we published during the war. I did not mean to suggest that a feeling of distension like that which he felt before his haematemesis is hysterical, but a feeling of this kind is in many cases the exciting cause of hysterical aërophagy.

In reply to Dr. Hobbhouse, the digestive symptoms which follow exhaustion or neurasthenia are entirely distinct and need entirely different treatment from the symptoms resulting from the disordered emotions in psychasthenia.

Dr. Parsons must have entirely misunderstood me if he thought I would attempt to treat by psychotherapy a case such as the one he related of death from Addison's disease. Psychotherapy is, of course, only indicated in digestive symptoms which result from hysteria and psychasthenia, and nobody in his senses would suggest that Addison's disease is of this nature.

Finally, I should like to indicate what I believe to be the best method of treating the digestive psychoneuroses. I did not use the word "psycho-analysis," as this has come to be regarded as synonymous with the discovery of a sexual origin of disease and the employment of certain elaborate methods of examination, but a psychological analysis is none the less essential if we wish to discover the psychical origin of hysterical and psychasthenic symptoms. This can almost invariably be done by tactful cross-examination when we have obtained the patient's confidence. The symptoms can then generally be cured within a comparatively short period by explanation, combined in some cases with persuasion and re-education.

SUBACUTE PERINEPHRIC ABSCESS OF NON-RENAL ORIGIN.

BY

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PERINEPHRIC ABSCESS, not secondary to disease of the kidneys, is a fairly common condition which is frequently misdiagnosed in the early stages. When accompanying renal disease attention is more directly focussed on the kidney region and associated abscess is unlikely to be missed, but the insidious development of metastatic perinephric abscess and the paucity of localizing symptoms at first are responsible for many mistakes and make the subject one worthy of special consideration.

ANATOMY.

The kidney is closely invested by its true capsule and enclosed within the fibro-fatty capsule, the anterior and posterior layers of which blend above with the fascia covering the diaphragm and below fuse an inch or two below the lower pole of the kidney. Laterally the layers soon fuse and medially the renal pelvis is invested by the layers which are lost in the fascia in front of the vertebrae. The fibro-fatty capsule is lax and cellular, and is not very vascular—a fact which may account for the feeble resistance which is offered when microbial infection takes place. The capsule rests upon the diaphragm above and the psoas and quadratus lumborum below, but there is a layer of fascia which intervenes, the thin diaphragmatic fascia and the dense anterior lamella of the lumbar fascia in the upper and lower parts respectively. Anteriorly, where the kidney lies in contact with various viscera the fibro-fatty capsule is not so cellular and the peritoneum is in relation with it in several places.

As might be expected from anatomical considerations, the majority of abscesses develop posterior to the kidney. Of 14 perinephric abscesses under my care, 8 were retro-renal, 2 were above, 3 were below, and one was intra-peritoneal in front of the kidney.

ETIOLOGY.

The term subacute is meant to exclude cases of tuberculous infection which sometimes develop apart from any renal or vertebral focus.

The common organism found in the abscess is *Staphylococcus aureus*. Of 12 abscesses in which the nature of the organism was reported upon, 8 contained the staphylococcus, 3 a streptococcus, and one a bacillus of undetermined nature.

The source of origin of the infection is often doubtful, but in general the cases can be referred to two groups: (1) Metastatic cases following a suppurative process elsewhere in the body, especially whitlows, carbuncles, or boils; (2) those associated with or consequent to dysentery or diarrhoea. Three of my cases developed immediately consequent on a whitlow. This source of metastatic infection has been frequently noted. Several observers (notably Israel) have drawn attention to the fact that sometimes a perinephric abscess is the result of extension of a small cortical renal abscess of metastatic origin. One of my cases seemed to fall into this category, for there was a small localized abscess in the cortex of the kidney communicating with the perinephric abscess. Such cases do not present urinary symptoms. Four cases were associated with dysentery or diarrhoea, but the organism in all four was a septic organism (three staphylococcal, one streptococcal), so if there be any direct connexion between the two conditions it must be that the inflammatory condition in the colon permits septic organisms to escape more readily. In one patient who on clinical grounds had been diagnosed as a case of typhoid fever (though no laboratory confirmation was forthcoming) a bacillus was found in the abscess, but its exact nature was not determined. In several cases it was difficult to find any focus from which infection might have occurred.

SIGNS AND SYMPTOMS.

The course of a perinephric abscess may be divided into two stages:

- I. The stage of symptoms only.
- II. The stage when signs are present and may predominate.

I.

The onset is usually very insidious. The patient feels out of sorts, and when he consults a doctor the only constant feature is slight fever. The morning temperature may be normal; in the evening it is usually raised to 100° or 101° F. Sometimes pain in the side below the ribs is complained of, but no indication of any serious trouble around the kidney can be elicited. The absence of local indications causes the condition to be mistaken for a continued fever, such as one caused by the typhoid group of organisms.

Occasionally the onset is more acute, with a rigor or "chill" and general pains such as may accompany an influenza attack. In the absence of local symptoms this may easily mislead and cause a diagnosis of influenza to be made. Vomiting is occasionally noted.

II.

After a variable period during which the patient's general condition depreciates considerably, whilst the fever continues or increases, definite signs appear either in the abdomen or in the thorax or in both. It is not usual for diagnosis to be made until the signs appear. This accounts for the very variable time in the course of the disease that the cases come to the surgeon. The average time in my series from the commencement of the disease until surgical intervention was approximately three weeks—a fact which gives clear indication of the common absence, or paucity of localizing symptoms in the early stages of the condition.

In the second stage the symptoms comprise irregular fever, a varying grade of anaemia, loss of weight consequent on the fever, and pain in the subcostal region. The signs are tenderness on pressure in the angle between the last rib and the erector spinae, and evidence of compression of the lung or effusion of fluid in the lower part of the chest; or if the abscess is subnephric a swelling in the right loin. There may be flexion of the thigh owing to psoas-irritation. Blood examination will show a leucocytosis.

The fever is remittent and may reach 101° to 103° at night. The anaemia is progressive and may become extreme. The pain is of a dull aching nature, sometimes referred to the hypochondrium, more often felt in the loin, immediately under the rib margin. In every case pain is elicited on deep pressure at the erector-costal angle.

The signs in the thorax are sometimes those of compression of the lung evidenced by dullness and other signs of consolidation, but more usually pleural effusion causes diminution of breath sounds at the base of the lung.

There may be a few moist sounds heard on auscultation. The pleural exudate is sometimes clear serum or may be sero-purulent. In one case in which there was a thick-walled abscess containing thick pus below the diaphragm there was a slight sero-purulent effusion containing streptococci in the pleural cavity. The leucocyte count averaged about 15,000 in those cases examined; the smallest count was 10,600 and the largest 27,500. A differential count never showed any great variation from the normal proportions.

The signs and symptoms of an intraperitoneal perinephric abscess may be baffling. The only case I have seen was a sequel to a retroperitoneal abscess on the left side. It developed when the patient was convalescent from the former condition, and was clearly due to infection spreading through the peritoneum. The diagnosis was not made for certain until an abscess caused a definite swelling in the left hypochondriac region.

In the late stages of a perinephric abscess there may be a fullness in the loin, and oedema of the skin and subcutaneous tissues may develop in that region. This is a rare event, however, since the lumbar fascia is very dense and prevents the pus from reaching the surface easily.

DIAGNOSIS.

Diagnosis is usually easy when the condition is well developed. An irregular fever, accompanied by leucocytosis and pain in the loin (especially elicited by pressure in the erector-costal angle), with either a lump in the right lumbar region or the signs of pleural effusion, or basal congestion of the lung on the same side, make the diagnosis probable. Examination of the urine is usually negative; the presence of pus would be in favour of pyonephrosis. When in doubt, needling of the subphrenic region is necessary to confirm the presence of pus, and in some cases exploration by incision is indicated.

Differential Diagnosis.

Nine out of the thirteen patients were either living in tropical or subtropical countries, or had dwelt in them comparatively recently. That the diagnosis which had been made prior to the calling in of the surgeon was in three cases malaria was not therefore surprising. Two other cases had been diagnosed hepatitis of dysenteric origin. Two cases were thought to be enteric fever, one pleural effusion, another empyema, and finally one had been taken for influenzal pneumonia.

In a tropical country the continued irregular fever very naturally leads to a tentative diagnosis of malaria, and this is sometimes apparently confirmed by the finding of the parasite in the blood. In two cases in my series this was the case. But antimalarial treatment caused no improvement in the symptoms, and the local signs of perinephric abscess gradually asserted themselves. An increased leucocyte count is an important differentiating factor in diagnosis. The leucocyte count is also of value in distinguishing enteric fever from perinephric abscess, for as a rule there is no increase in the leucocytes in typhoid and paratyphoid fever. It would appear as if the provisional diagnosis of enteric fever may somewhat lull the medical attendant into a false satisfaction that the full diagnosis has been made, for the perinephric symptoms were in two such cases allowed to advance considerably before attention was focussed upon them. Examination of the faeces for the causative bacilli and of the blood serum for agglutinative reaction to the bacilli should serve to exclude enteric fever definitely. In the second stage, when signs appear at the base of the lung, and where referred pain may be complained of in the hypochondrium, there is likelihood that pleural effusion, empyema, or basal pneumonia may be diagnosed on the one hand, or hepatitis or even liver abscess on the other. Amoebic hepatitis would be suspected if the faeces contained amoebae; it can be readily excluded if the symptoms do not rapidly abate on the administration of emetine hydrochloride (gr. j per diem subcutaneously). With liver abscess the history is often different, and there may be pain in the shoulder. If there is no swelling in the loin the only way certainly to diagnose is by exploration by a hollow needle. This is best carried out under an anaesthetic. The needle should be one with a good sized lumen and at least three inches long. It should be attached to the barrel of a 10 or 20 c.cm.

Record syringe, of which the suction power should have been previously tested. The place for exploration should be the eighth or ninth space in the axillary line, or the ninth or tenth space in the scapular line. If no pus is found, then the needle may be thrust in any dull spot in the spaces above that may seem a possible site of the abscess. With a subphrenic abscess about the upper pole of the kidney it is quite common to find a serous effusion in the pleural cavity, and on one occasion in my series the effusion was turbid and found to contain streptococci. If clear serous fluid is withdrawn by the needle the point must be in the pleura, for serous effusion under the diaphragm is exceedingly rare. The needle should be withdrawn and inserted in a lower space to a greater depth, when pus should be found.

In retronephric or subnephric abscesses the swelling in the loin will be obvious, but the likely diagnosis will be pyonephrosis. A pyonephrosis usually causes a more prominent swelling anteriorly than does a perinephric abscess, and there is nearly always some history of urinary trouble. An x-ray photograph to demonstrate any stones, and examination of the urine for presence of pus and to exclude tubercle, are necessary procedures. A radiogram is also useful in demonstrating any displacement upward of the diaphragm or indication of any abscess above the liver, whilst the outline of an enlarged kidney might be seen. Cystoscopy may also be of use in excluding renal disease.

A more acute perinephric abscess needs to be differentiated from a retrocaecal perforated appendix. In such cases a small abscess may develop retroperitoneally below the kidney and diagnosis may be difficult unless the history of the case be carefully borne in mind. When a perinephric abscess causes irritation of the psoas with consequent flexion of the hip the subsequent lump may at first draw attention more to the hip-joint than to the psoas region. I have known a streptococcal subnephric abscess mistaken for tuberculous hip disease.

PROGNOSIS.

Uncomplicated extraperitoneal perinephric abscess of non-renal origin is a condition which permits us to give an excellent prognosis if skilled surgical assistance is available. Every case I have treated recovered, although two or three had reached an extremely debilitated condition before the abscess was detected.

The prognosis of intraperitoneal perinephric abscess is more doubtful. The only case in this series was a streptococcal infection which followed a retroperitoneal infection, and which led to infection and necrosis of part of the spleen with a consequent fatal result. We are not concerned here with intraperitoneal abscess developing in the perinephric region consequent on contiguous inflammatory conditions such as appendicitis or leaking duodenal ulcer.

TREATMENT.

The treatment of perinephric abscess is by incision and drainage. In retronephric and subnephric cases the procedure is very simple. Under an anaesthetic, and with the patient lying on the sound side, an oblique incision about two inches long is made at the outer border of the erector spinae about half an inch or an inch below the last rib. The soft tissues are incised until the middle lamella of lumbar fascia is reached and the quadratus lumborum seen. The latter muscle is retracted, and the anterior lamella of lumbar fascia, which is often thickened, is incised. The finger is then inserted into the perinephric space and the indurated or oedematous abscess swelling identified. By means of a director, sinus forceps, Spencer Wells forceps, or the finger, the abscess is opened and a rubber drainage tube inserted. The wound is loosely sewn up and the tube stitched to the skin.

The drainage of supranephric abscesses is often more difficult. They may be opened by a transcostal route, but I have always managed to drain them by a subcostal incision. In one case, though I could just reach the induration through an incision made in the loin at the outer border of the erector spinae, yet I found it impossible to open it. I therefore made a costal incision, excised a portion of one of the lower ribs, opened the pleura, and then, by bimanual manipulation, was able to open the abscess through the original incision. The costal incision was promptly sewn up and kept free from contamination.

In this case the slight downward movement of the diaphragm, consequent on opening the pleura, facilitated the opening of the abscess from below.

I append an account of a case of bilateral perinephric abscess which came under my care in Baghdad two years ago. Such a condition merits recording because of its rarity and difficulty in diagnosis.

Pte. G., of the Highland Light Infantry, came under my care in May, 1918, with the history of a month's continued fever. He had been treated for two weeks as enteric fever. The blood examination showed no malaria parasites but there was a leucocyte count of 23,250. The differential count showed polymorphs 77, lymphocytes 18, large mononuclears 4, transitional 1. When I saw him there was clear evidence of a left perinephric abscess. On May 23rd, 1918, I opened an abscess which lay behind the left kidney. The abscess cavity was bilocular, one small loculus being inside the true capsule of the kidney, indicating a possible origin from a small metastatic cortical renal abscess. The urine had shown no pathological changes.

After operation the patient's condition improved slightly but the fever continued. The sinus was explored on June 6th, 1918, but no other pocket of pus was found. On June 14th the leucocyte count was found to be 26,000, and the patient had become very anaemic and emaciated. For some days he had complained of pain in the right hypochondrium and had a slight cough, and there was evidence of slight basal congestion of the right lung. On June 15th I once more explored the left-sided sinus unsuccessfully. I then needled the liver, the right base of the chest and the right subphrenic region, but found nothing pathological. With the concurrence of Colonel Hugo, I.M.S., I then made a right subcostal incision, and inserted a finger well up under the diaphragm above and behind the kidney, and to my relief opened an abscess in that position. Both abscesses contained staphylococci only. An uninterrupted recovery followed the drainage of the second abscess. In the case of this abscess the only localizing signs were slight tenderness under the right costal margin, and slight congestion of the right lung base.

Summary of Thirteen Cases of Retroperitoneal Perinephric Abscess of Non-renal Origin.

Case.	Cause.	Previously treated as	Time Elapsed before Diagnosis Made.	Position.	Leucocytes.	Micro-organism.
1	? Enteric	Enteric fever	9 wks.	Retro.	—	A bacillus.
2	Dysentery	Hepatitis	2 wks.	Retro.	10,600	Staph.
3	Dysentery	Hepatitis	10 days	Sub.	—	Staph.
4	Whitlow	Pleuritis	2 wks.	Retro.	15,000	Staph.
5 A	?	Enteric fever	5 wks.	Retro. (l.)	23,250	Staph.
5 B	?	Enteric fever	—	Supra. (r.)	26,000	Staph.
6	Whitlow	—	—	Retro.	15,700	—
7	Whitlow	Malaria	4 days	Retro.	14,000	—
8	Diarrhoea	Malaria	2 days	Sub.	—	Staph.
9	?	Influenza pneumonia	4 wks.	Retro.	—	Staph.
10	Diarrhoea and Carbuncle.	Empyema	2½ wks.	Supra.	27,500	Strept.
11	?	?	7 wks.	Retro.	—	Staph.
12	Influenza	Hip disease	4 wks.	Sub.	—	Strept.

All the cases recovered.

MENSTRUATION DURING SCHOOL LIFE.*

BY

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As the medical inspector of a large girls' school I have had the opportunity of obtaining details, over a period of five years, on the menstrual function in 1,200 healthy girls, the larger proportion of them boarders. Owing to my absence abroad during part of the war, the notes were kept for two years by Dr. Eveline Cargill, to whom I am greatly indebted. The girls are examined medically every year, and, in addition to the health chart, a note-sheet on the particulars of menstruation is kept for each girl, dating from the first time she is examined after the onset of the catamenia. In many cases menstruation had begun several years before the first interview. The girls,

* The substance of a paper communicated to the Gloucestershire Branch of the British Medical Association.

whose ages range from 9 to 21 years, are in sound health and are the children of educated parents in easy financial circumstances.

The main objects of these investigations were:

1. To determine the proportion of girls suffering from any disability during menstruation.
2. To inquire into the habits of each girl during her period, with a view to tracing the effects of these habits on her health.
3. To watch the effect of school life on the menstrual function, especially with regard to study, exercise, and general hygiene.

The results of some of the inquiries are shown in Table A, but some of the terms used in it require explanation.

Irregular Menstruation.—Under this are included all those whose periods do not occur every three, four, or five weeks. It therefore includes all cases of amenorrhoea—which subject will be dealt with later.

No Pain or Discomfort.—The proportion of girls free from any disturbance whatever (73 per cent.) is probably larger than the average among girls of the well-to-do classes, but a possible explanation of this is also given below. In this group are included those who state that they are usually free from any discomfort, but have experienced slight pain or discomfort very occasionally.

Pain.—This, which is mostly of the congestive type, is difficult to estimate, and at the best can only be roughly classified. The spasmodic type of dysmenorrhoea is very rare, only 4 out of the 1,200 cases being recorded. There was one case of intermenstrual pain or Mittelschmerz.

Incapacitated.—Under this heading are grouped all those who state that, on account of pain, sickness, or headache, they are rendered unable to carry on their ordinary pursuits. In some cases they have to retire merely for half an hour or so.

Malaise.—This term refers to all those who suffer from headache, nausea or lassitude in a mild degree.

Rest during the Period.—It is found that the large majority of those who are in the habit of lying down or resting in bed during the period, do so against their own inclinations by order of the mother.

Baths.—It is surprising to find how the old prejudice against the use of water during the menstrual period still clings even to educated people, who in other respects are most attentive to the laws of personal hygiene. In most families the girls are still taught that it is dangerous to take baths at those times, and that their ablutions should be limited to the face, neck and hands. Very few are allowed to wash their feet until after the flow has ceased. The figure 23.4 given in Table A is much larger than the proportion of girls taught at home to take baths. In this and, in fact, in all the figures the influence of school life and teaching is already manifest.

Games and Exercise.—It was found that most of the children would, if left to themselves, play games, cycle, and take walks as usual throughout the period, but that they have not been allowed to do so. It is amusing, however, to find how many of the elder girls succeed in over-riding their parents' objections if the period happens to coincide with a hockey or tennis match, a dance, or a day's hunting. In no case has any ill effect been acknowledged.

TABLE A.

(Number of girls questioned, 1,200.)

	No.	Percentage.
Regular menstruation	646	53.8
Irregular menstruation	554	46.1
No pain or discomfort	877	73.0
Discomfort or slight pain	294	24.6
Severe pain	29	2.4
Incapacitated	64	5.3
Malaise	109	9.0
Rest during the period	276	23.0
Baths during the period	281	23.4
Games and usual exercise during the period	488	40.7
Constipation during the period	108	9.0