing the existence of an intussusception, I followed the small gut upwards and came upon the commencement of the lesion some twelve inches from the ileo-caecal valve. Attempts to "milk" back the intussuscepted bowel were ineffectual, and I therefore removed the appendix, enlarged the opening so left in the caecum, and with two fingers inside the caecum reduced the protruding gut through the ileo-caecal valve. It was only by patient and careful manipulation that this could be done, so tightly was the small bowel gripped by the valve. The whole of the intussusception was then, with comparative ease, reduced, and as the last portion emerged a Meckel's diverticulum turned itself inside out, resuming its normal position and appearance. The wound in the caecum was then closed.

The diverticulum was on the antimesenteric border, was short, and its lumen wide. On each side of it the bowel was ecchymosed and of very doubtful vitality. Within the lumen of the gut, at the level of the diverticulum, there could be felt a soft swelling. I removed six inches of ileum, including the diverticulum, performed a lateral anastomosis, and after fixing the mobile caecum in its normal position by catgut sutures, closed the abdomen without drainage.

Recovery was uneventful, and the patient left hospital three weeks later free from symptoms, the pregnancy continuing normally. The pathologist reported: "The intussusception consisted of a portion of bowel in a state of acute congestion and commencing gangrene from strangulation of the blood supply. It contained in its cavity a mass of breaking-down blood clot."

A CASE OF RAT-BITE FEVER.

BY

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RAT-BITE fever is not of common occurrence in this country, and the following case is so typical in character as to merit publication.

T. H., a boy aged 13 years, whilst on holiday in Devonshire was bitten on the left hand by a rat, on August 16th, 1922. The wound was not a severe one, and on the following day it was washed with carbolic lotion and dressed by a surgeon. It did not suppurate, and the doctor who saw the wound on August 23rd said it was doing well. It subsequently healed. About August 30th the wound was red and oedematous, and the temperature rose to 103° F. Two incisions were made near the wound, but no pus was found. During the following week the temperature rose again, but the boy was well enough to make a long journey to his home at Clevedon on September 7th. He was then seen by Dr. Hubert, who dressed the hand and found a little pus escaping. The wound healed rapidly, but from time to time until the date on which I saw him (October 11th) he

was subject to a rise of temperature varying between 102° and 104° F., coming on every three or four days, and lasting for two days. Each return of fever was accompanied by the appearance of a patchy erythematous rash all over the body. There was no lymphangitis. The scar was healthy, and not reddened. There were two small lymphatic glands palpable in the left axilla, and one in the left posterior triangle of the neck. The left hand was cyanosed. During the height of the fever there was a peculiar smell about the patient, reminding one of a hot wet dog. On one occasion there was a trace of albumin in the urine. He was brought to a nursing home under my care on October 12th, and 0.15 gram of novarsenobillon was injected intravenously on October 13th; further doses of 0.3 gram were given on October 19th and 26th, just before the rise of temperature might be expected. The fever which followed each of these injections was brief, and on the first two occasions only was accompanied by a rash which was of both an erythematous and urticarial character. The rash lasted for twelve hours. The blood was examined by Dr. Hadfield on October 14th. His report was as follows:

Red blood cells ... 4,100,000 per c.mm.
White blood cells ... 7,850
Haemoglobin ... 78 per cent."

There is no abnormality in the differential leucocyte count. The blood was examined by taking films and a thick drop. No parasites

were seen. There is, however, slight polychromatophilia. This and the anaemia are the only pathological findings.

The patient went home on October 19th and made a quick convalescence. There has been no return of fever. No parasite was found in the blood of this case, but it seems probable that the disease is identical with that seen in India, which is associated with a spirochaete discovered by Futaki in 1915 (*S. morsus muris*). The incubation period is usually two or three weeks. The initial wound heals normally in a few days, but later becomes swollen, painful, and red. Fever recurs every five or six days. The urine is increased in quantity, and contains albumin and casts. In India about 10 per cent. of untreated cases die. In any case convalescence is slow and there is emaciation and anaemia.

Memoranda :

MEDICAL, SURGICAL, OBSTETRICAL.

RINGWORM AND ITS TREATMENT.

ALL present methods of treating ringworm require prolonged supervision, and even x-ray treatment requires some three months. At the school clinics in Blackburn, in 1920, I experimented with various methods of treatment, and by the end of the year I began to get rapid results with the following method:

The hair is cut short, permitting a good examination of the whole surface, the affected parts are shaved, and then washed with ether soap, dried, and the following lotion applied: Calomel 5 grains, tinct. iodi (B.P.) 1 drachm; stir with glass rod—a reddish precipitate is formed. This lotion is poured upon small pieces of cotton-wool and applied to the ringworm area by gentle rubbing. The piece of wool is then discarded, clean white lint applied and bandaged. The child returns to the clinic the next day, the dressings are removed, the areas are washed well with ether soap, ammoniated mercury ointment (B.P.) applied, and a bandage again used. This process is continued until cure results, generally within fourteen days; the child is ready to return to school during the third week.

During 1921, 61 cases of ringworm of the hairy scalp, 2 involving the whole hairy scalp, forehead, and neck, were treated at the clinics by this method; the average number of days required for cure was eighteen. The shortest period was six days, the longest thirty-seven days; in this case two children at home were being treated for ringworm by the mother; this explained the fresh areas of ringworm on our patient's head which arose during treatment.

The calomel iodine lotion must be applied gently, and must be freshly prepared for each case. If rubbed in instead of gently daubed on, within a few hours' time the child suffers severe pain, due to a burn of the first or even second degree; in the first case a mild erythema, and in the second case erythema and small blisters, simulating erysipelas. I have only had three such cases, and those among my early cases. The best treatment of these early burns is to apply a mixture of olive oil 3 parts and castor oil 1 part. The lotion need be applied only once; it seems to penetrate and destroy the

parasites perhaps by the liberation of nascent iodine. The further treatment described keeps the surface clean and rubs out all loose hairs. In several cases a chronic scurfiness continued, but cleared up when the oil application was used. All the 61 cases mentioned have been kept under observation and in no case was there any recurrence.

As the lotion is very active, I considered it necessary to limit the surface of application by dividing the scalp into six equal areas. On the first day the whole scalp is washed with ether soap, and dried. To area 1 freshly prepared calomel iodine lotion is applied gently, and ammoniated mercury ointment rubbed into the remaining five-sixths; the head is then bandaged. On the second day the five-sixths part is washed with ether soap, and the lotion applied to another sixth part. The part to which the lotion was applied is then washed as a separate area, and ammoniated mercury ointment applied, and so on. On the seventh day the whole head is again treated as one area with ether soap wash, and ammoniated mercury ointment applied.

Ringworm of the body receives similar treatment, the child remaining at school, as the condition is cured within