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TWO MISLEADING CASES.

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(Continued from p. 222).

Case 2.—Pyogenic Abscess of the Kidney.

Driver B., Royal Army Service Corps, aged 19. Service one year.

This patient was admitted to the Medical Division of the Royal Herbert Hospital on the morning of November 24, 1931, with a history of having reported for seven consecutive days at the Medical Inspection Room complaining of abdominal pains and having vomited once. Nothing bearing on the case could be elicited either from his past or his family history.

On admission the temperature was 100°4°F., pulse 108. He complained of pain and tenderness on pressure over McBurney’s point. The bowels were constipated; the tongue was slightly furred. No rigidity of the abdomen could be detected and no hyperesthesia was present. Rectal examination was negative. The urine was normal and contained no deposit. The physician in charge of the case diagnosed appendicitis and called in surgical assistance. An obstructed appendix was regarded as the most probable explanation and laparotomy by a right paramedian incision was performed the same afternoon. A thickened, kinked and adherent appendix, showing slightly injected vessels, was removed, the abdomen closed and the patient returned to bed. The wound healed by first intention. On the second morning after operation a severe iodine rash was noted; the bowels were open. Convalescence appeared normal except for the presence of a continued pyrexia, associated with a slight cough. On December 6, 1931, the fourteenth day after operation, the temperature was still running between 100° to 101°F.; pulse 80 to 90. The wound was well healed. No abdominal discomfort was complained of and the bowels were opened regularly. Examination of the chest suggested slight dullness at the right base, but no adventitious sounds could be heard. X-ray of the chest was negative. A culture of the urine was sterile; it contained no blood, pus or debris. Total red cell count was 5,150,000, total white cell count 17,000. Haemoglobin index was 76 per cent. The differential count indicated a slight relative increase in polymorphonuclear leucocytes. On December 12, it was noted: “Patient looks ill with a complexion of a pale earthy tint. Pyrexia continues, it has become more irregular, varying from 99·8°F. in the morning to 103·8°F. in the evening, and being of the
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'Alpine peak' type. The patient still complains of a short cough, but no sputum is produced even after administration of an expectorant mixture." No abnormal physical signs could be discovered. The blood was sterile on culture and Widal's test for enteric group was negative.

On December 14, the Wassermann reaction was pronounced negative, the patient stated he felt better and the temperature at its maximum was lower (99°4°F).

December 18: Remittent temperature, high in the mornings, continues. Differential and total white cell counts repeated every other day showed a relative decrease in polymorphonuclears with a corresponding increase in small and large lymphocytes. The total white cell count was gradually diminishing. On this date it was noted that some enlarged lymph glands were present in the neck, axille and groins. At times the patient was subject to profuse sweats. There were urticarial spots on the abdomen. The urine was still normal.

December 25: The cerebrospinal fluid was examined and found normal as to cell count and composition.

Fæces were examined and reported negative for tuberculosis. X-ray of abdomen showed no evidence of a foreign body resulting from operation. No enlargement of the liver could be detected, nor any collection of fluid in chest.

December 29: The patient first admitted that for the preceding seven days he had been conscious of some slight discomfort in the right loin when subjected to deep pressure. On palpation there appeared to be slight guarding of the overlying muscles. Suspicion could at last be attached somewhere and was eagerly followed up the following day by an intravenous pyelography, using abrodil, with the valuable results shown by tracings from the actual skiagrams, reproduced in fig. 1.

December 31: Cystoscopy with retrograde catheterization of the right ureter was carried out. No abnormality was noted round the right ureteric orifice and no tuberculous ulceration could be seen. Twenty per cent sodium iodide solution was injected into the pelvis of the right kidney after passage of the ureteric catheter, and seventeen cubic centimetres of this solution were introduced before the patient complained of any discomfort. The radiogram showed the shadow reproduced by the exact tracing, which is exhibited in fig. 2.

An injection of four cubic centimetres of four per cent indigo carmine solution intravenously revealed a delay of five to seven minutes over the normal before any colouring matter was recovered from the pelvis of the right kidney. A rigor followed this procedure, but the patient responded well to appropriate treatment.

On this day, also, urine was collected in sterile test-tubes direct from the right kidney by means of the ureteric catheter and after centrifugalization and decanting the supernatant fluid, one cubic centimetre of the residue was inoculated into a guinea-pig, but without any effect.
January 1, 1932: It was noted that the temperature has touched normal for the first time for five weeks.

January 5: Pyrexia continues but is less marked, 100° to 101°F. at nights only. The patient is taking a T.B. diet well.

January 15: Blood-urea, 43 milligrammes per cent; urea concentration, 2.33 per cent; pyrexia is gradually subsiding.

Between January 20 and January 26, there was a hot controversy between the radiological and surgical departments of the Royal Herbert Hospital as to the correct interpretation to be placed on each pyelogram considered singly and together; peace was restored by referring judgment to three separate but highly eminent radiologists.

Fig. 1.—Abscess of kidney, R. Tracing of pyelogram of both kidneys obtained five minutes after intravenous injection of abrodil. Pelvis and calyces of R. kidney show marked deformity with considerable elongation and narrowing of the top and bottom calyces and apparent absence of the two middle calyces B and C, vide fig. 2.

Considering the X-ray findings alone, one pronounced that the radiological evidence was sufficient to justify exploration of the right kidney, while the other two considered that the X-ray findings were not incompatible with the normal kidney.

At this stage the author of these notes could find no one to support him in his explanation of the pyelograms, which was as follows:—

Fig. 1 fails to show the middle calyces owing to destruction of the middle third of the right kidney by disease, which, as the result of pressure, has caused well-marked elongation of the highest and lowest calyx. Since the middle third of the kidney is probably destroyed, no absorption of urine is occurring from the blood-stream by those tubules which collect and ultimately distribute to the two centre calyces.

Fig. 2 shows slight hydronephrosis with malformation of the upper
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centre calyx, probably the result of pressure. From the comparative normality of the retrograde pyelogram it was deduced that the lesion was rather one of the collecting apparatus of the kidney than of the distributing apparatus.

On January 26, the patient was allowed up for the first time and by January 31 all symptoms had subsided. In view of this improvement, together with the general trend of expert opinion, it was decided to do nothing operative. A note made on this date continues as follows: "It is believed that the underlying condition may have been a pyogenic abscess of the kidney from which the patient has recovered spontaneously."

Shortly afterwards the patient left hospital on twenty-eight days' leave, with a recommendation to be kept under observation for further symptoms.

Driver B. was re-admitted to hospital on March 8, shortly after return from leave, complaining of a slight persistent ache in the right loin. His

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Fig. 2.—Abscess of kidney, R. Tracing of pyelographic shadow of R. kidney obtained by X-ray after retrograde catheterization of R. ureter and introduction of seventeen cubic centimetres of twenty per cent sodium iodide. Appearance suggests slight hydronephrosis. Note loss of indentation in calyx B and lack of definition in outline.
temperature and pulse-rate were normal, but his complexion was muddy; he looked depressed, and his vitality appeared to be low. He stated that while on leave he had been troubled by two or three attacks of epistaxis.

On examination of the abdomen there appeared to be a point of maximum tenderness just below the gall-bladder. Examination of the routine and twenty-four hour specimens of urine was entirely negative. The blood-pressure was 160 millimetres of mercury.

On March 15, the Consulting Surgeon to the British Army was asked to see the case and gave his opinion that exploration of the right kidney was definitely indicated. The most probable diagnosis was thought to lie between a closed tuberculous focus in the kidney or alternatively a closed pyogenic focus secondary to some source of sepsis elsewhere (in this case probably the appendix which had been removed).

On March 19, a second blood-urea examination gave a result of 45 milligrammes per 100 cubic centimetres of blood. Operation was deferred temporarily for considerations of leave and in the meanwhile, on March 28, a fresh rise of temperature was noted which continued remittently up to April 4, the day fixed for operation. The temperature varied between 99°F. in the morning and 102°F. in the evenings. After due preparation, exploration was carried out on the morning of April 4, under intratracheal (ether) anaesthesia.

The right kidney was exposed through a six-inch oblique incision in the right lumbar region, parallel to the last rib. On incising the perinephric fascia about half a teaspoonful of pus escaped, which appeared to have come from the right kidney. No definite abscess cavity could be located outside the kidney and at this stage the operator paused to consider the alternatives of (1) simple drainage of the perinephric capsule by a rubber drainage tube or (2) nephrectomy with drainage of the resulting cavity. Palpation revealed a large nodular kidney about fifty per cent bigger than the normal, very adherent to its surroundings, particularly towards the upper pole. Being by no means certain that the condition was not primarily tuberculous, nephrectomy won the day. With considerable difficulty the adhesions were divided, partly with the gloved finger and partly by ligature and cutting. Finally a large morbid kidney was brought to the surface and removed as soon as division of the ureter (as low down as possible) and the vessels could be effected. The wound was closed in layers, and a large rubber drainage tube brought out through the lower angle of the wound. The patient stood the operation well. Pus was noted to be coming from the drainage tube the fifth morning after operation and two days later the lumbar wound broke down necessitating removal of stitches.

The subsequent course of the illness was that of any serious pyogenic infection situated deeply and extraperitoneally in the upper abdomen. On May 11, resection of the eleventh rib was performed on the right side under gas and oxygen anaesthesia to permit of the transthoracic drainage of a collection of pus in the posterior subdiaphragmatic space,
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by means of a large rubber drainage tube. The following day, May 12, the patient's condition was so critical that transfusion of 500 cubic centimetres of citrated blood was urgently demanded and successfully given as a life-saving measure. Routine irrigation and dressing of the two wounds with various antiseptics seemed to produce no great advance either in the patient's general or local condition until specially energetic measures were applied by Major G. S. McConkey towards the end of May. Thereafter a rapid recovery ensued. Both wounds healed, the patient's complexion cleared, his appetite increased, and temperature and pulse fell to normal.

On July 11 he was fit for discharge from hospital in normal health. On account of three large scars and a single kidney he was waiting for the verdict of an Invaliding Board.

A report on the condition of the diseased kidney removed by operation which has been rendered by the pathologist to the Royal Herbert Hospital, is as follows:—

"The specimen is a right kidney removed by operation. It is pathologically enlarged, appearing lobulated in outline and reminiscent of the foetal type. The capsule is thickened and generally adherent to the cortex. There is a laceration near the upper pole corresponding to an abscess cavity the size of a walnut situated just below the upper pole. Bisection of the kidney shows that only a small quantity of normal renal tissue is present at both poles and that these areas are connected by a thin layer of healthy tissue which shuts off the diseased area from the pelvis and calyces.

"The area of disease includes a rough-walled abscess cavity, roughly spheroidal in shape, and about one inch in diameter, situated just below the upper pole. Apart from the areas of kidney tissue already referred to, the remaining central two-fourths is composed entirely of newly formed fibrous tissue.

"Microscopically the abscess cavity is pyogenic in type and no evidence of tuberculous disease can be found throughout the kidney."

The foregoing case is offered for publication on account of certain important conclusions which arise out of the facts herein presented.

(1) The importance of intravenous pyelography in difficult cases especially when combined with the older method of pyelography by means of ureteric catheterization. In this connection attention is invited to "Further Studies in Intravenous Pyelography" by R. J. Willan and James H. Saint (British Journal of Surgery, April, 1932, page 622).

(2) The value of early exploration of a kidney when thorough investigation points to a lesion in that organ. In this case it would appear that a pyogenic closed focus in the right kidney, secondary to a primary focus elsewhere, either healed spontaneously or became quiescent. The patient and the surgeon became lulled into a false security. Delay in operation resulted in infection of the perinephric space with all its attendant trials and dangers.
(3) Nephrectomy was the correct procedure since a second operation for the removal of the kidney would have been an impossibility. The alternative would almost certainly have been a permanent lumbar urinary fistula.

(4) A very gross amount of disease may be present in a kidney without any evidence obtainable from examination of the urine. It is in such cases that abrodil or an equally effective substitute will play a most important rôle.

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**BLOOD DONORS.**

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A.C.I. No. 70 of March 2, 1932. Record of soldiers who volunteer as "blood donors" in connection with transfusion of blood.

(1) In the treatment of severe cases of haemorrhage and of certain diseases it is often necessary to call for volunteers to give some of their blood for immediate injection into the veins of a patient. Such volunteers are called "blood donors."

(2) In order to ensure that suitable blood donors are always available, it has been decided that a list of soldiers who volunteer as such and who have been accepted as suitable by a medical officer, shall be maintained in each unit. The numbers required are six in each regiment of cavalry, battalion of infantry or other units of equivalent size, and proportionally smaller numbers in the units which are smaller.

(3) The O.C. unit will call for volunteers and arrange direct with the O.C. the nearest military hospital for them to be tested. If a man is accepted an entry will be made on his A.F. B.178 (Medical History Sheet), stating his blood-group, that he is free from communicable disease and the date of examination.

(4) The O.C. unit will call for volunteers as necessary to replace blood donors who have permanently quitted the unit, or who have become unsuitable on medical grounds.

Consequent on this instruction a large number of volunteers came forward for grouping.

**METHOD OF TYPING.**

The method of typing adopted after trial of several methods is as follows:

The donor's corpuscles are diluted in normal saline to approximately 1 in 20. At first a leucocyte counting pipette was used for this, but later the dilution was done roughly with ordinary Pasteur pipettes in Dreyer's dilution tubes.

One drop of Type 2 and one of Type 3 sera were then placed on a slide, a drop of the diluted corpuscles added to each and mixed with a matchstick and by rocking the slide; the result is easily read by the naked eye and where no agglutination is seen its absence is confirmed by microscopic examination. Advantages of this method are that diluted blood from a number of donors up to ten can be taken at the same time,