REPORT ON THE SURGERY DONE IN THE STATION HOSPITAL, RAWALPINDI, FROM MARCH, 1906, TO MARCH, 1908.

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The period above mentioned is taken because it represents twelve months' actual work. Owing to the unfavourable climatic conditions, only emergency operations were performed in Pindi between May 1st and November 1st. Anaesthetics were administered on 400 occasions, and the following are the chief operations which were performed:

I. Operations on the Abdominal Organs.
   (a) Radical cure of hernia 14
   (b) Laparotomy 13
      For appendectomy 4
      " appendix abscess 3
      " acute intestinal obstruction 2
      " perforation of typhoid ulcer 1
      " liver abscess 2
      " gall-stones 1
   (c) Excision of rib and drainage of liver abscess 11
   (d) Exploration of liver by puncture 8
   (e) Nephrotomy for ruptured kidney 1

II. Operations on the Skull.
   (a) Trephining 4
      For depressed fracture 1
      " temporoparietal abscess 1
      " frontal sinusitis 1
      " cerebellar tumour 1
   (b) Complete mastoid operation for middle-ear disease 2
   (c) Exploratory operation for fractured skull 1

III. Operations on Throat and Nose.
   Tracheotomy 1
   Drainage of ethmoidal sinuses 2
   Radical operation for chronic empyema of antrum of Highmore 1

IV. Operations on Bones and Joints.
   Wiring ununited fractures 2
   Sequestrotomy 3
   Interscapular thoracic amputation 1
   Excision of loose cartilage 5
   Exploration of knee-joint for bullet 1

V. Operations on Venous System.
   Ligature and excision of varicose veins 13
   Radical operation for varicocele 3
   Hemorrhoids 17
VI. Operations on Testicle, Bladder, and Urethra.

Castration ........................................... 6
Extravasation of urine ......................... 1
Urethral fistula ................................... 2

VII. Operations on Nerves.

Stretching great sciatic .......................... 1
Exposure of peroneal .............................. 1
Exposure of median ................................. 1

REMARKS ON THE OPERATIONS.

Radical Cure of Hernia.—In all cases a modified Bassini's radical operation was done.

Of the fourteen cases, one was recurrent; two were double, acquired; six were single, acquired; five were congenital. In one of the congenital variety the appendix was found in and adherent to the sac; it was removed in the usual manner. There was no special feature with regard to the other cases. Suppuration occurred in one case; the rest healed by first intention.

Laparotomy for Appendicectomy and Appendix Abscess.—In four cases the appendix was removed; two were in the acute stage, in one the appendix showed commencing gangrene of the tip, and in the other the appendix was in a state of general acute inflammation. The remaining two were cases of recurrent appendicitis. In one no less than eight severe attacks had occurred, and the operation accordingly presented some difficulty; the appendix was lying in a mass of inflamed omentum and dipped over the edge of the pelvis, adhering to the external iliac vein. The second case was one in which the patient had suffered from dyspeptic symptoms and pain in the iliac fossa for some years; removal of appendix relieved the symptoms. The three cases of abscess were drained, and the appendix was not removed; one had suffered from a previous attack. All made uninterrupted recoveries.

Acute Intestinal Obstruction due to Gangrene and Empyema of Meckel's Diverticulum.—Briefly, this case presented all the signs and symptoms of an acute appendicitis. At first incision over appendix region the cæcum was found dragged up towards the middle line and adherent to the anterior abdominal wall just below and to right of umbilicus; the incision was closed. A second incision was then made just to right of the middle line, and what was apparently an abscess cavity containing about 4 ounces of pus was opened; on further examination this was found to be a dilated and gangrenous Meckel's diverticulum adherent to the anterior abdominal wall; this was removed and the wound drained. The patient made an excellent recovery. This case was reported in the Lancet (January 4th, 1908).

Acute Intestinal Obstruction due to Strangulation of the First Part of the Jejunum in one of the Duodeno-jejunal Fossa.—This occurred in a man who was at the time in hospital convalescing from a fractured femur.
The symptoms were sudden acute pain in the left flank and vomiting. He was seen almost at once. There was tenderness on deep pressure to inner side of left kidney. The pulse-rate was 70, but did not increase during the first twenty hours. There was slight retching and hiccup, and pain persisted; no flatus passed per rectum. There had been no action of bowels since onset of symptoms, but just previously they had acted twice. The abdomen was flat and moving well; there was no rigidity. Later, however, the pulse began to increase in rate, and in two hours had increased to 100. Operation was performed within twenty-four hours of onset of symptoms. The first part of the jejunum was found distended for about 2 feet, and here it was found caught, but was released quite easily; below the place where it had been nipped the bowel was collapsed. The patient made an uninterrupted recovery. The interesting feature of the case was the early stage at which operation was performed, the case coming under observation at the immediate onset of the trouble, enabling one to make an early diagnosis.

Perforated Typhoid Ulcer and General Peritonitis.—This patient, in the third week of his illness, developed the symptoms of perforation, from which he, however, recovered. About two weeks later, when he was apparently convalescent, he developed symptoms of subacute appendicitis with a well-marked tumour in the right iliac fossa; about a week later he again had an attack similar to the one he had in the third week. Laparotomy was done about forty-eight hours after the onset, and general peritonitis was present, pockets of semi-purulent fluid being found among coils of adherent intestine all over the abdomen; these were emptied and sponged out, the patient's condition not admitting of any further procedure. He died a few hours later; post-mortem a gangrenous ulcerated appendix, with a perforation at the junction of the appendix to the cecum, was found. There was considerable matting of the omentum and intestine in the right iliac fossa, and pus was found here and in the pelvis. Almost completely-healed typhoid ulcers were found in the small intestine. I think the explanation of the case was that a perforation of a typhoid ulcer, situated in the cecum close to the appendix opening, actually did occur in the first place (during the third week); this was shut off by adhesions and an abscess developed, which was to all intents and purposes an appendix abscess; this ruptured secondarily into the general peritoneal cavity.

Liver Abscess.—One liver abscess was drained through the abdominal wall; the abscess was a small acute one, situated at the extreme lower margin of the right lobe, containing about 2 ounces of pus. Exploratory puncture had failed to find it, and as the symptoms pointed rather to a subhepatic condition exploratory laparotomy was performed.

A second case was in a man who was transferred from one of the section hospitals with a history of pain and tenderness in the right iliac fossa. On admission to the station hospital, the chief symptoms pointed
to the liver, which was enlarged in an upward direction; there was no tenderness on deep palpation in the right iliac fossa, but there seemed to be some thickening and resistance in that region. The case was regarded as a primary appendicitis and secondary, either subphrenic or intra-hepatic, suppuration. As the liver symptoms appeared the more urgent, it was decided to explore the liver first. First Operation.—Exploratory puncture revealed a small abscess in the upper part of the right lobe, which was drained by excising a rib. The temperature, however, kept up, and there was tenderness over the margin of the right lower lobe. A marked leucocytosis was present. Second Operation.—An exploratory incision was made through the right linea semilunaris and the liver examined. The upper surface of the right lobe was healthy, but on the under surface, high up, just to the right of the portal fissure, a small area of liver substance, about the size of a five-shilling piece, felt rough and hard; in the left lobe there were also two similar areas. From this it appeared evident that one was dealing with a pyemic condition of the liver; the patient, however, was taking the anaesthetic very badly, so that nothing further was done. The after history of the case is interesting. The symptoms subsided, the temperature coming down to normal slowly, the pain disappeared and the liver gradually became normal in size. Two months later he was discharged quite fit, having put on 1½ stone in weight, only to be admitted within six weeks with an acute sub-crecal abscess obviously in connection with his appendix, which was drained and from which he made an uneventful recovery.

Cholelithiasis and Suppurative Cholecystitis.—The patient, the wife of an N.C.O., had suffered from recurrent attacks of biliary colic for two years. When she was admitted to hospital she had just got over a severe attack and was slightly jaundiced. She had a temperature between 101-103°F., and there was a marked tenderness and resistance in the right hypochondrium. A tumour could be felt extending a hand's-breadth below the right costal margin, dull to percussion and directly continuous with the liver dulness. Operation.—An incision immediately over the tumour, beginning at the tip of the ninth costal cartilage, exposed an enlarged gall-bladder, with walls ½ inch thick; this was sutured to the parietal peritoneum and opened; it contained pus. Two large stones, one about ½ inch in diameter, were removed from the cystic duct. The gall-bladder was drained. Patient made a good recovery from the operation, but at the time of writing the wound has opened and there is a biliary fistula; it is proposed to do an operation to close it.

Liver Abscess.—Eleven cases were treated by excision of a portion of the rib and drainage, with two deaths. In both the fatal cases multiple abscesses were found post mortem. Of the remaining nine cases, one had been operated on for liver abscess two years previously. The remainder presented no special features of interest, but in only four cases was an undoubted history of dysentery obtained.
There is one point to which I would draw attention in the after treat­ment of liver abscess. In three of these cases, after drainage of the abscess, the improvement one naturally looks for did not take place, but on the contrary the temperature kept up, the wound looked unhealthy and showed no inclination to heal, though the discharge had ceased and the tubes had been shortened or removed; the patients appeared in fact to be going down hill, and all this in the absence of any signs of symptoms pointing to a further collection of pus. Arguing partly from the successful results that have attended the treatment of some cases of liver abscess by aspiration and injection with solution of quinine, and partly from observation of the tendency of wounds (operation or other­wise) to become chronic in persons who have suffered from malaria (examination of the blood of all these patients was negative, though in one of the cases the medical history sheet showed an admission for malaria), I gave them intramuscular injections of bi-hydrochloride of quinine, gr. 20, on four successive days. It is no exaggeration to say that in all three cases it acted like magic, the temperature coming down to normal and remaining down after the first or second injection, the wound assuming a healthy appearance and rapidly healing, and the patients’ general condition and appearance undergoing a very marked change. As a rule I gave them further injections, twice a week on successive days, for three more weeks. My own opinion of the cause and effect is that they are due to a latent malaria.

Hepatitis.—Eight cases were explored for liver abscess without finding pus; these cases all cleared up.

Nephro­tomy for Ruptured Kidney.—The patient was admitted somewhat collapsed; he was doing a long-arm balance on the parallel bars when he slipped and fell over one side of the bar, which caught him in the left loin. On admission at 1.30 p.m. his temperature was 97.6°, and pulse 52. He complained of pain referred to the lower ribs on the left side, but recovered from the collapse and seemed more free from pain after being put to bed. At 3 p.m. he began to cry out with pain in the left loin, radiating to the front of abdomen; his temperature was 98° and pulse 82, and the urine passed contained blood. The left flank appeared fuller than the right, and there was an elastic feeling on palpation, the percussion note being dull in the flank and flat all down the left side of abdomen. There was no dulness in the left iliac fossa, and pain was referred upwards towards the diaphragm; he had slight hiccough, and the pulse increased during the next hour to 112. I decided to operate, as the diagnosis of extensive rupture of the kidney with con­tinued hæmorrhage was evident. Operation.—An incision was made parallel to last rib; the perirenal tissue was found full of blood and clot; the kidney exposed after washing the blood away showed a horizontal tear across the posterior surface of the lower pole, extending within a quarter of an inch of the concave border to the convex border, involving
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this and the anterior surface for about a quarter of an inch. There was another slight tear on the anterior surface, just through the capsule. The main tear was about three-sixteenth of an inch deep. The tear in the kidney was packed, and about a dozen long strips of gauze were packed all round the kidney till it was quite tight. Intravenous transfusion was carried out during the operation. The usual methods were adopted later to combat collapse. The plugs were removed under chloroform forty-eight hours later; there was no hemorrhage. The patient made an uneventful recovery and is now doing his duty. Seen one year later, he was in perfect health and had no trouble with the wound.

Trephining Depressed Fracture.—A case of double depressed fracture caused by blows from a loaded stick. One fracture involved both anterior and posterior walls of the right frontal sinus, some small portions of the posterior wall being driven into the frontal lobe. The opening was enlarged and pieces were removed. The other was a depressed fracture over the right motor area. A skin-flap was turned back and a half-inch trephine hole made at one margin of the depressed fragment; the inner table was found extensively fractured, and a large loose fragment was removed. The patient recovered completely, and did not develop any unfavourable symptoms.

Temporo-sphenoidal Abscess.—This case was a transfer from an out-station with a history of symptoms pointing to temporo-sphenoidal abscess. He was unconscious on admission, and was trephined over the temporo-sphenoidal region; no abscess was found, but septic meningitis was present. He died six hours later, and extensive septic meningitis was found, the whole of the convex surface of brain being covered with lymph; streptococci in pure culture were present. The meningitis was secondary to middle-ear disease.

Cerebellar Tumour.—The patient had been ill for two months, having all the symptoms of a tumour involving the right lobe of the cerebellum and extending into the pons. Intense double optic neuritis was present, and he had not improved under anti-specific treatment, though this had been vigorously carried out. He was trephined to drain the subdural space just below and to the right of the sub-occipital protuberance, with the idea of relieving the optic neuritis and preserving his sight, and at the same time exploring the cerebellum for a removable tumour. The patient did not survive the operation many days. No tumour was found, but there was a great gush of cerebrospinal fluid on opening the dura mater, and strands of catgut were left in situ to drain the space. Post-mortem.—There was marked pachy-meningitis of chronic nature, evidently syphilitic. No tumour was present.

Frontal Sinusitis.—This occurred in a man who, during the past five years, had several operations performed for suppuration in the accessory sinuses of the nose. He eventually died from thrombosis of the cavernous sinus and meningitis.
Chronic Middle-ear Disease.—Two cases were submitted to the complete mastoid operation, in one of which the whole of the mastoid cells were involved from the antrum to the apex; necrosis had taken place into the digastric fossae, with formation of a small abscess in the neck. Both cases were invalided, the one described above being very much improved; the tympanum was not interfered with in this case.

Exploratory Incision for Fractured Skull.—This was done for a man who, after a fall on the head, had persistent localised headache and tenderness, subnormal temperature, and a slow pulse. No fracture was found, but the symptoms cleared up.

Operations on Throat and Nose.—Tracheotomy was performed once for cut throat involving the larynx.

Draining of ethmoid sinuses for chronic suppurative disease was done in two cases; considerable improvement followed in one case, but very little improvement occurred in the second one. The patients were invalided. One operation was done for chronic empyema of the antrum; this was successful, but the patient later developed frontal sinusitis and eventually died.

Wiring Ununited Fractures.—Two cases were operated upon, both of which did well, the bones uniting firmly after operation.

Sequestrotomy.—Three cases, one of the ulna and two of the tibia, after injuries.

Loose Cartilage.—Five cases were operated upon, four for loose internal and one for loose external semilunar cartilages. All did well, and returned to duty within a month or six weeks.

Exploration of Knee-joint for Bullet.—A revolver wound involving the joint. A bullet was found amidst the fragments of bone and tissue débris at the outer aspect of the joint. The wound and joint were irrigated and drained for twenty-four hours, and healed by first intention. The patient was recovering the use of the joint when invalided home.

Interscapular Thoracic Amputation.—The patient, a man, aged 26, was transferred from an out-station to Rawalpindi for operation. The history of the case was: Four months previously he had been in hospital with pain in the left shoulder, which had improved after fourteen days' treatment. On April 18, 1907, he was again admitted for the same thing. The pain was dull in character, with very acute exacerbations, and radiated down the arm. The shoulder-joint was quite free in its movements, but the scapula was prominent, projecting very much at its inferior angle. There was prominence in front of the clavicle on that side, and pain and tenderness over the clavicle and scapula. He could not raise the hand to the head. The left pulse was diminished in volume in comparison with the right. The pain became very much worse, in fact at times was agonising, and the signs increased. A rapidly-growing tumour (probably sarcoma), springing from the under surface of the scapula, pressing on the brachial plexus and subclavian artery, was diagnosed. A fore-quarter
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Amputation was done, the inner third of the clavicle being left, the subclavian vessel being secured first. The growth, about the size of two clenched fists, was springing from the under surface of the scapula, involving the brachial plexus and displacing the large vessels. The patient made an uninterrupted recovery, and I heard four months later that he was in perfect health and increasing in weight. The growth was found to be a round-celled sarcoma.

Operations on Venous System. Varicose Veins.—Thirteen cases were operated on for this condition; in five cases both legs were affected. In all cases ligature of the internal saphenus in two places at the saphenus opening and excision of the intervening portion, and at the same time ligature of the posterior femoral branch where it joins the saphenus vein, were done. As a rule any prominent branches of veins below the knee were also dissected out, and if the radicles of the external saphenus vein were also varicose this vein was treated in the same way as the internal, just at the point where it pierces the deep fascia to join the popliteal vein. The results were satisfactory; no cases have so far been admitted with recurrence.

Varicocele.—Only three cases have been operated upon for this condition, which is rather curious, as one is led to believe that any slight tendency to this condition is aggravated by residence in a hot climate. The high operation was performed in all.

Hemorrhoids.—Seventeen cases of internal hemorrhoids were operated upon. In one case Whitehead's operation was done; the patient, an elderly man, had been operated on twice previously. The result was good. He was seen a year after, when he stated that no further trouble had occurred; on examination there was no suggestion of anal stricture. The other cases were either treated by ligature and excision, or by clamping excision and continuous suture (Mitcheli's method).

Operations on Testicles.—Unilateral castration was done on six occasions, three times for tubercular disease, twice for syphilitic disease with hernia of testis, and once for traumatic orchitis with abscess in the testicle. All did well. Two of the tubercular cases seen from time to time were in perfect health.

Extravasation of Urine.—This occurred in a man, aged 35, who was in hospital with malaria. He made a good recovery, and a full-sized bougie could be passed easily before discharge from hospital.

Urethral Fistula.—Two cases came under observation; both were secondary to lacunar abscess behind stricture, and were treated by excision of fistulous tract, dilatation of stricture and tying in a silver catheter for a few days, and periodic dilatation by bougies later. Both were cured.

Operations on Nerves.

Great Sciatic.—This was stretched by open method for chronic sciatica of some years' standing; temporary relief resulted.
Peroneal.—This was exposed and freed from cicatricial tissue; some slight improvement in the foot drop was taking place when he was invalided home.

Median Nerve.—This was exposed for partial paralysis following an impacted Colles fracture which had not been disimpacted. The nerve was involved in fibrous tissue at its outer side; it was freed and the scar tissue removed. I had not the opportunity of seeing the progress of the case.

I am much indebted to Captains Davidson and Kelly, R.A.M.C., for permission to publish some of their cases, which are included in the above, viz., the Interscapular Thoracic Amputation and some of the Liver Abscess cases.

REPORT ON A FURTHER SERIES OF BLOOD CULTURES FROM SEVENTY-FOUR CASES OF TYPHOID AND PARATYPHOID FEVER.¹

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In the September number of last year's Corps Journal, I published a series of fifty-five cases of typhoid and paratyphoid fever in which blood-culture methods had been employed. In eighteen of these cases, the broth method of culture was employed, whilst in the other thirty-seven cases, the patients' blood—drawn with antiseptic precautions from a finger—was placed in sterile ox-bile (Kayser and Conradi's method). The superiority of the bile method of culture (50 per cent. of successes as against 20 per cent. by using broth) led to the speedy abandonment of the broth method; and in the series of seventy-four cases enumerated below, Kayser's bile method of culture has alone been employed.

The Method Employed.—This was fully described in the article which appeared in last September's number of the Corps' Journal, but may be briefly restated. The patient's finger is sterilised by the application of a wet dressing (1-20 carbolic, or preferably 1-500 perchloride of mercury) an hour or two before the culture is to be taken. The pulp of the finger is pricked with a broad-bladed needle, the blood collected in a sterile pipette, and transferred to a small test-tube containing sterile ox-bile. By the intermittent application of a tourniquet to the patient’s finger, and if necessary a second prick or two, it is comparatively easy to obtain 1 cc. or more of blood from a finger. The admixture of blood and bile in the test-tube is incubated for sixteen hours, and a drop of the incubated mixture smeared with a glass spreader over an agar plate. After a further sixteen hours' incubation the plates are ready to examine.

¹ The diagnosis of typhoid and paratyphoid fever was made by means of cultures taken from the blood in these diseases.