

if possible, drainage should be carefully avoided. In cases of abscess in bone it ought always to be opened and evacuated, as it is highly dangerous to leave it on account of danger of general miliary tuberculosis. In all these cases where there is no reason to suspect the presence of pus I carry out this treatment together with injections of tuberculin, and generally with excellent results.

Tuberculous peritonitis.—I have now treated 28 cases of tuberculous peritonitis in patients varying from 3 to 37 years of age. I consider that tuberculin is an absolute specific in cases of tuberculous peritonitis where the disease is confined to the abdomen. Of the 28 cases 19 have been discharged quite recovered, 6 were much better, and 3 died. If there is an excess of fluid the abdomen should be opened and drained, and the escape of the fluid is generally followed by rapid improvement, and in some cases by complete recovery. I generally give these cases about 20 weekly injections of tuberculin, watching the effects very closely.

Tuberculous abscesses and sinuses.—The unsatisfactory element in the treatment of sinuses and abscesses is the presence of a mixed infection. We are now treating these cases with staphylococcal vaccines corresponding with the patient's own discharges in a great many cases with good results. Then we give tuberculin, with the happy result that the sinuses close up and healing follows in a large proportion of cases. If waxy disease be present I never give tuberculin.

Lupus.—44 cases of lupus have been treated with the most excellent results. In two cases where the lupus recurred death took place some months afterwards from general tuberculosis of a miliary type, involving the lungs apparently by direct lymphatic extension from the neck. I have never seen a case of phthisis develop lupus, and in my experience lupus is a primary infection which may remain chronic for many years and then terminate in a general tuberculosis which carries off the patient. I am also of opinion that lupus is *always* of bovine origin, and may be conveyed by infection from person to person.

CONCLUDING REMARKS.

In conclusion, I do not for one moment think that tuberculin is a cure for all forms of surgical tuberculosis, but in my experience it is the best treatment we have to-day. It often has to be associated with surgical procedures, and the intelligent coöperation of the physician and the surgeon will often bring about a gratifying cure. I feel sure that extensive and radical operations for tuberculosis are not good, and in the case of psoas abscesses and spinal caries will often induce a blood-stream infection, followed by general miliary tuberculosis and death. In all cases where possible, pus should be removed aseptically by aspiration and not by drainage, at the same time replacing the pus by thymol or some other emulsion. It may be necessary to aspirate tuberculous abscesses as many as 20 or 30 times, but in time, under general hygienic conditions, the infection expends itself and a permanent cure results. What we want to avoid in all tuberculous lesions is a secondary infection with other pathogenic organisms, and this is difficult to avoid if there is an open wound.

It may be necessary to treat some tuberculous cases for many years before a cure results, but, fortunately, cases are now treated earlier than they were, and amputation of limbs is very rarely resorted to. In some cases this is the only course open to the surgeon to save life, as by completely removing a virulent focus the patient is enabled to recover and rapidly get fat and well. Excisions and erosions of joints will, I think, soon be a thing of the past, and I look forward with hope to the time when all tuberculous infections will be treated in the earliest stages of the disease by specific remedies which will prevent them drifting into multiple lesions and secondary infections for which little can be done in the way of a permanent remedy. I look upon tuberculosis as a most docile and willing disease to be cured, and if we could only induce our patients to undergo treatment at the earliest manifestation of the disease in the body, our results would not only be more gratifying but a vast amount of suffering and disfigurement would be spared.

UNIVERSITY OF OXFORD.—The electors have elected Mr. Ernest L. Kennaway, B.M., M.A., Hulme Research Student of Brasenose College, to the Radcliffe Travelling Fellowship.

THE ABDOMINAL WATERSHEDS AND THEIR INFLUENCE ON THE LOCALISATION OF INTRAPERITONEAL INFECTIONS.¹

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LOCALISED intraperitoneal suppuration is a condition which is of interest and importance to physicians and surgeons alike, for the formation of the abscesses is often insidious, and upon their accurate localisation and efficient treatment the life of the patient in many instances depends. With the evolution of abdominal surgery during the last 10 or 15 years a great advance in our knowledge of these conditions has occurred. The abdominal lesions which they are most likely to complicate are known, the fact that these abscesses are nearly always due to intra- and not to extra-peritoneal extension of infection is recognised, and the customary highways along which the pus travels and the localities in which it tends to collect have been mapped out.

When the body is supine the peritoneal cavity is subdivided by definite bony prominences. One of these is longitudinal, and formed by the projection of the bodies of the vertebræ. Another is more or less transverse, formed on each side by the brim of the true pelvis and the psoas muscle which rests on it. These projections, which may be called the watersheds of the peritoneum, play an important part in directing the course of purulent infections within the peritoneal cavity. The course of the effusions is further determined and limited by the various mesenteries and folds formed by the peritoneum itself. Of these structures the transverse mesocolon is the most important, since in conjunction with the great omentum it forms a shelf which in great measure shuts off the subdiaphragmatic spaces from the rest of the abdominal cavity. The most extensive forms of subdiaphragmatic abscess have as their lower boundaries adhesions between the omentum and colon on one hand, and the abdominal wall on the other. The mesocolic shelf not only separates the subdiaphragmatic regions from the rest of the abdomen, but also, by virtue of the median prominence formed by the spine, tends to direct effusions poured out on its upper surface, either towards the region of the right kidney or else towards the left, into that part of the greater sac which contains the stomach and the spleen.

The importance of the part of the vertebral watershed which lies above the transverse colon is great, for either on its summit or on its right slope lie the pylorus and the commencement of the duodenum, whilst on the left slope rests the body of the stomach. Its right declivity is also in close relation to the gall-bladder, the bile ducts and the under surface of the right lobe of the liver.

The watershed formed by the right segment of the brim of the true pelvis probably surpasses, or at all events equals, the upper lumbar projection in importance. Near the summit of the pelvic ridge or on the surface which slopes away from it towards the right loin, the appendix will usually be found; occasionally it hangs over the pelvic side of the ridge in a position to infect the pelvic cavity alone.

When a purulent infection begins to descend the declivity which slopes from the pelvic ridge towards the right loin it naturally tends to travel alongside the ascending colon which lies on this slope. The colon, being usually more or less distended, divides the slope into two gutters, to which the names external and internal paracolic grooves have been applied. Of these gutters the external, which lies between the colon and the lateral abdominal wall, leads direct to a well around the head of the right kidney. To this well also the mesocolic slope tends to direct effusions poured out in the upper part of the abdomen. Thus the right renal well or subhepatic pouch is of importance, not only in connexion with lesions in the upper part of the abdomen (stomach, duodenum, liver, gall-bladder bile-ducts, &c.), but also with the more common

¹ An Address delivered before the Bromley Medical Society on Feb. 8th, 1910.

inflammatory lesions of the appendix. Ascending infections may not only infect the right renal well, but tend to make their way between the left lobe of the liver and the lateral wall of the abdomen into the right subphrenic space.

The descent of fluid from the pelvic watershed along the external paracolic groove is not always unobstructed. Not infrequently a fold of peritoneum crosses this gutter and obstructs it. The fold may be well developed, so that the lower part of the right lobe of the liver is supported by it in exactly the same way that the costocolic fold supports the spleen. In such a case the fold is high up; a more common situation is that indicated by Jenkins and Maynard Smith, in which the fold passes downwards and inwards from the right flank at the level of the iliac crest to be attached to the commencement of the ascending colon above the cæcum. Sometimes multiple small septa instead of a solitary fold pass between the cæcum and the parietes of the flank. When a well-marked fold is present a purulent collection, instead of reaching the right kidney well, will be circumscribed in the right iliac fossa external to the cæcum and ascending colon.

Should an ascending infection take the route offered by the internal instead of the external paracolic groove it may descend under the influence of gravity until its progress is arrested by the under side of the hepatic flexure of the colon, or it may cross the latter if not very prominent and so gain access to the renal well. Mainly because the posterior abdominal wall slopes abruptly away from the prominence of the spine towards the flank, but in part also on account of the line of attachment of the mesentery of the small intestine which crosses obliquely from the left side of the second lumbar vertebra towards a point in the right iliac fossa, collections travelling on the inner side of the ascending colon may keep fairly well to the internal paracolic groove, but at times they do diffuse themselves in the labyrinth formed by the plications of the mesentery and coils of small intestine, a condition which adds considerably to the gravity of affairs.

Intraperitoneal infections are uncommon on the watershed formed by the left pelvic brim. Just on the pelvic aspect of this ridge is the situation occupied by carcinoma of the ilio-pelvic colon (sigmoid), but suppuration does not often occur in connexion with this, and is as a rule circumscribed. Suppuration may also occur on this watershed in connexion with inflamed diverticula of the large bowel or infected ovarian cysts. The highway mapped out by the descending colon is, however, of great importance, in that it may in some cases afford a route by means of which suppurative infections travelling from the pelvis can reach

the upper part of the abdomen; and conversely, infections of the left subdiaphragmatic region may travel along it to the lower parts of the belly. In the left lumbar region internal and external paracolic grooves may be observed just as on the right side, but the gutters are often narrow, since the calibre of the colon on the left is frequently small owing to tonic contraction.

The external paracolic groove of the left side is more or less completely shut off from the left subdiaphragmatic region by the costocolic fold, which passes from the splenic flexure of the colon to the inner aspect of the diaphragm opposite the eleventh rib. This fold is formed from, and continuous with, the left margin of the great omentum. When it is ill-developed purulent collections may overtop the dam which it forms; this I have observed several times.

The left internal paracolic groove widens out in its upper part into a fossa, which is bounded to the right by the projection of the lumbar spine, to the left by the descending colon, and above by the concave aspect of the splenic flexure. The

fossa is covered in by the back of the mesentery and by the great omentum, which must be turned aside to expose the space. The deepest and, in the supine position, most dependent part of this fossa lies in the splenic flexure, external to the duodeno-jejunal junction.

Should pus overflow from the fossa and succeed in crossing the splenic flexure it will gain access to the left subphrenic space. The lower and narrow end of the left internal paracolic groove communicates over the pelvic ridge (sacro-iliac joint) with the cavity of the pelvis on the mesial aspect of the pelvic mesocolon, which directs any effusion into the recto-vesical or the recto-uterine pouch.

Having briefly reviewed the tracks commonly followed by intraperitoneal infections, we may consider more closely the anatomical boundaries of the recesses in which the pus finally tends to accumulate and the signs which are diagnostic of its presence at these spots. Above the mesocolic shelf there are three situations in which suppuration may occur. First, the pus may lie in the right dome of the diaphragm constituting the true right subphrenic abscess. Secondly, it may lie in the left dome, occupying part or all of the space known as the stomach chamber; this is the left subphrenic abscess, sometimes called perigastric or perisplenic from the relations it bears to the stomach and to the spleen. Thirdly, pus may lie below the right lobe of the liver in the recess known as the right renal well, right kidney pouch, or subhepatic fossa. When the purulent collection is very extensive its distribution may be widespread, so that all these localities are simultaneously involved.

The rupture of a gastric or duodenal ulcer which happens to lie near the ridge of the median watershed not infrequently

FIG. 1.

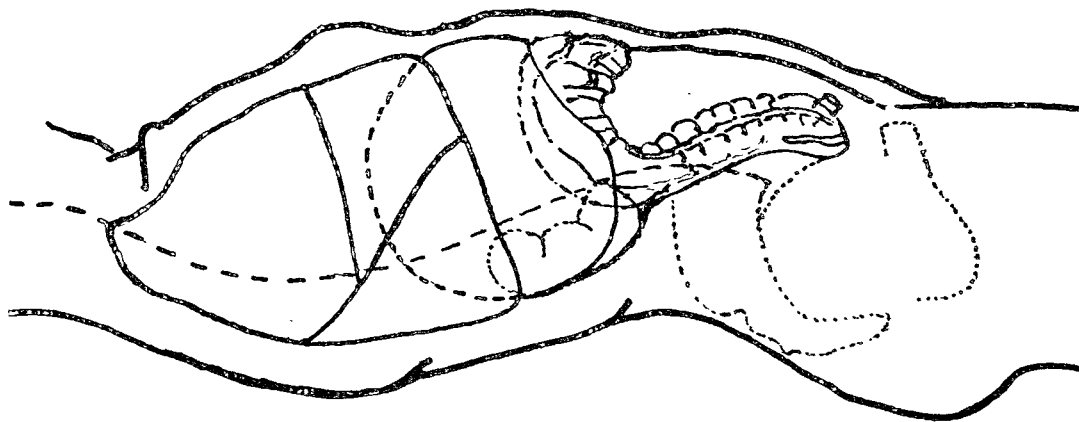


Diagram showing the slope from the right half of the pelvic watershed (appendix region) towards the right renal well, also the relation of the forward projection of the lumbar spine (longitudinal interrupted line) to the same well. The relation of the right dome of the diaphragm to the base of the right lung is indicated.

FIG. 2.

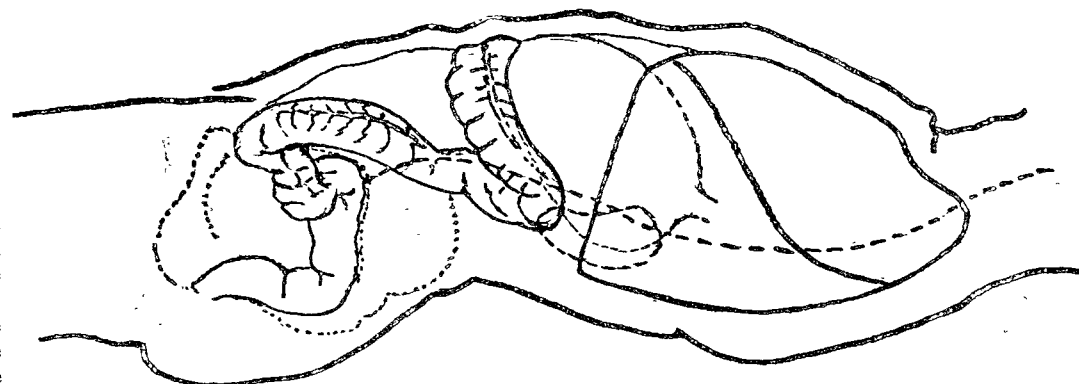


Diagram showing the slope from the left half of the pelvic watershed towards the spleen. The relation of the left dome of the diaphragm to the lower lobe of the left lung is also indicated.

causes diffuse infection, the extravasated gastric contents passing over the front of the liver into the right dome of the diaphragm, over the anterior surface of the stomach into the left dome, and along the upper surface of the right half of the mesocolon into the right renal well. They may also pass down over the front of the omentum, which shields the small intestine, direct into the pelvis. This latter mode of infection is likely to occur if the patient sits or stands up.

The right subphrenic abscess.—The signs of a large abscess in the right subphrenic region are partly abdominal and partly thoracic. The respiratory movements of the epigastric and right hypochondriac regions may be annulled and this part of the belly wall may be rigid or even bulging. Distinct tenderness is elicited by palpation and, in abscesses of some standing, a definite inflammatory ridge, due to omental and colic adhesions, may be felt at the lower limit of the collection. When the left limit of the abscess is formed by the falciform ligament of the liver a sharply defined edge, bulging a little towards the left, may be made out in the position of this fold.

The thoracic signs are: restriction of the respiratory movements of the lower part of the chest on the right side; the presence of percussion dulness in the lower axilla rising posteriorly as high as the angle of the scapula; diminution of vocal fremitus and resonance over the dull area with more or less suppression of the breath sounds, which, although faint, may have a distant bronchial character. Distinct tenderness over the lower axilla is, if present, a valuable sign, as also is bulging of the lower thoracic zone on the affected side. Friction having a respiratory rhythm may sometimes be heard over both abdomen and chest, even when the inflammation is strictly limited to the under surface of the diaphragm.

Should the abscess contain gas, which is very apt to occur since the common cause of a large subphrenic abscess is rupture of a gastric or a duodenal ulcer, the signs are modified. The imprisoned gas moves in the same way as the air bubble in a spirit level, and always tends to occupy the highest position in the abscess cavity. Thus in such an abscess with the patient supine the signs of gas are to be found in front, obliterating the liver dulness in this position, but when the patient is turned on the left side the gas slowly shifts into the right axilla and the resonance in front is replaced by dulness due to fluid. These signs are most pronounced when the falciform ligament forms a sharp left boundary to the collection; occasionally gas is found on one side of it and fluid on the other. The percussion note over imprisoned gas is tympanitic; a coin sound is easily obtained, and an amphoric or echoing quality may be imparted to neighbouring sounds produced by heart or lung.

The meaning of the signs obtained over the lung base in subphrenic abscess calls for some consideration. The presence of percussion dulness, with impairment of vocal fremitus and faint bronchial breathing, naturally suggests the occurrence of an effusion into the pleura or the presence of fluid masking pulmonary consolidation. No doubt in cases where the abscess has escaped detection, and even in some where it has been evacuated, acute pleurisy, empyema, or lung consolidation may be present, but this may not be the case even when the signs mentioned are well marked. I have no doubt that in the earlier stages of the disease at all events the lung signs are due to collapse of the lower lobe in consequence of inactivity of the diaphragm. In several cases where the pleura was explored I have seen the dark and retracted, inactive lower lobe without any signs of pleurisy. Dr. W. Pasteur in an instructive paper on Massive Collapse of the Lung has made some interesting observations on this subject. Short of exploratory puncture of the pleura it is difficult to formulate distinctive signs between massive collapse and effusion, but I am inclined to think that if dulness, bronchial breathing, and tenderness are well marked in the axilla as well as at the back the evidence is against collapse pure and simple.

The diagnosis of such abscesses as we have been considering is a matter of no great difficulty. The antecedent history is usually, although not invariably, that of an abdominal catastrophe. The presence of signs of disease in the upper part of the abdomen indicates that the abscess is subphrenic. When the gas-containing abscess is present the fact that the characteristic signs occur well below the costal margin is sufficient to exclude pneumothorax.

But a subdiaphragmatic abscess is not always of great size,

and it may lie so deeply in the dome of the diaphragm that the signs of disease in the epigastric and hypochondriac regions are absent or scanty. Small collections of this nature may occur as sequels of appendicitis or in connexion with suppuration of the pelvic viscera. The ascending infection tracks up the loin until it reaches the lower edge of the liver, and then, passing between this and the parietes, infects the subphrenic space. The right renal well may be infected at the same time.

In such cases there is usually a history of acute abdominal symptoms succeeded by a period of quiescence, which in turn is succeeded by the development of fresh febrile disturbance, wasting, sweats, and other signs of purulent infection. As the abscess above the liver increases it tends to displace the diaphragm upwards and produces equivocal signs at the base of the right lung. Sometimes the liver is so depressed that its edge may be plainly felt, but should adhesions form between the liver and parietes before much pus has collected the downward displacement may be insignificant.

The lung signs, coupled with the evidence of sepsis, cause the condition to simulate empyema very closely. Here, as in the other form of abscess, the occurrence of localised bulging and oedema in the lower part of the thorax is an indication that the collection is subphrenic. The presence of a dome-shaped upper limit to the dull area has a similar significance, but unfortunately this outline may be concealed by the development of a secondary pleural effusion. When the X rays are available they may assist in ascertaining the relation of the effusion with regard to the diaphragm.

The use of the aspirating needle through the lower intercostal spaces for the detection of the pus is open to many fallacies. A serous effusion may be withdrawn from the pleura and the abscess under the diaphragm overlooked; the abscess may be found, supposed to be an empyema and treated as such, greatly to the patient's detriment; the effusion on the surface of the liver may be thick, plastic, infected lymph of which the needle gives no indication. Examination of both the pleural cavity and the subdiaphragmatic region by means of rib resection offers the best chance of success in difficult and obscure cases. But, after all, the history of the onset is of paramount importance as a guide to the condition of affairs. It should also be remembered that liver abscess itself may be a cause of subphrenic suppuration and, exceptionally, the space is infected by primary suppuration in the lung or pleura.

CASE 1. Right-sided salpingitis and suppurating ovarian cyst; ascending infection of the right subphrenic space.—An inflamed right ovarian cyst and inflamed right tube were removed by abdominal section from a woman aged 39 years. Pyrexia continued and offensive fluid escaped through the drainage-tube. Nine days after operation cough was noticed and examination of the chest showed dulness at the base of the right lung. The lung was supposed to be consolidated and empyema was feared. Three weeks later the patient presented all the signs of fluid low down in the right axilla and to a lesser degree posteriorly. The axilla was tender over the dull area. Exploration was undertaken. Resection of the tenth rib and examination of the pleura showed that no pus was present. An abdominal exploration below the right costal margin in front also failed to find anything, but exploration far back and high up in the right flank liberated 10 ounces of pus from between the liver and the diaphragm. The patient made an uneventful recovery.

The left subphrenic, perisplenic, or perigastric abscess.—The left subphrenic abscess, like that on the right, may be extensive or limited. When limited it tends to accumulate around the spleen, bathing its convex or diaphragmatic and also its gastric surface.

These abscesses are in the greater sac of the peritoneum. They lie in that space which has been described by Birmingham as the stomach chamber. This chamber occupies the upper left part of the general abdominal cavity. The stomach when distended completely fills the space, but when it is empty, and therefore contracted, part of the transverse colon also rises into the chamber. The roof of the cavity is formed by the under surface of the left lobe of the liver and in the rest of its extent by the left cupola of the diaphragm, which slopes downwards posteriorly and on the left to meet the floor. The latter, which is constituted by the top of the left kidney, the pancreas, and the mesocolic shelf, is separated from the posterior surface of the stomach by the intervention of the lesser sac of the peritoneum. The

anterior boundary of the stomach chamber is formed by the anterior abdominal wall in the epigastric region.

The most posterior part of the general peritoneal cavity of the left subphrenic region is situated, when the body is supine, near the posterior border of the spleen, to the outer side of the upper end of the left kidney, just about the level of the eleventh intercostal space (Jenkins and Maynard Smith). It is in this direction that effusions from ruptured gastric or even duodenal ulcers are directed by the slope of the mesial watershed and the presence of the mesocolic shelf; here also effusions derived from ruptured splenic abscesses may accumulate.

The localisation of pus around the spleen is considerably assisted by the presence of a well-developed costo-colic fold extending between the splenic flexure of the colon and the diaphragm.

The left subphrenic region may also be infected from below by pus travelling along the left paracolic grooves, especially when the costo-colic fold is ill-developed. We shall also see later that a large collection in the *right renal well* may attain a sufficiently high level to enable it to invade the stomach chamber.

The signs produced by the left subphrenic abscess are so similar to those caused by the right-sided abscess in the corresponding situation that it is unnecessary to recapitulate them. Briefly, in the large abscesses the abdominal signs are prominent; in the small, perisplenic abscesses the lung signs alone may be present. Gas-containing abscesses are common and depend upon perforations of the stomach or duodenum. The stomach chamber being a large space it is possible for abscesses to be limited to various parts of it. As already mentioned, the perisplenic abscess is the common localised collection, but sometimes the pus lies between the stomach and the left lobe of the liver and sometimes above the latter. An abscess between stomach and liver may coexist with an abscess in the right renal well.

The presence of hollow viscera beneath the left phrenic dome renders the use of the exploring needle in this region inadmissible.

The abscess in the right kidney well or subhepatic fossa.—The right kidney well, which when the body is recumbent is the most dependent part of the right half of the general peritoneal cavity, is, as we have already seen, in such a position that it receives effusions which have travelled down the right half of the mesocolic shelf or from the pelvic ridge along the paracolic grooves.

The boundaries of this pouch, described as they appear with the body erect, are as follows. *Above* an extension between the renal surface of the liver and the anterior surface of the kidney reaches as high as the inferior aspects of the right half of the coronary and right lateral ligaments of the liver. *Below* the hepatic flexure of the colon and its attachment to the front of the kidney and duodenum. *Internally* a forward slope formed by the anterior surface of the right kidney and the second part of the duodenum; close to this lies the foramen of Winslow. *Externally* the structures forming the lateral abdominal wall. *Anteriorly* the downward projection of the right lobe of the liver. The lowest part of the well is found to lie (with the body supine) just to the outer side of the superior pole of the right kidney and just below the right lateral ligament of the liver, at the level of the eleventh intercostal space.

The right kidney well may be capable of holding a pint of fluid before it overflows into other parts of the peritoneal cavity. When it does overflow it overflows in certain definite directions. The easiest channel when the pouch has been filled from above is along the right external paracolic groove towards the pelvis. When the colon is distended the external groove is deep and the bowel acts as an internal embankment, but should the bowel happen to be contracted fluid may escape over it and pass down the internal groove. When the well has been infected from below, as in appendicitis, the overflow tends to travel up between the right lateral lobe of the liver and the parietes, and so give rise to an abscess in the right dome of the diaphragm.

There is a third direction in which extension may occur and this is up the right mesocolic slope over the mesial abdominal watershed into the stomach chamber. It is curious how seldom the pus manages to pass through the foramen of Winslow into the lesser sac. The explanation is that the boundaries of this foramen lie in close contact with each other. There is a not uncommon anatomical variation

which when present should effectually shut off the approach to the stomach chamber. The variation consists in a shifting forwards of the free edge of the lesser omentum in such wise that a fold of peritoneum extends from the whole length of the gall-bladder above on to the duodenum and transverse colon below.

CASE 2. Extension of infection upwards from the appendix to the right renal well, and thence to the left pleural sac.—A youth, aged 18 years, with a history of three weeks' pain in the left side and occasional vomiting, came under observation in a greatly emaciated and septic condition, with dry tongue, rapid, feeble pulse, and dyspnoea. The left side of the chest was distended and motionless; the left thoracic wall was oedematous. The percussion note was dull, vocal fremitus and resonance were much diminished, faint tubular breathing was audible, and also some crepitation. The heart's dulness was displaced to the right and friction with a cardiac rhythm was heard. The abdomen was rigid and tender; over the left half was inflammatory oedema. Four pints of offensive pus were aspirated from the left pleura and a rib resected in the axillary region for free drainage. Death occurred 48 hours later. There was a foul appendix abscess in the right flank. A track of infection led up from this to the right kidney well, where a collection of pus had accumulated; this overflowed under the liver to the left subphrenic region behind the stomach (and therefore must have been in the lesser sac), and finally perforating the diaphragm caused the left empyema. The pericardium was not inflamed. The oedema of the left side of the abdomen and chest was due to cellulitis of the abdominal wall. (I am indebted to Dr. S. J. Sharkey for permission to quote this case.)

The clinical evidence of suppuration in the right kidney well varies with the conditions present. When the purulent collection is accompanied, as it often is, by suppuration in the external paracolic groove of the right side, and also in the right dome of the diaphragm, the signs resemble those already described when speaking of right subphrenic abscess, and it may be possible to determine that the tenderness and rigidity extend lower in the abdomen and that the affected area broadens out towards the right flank, which it extensively involves. But, just as with the true subphrenic collections, there is an insidious and deeply seated form of subhepatic suppuration which is extremely likely to be overlooked. The clinical signs of this form of infection are, in addition to the constitutional symptoms of emaciation, profuse sweating and great prostration, deep-seated tenderness below the right lobe of the liver, the presence on gentle bimanual palpation of the right renal region of an ill-defined swelling which does not move on respiration, and the upward extension of liver dulness in the axilla to the seventh or even the sixth rib instead of to the eighth. This form of abscess, like the deep-seated right subphrenic abscess, is usually caused by an ascending paracolic infection which originates in appendicitis or in the pelvis. Here, again, the history of the original attack is of great importance in diagnosis.

CASE 3. Right-sided salpingitis and inflamed multilocular ovarian cyst; abscess in right kidney well undetected; death.—An inflamed right tube and infected right-sided multilocular ovarian cyst were removed from a young woman. Fever continued for three weeks and the patient emaciated. Three weeks later an inflammatory mass could be felt in the upper part of the abdomen on the *left* side. The percussion note was impaired at the base of the left lung and the breath sounds were faintly bronchial. Exploration was advised. The abdomen was first opened and the mass found to consist of dense adhesions. The left pleura was explored and found to be free from infection. Matters did not improve and the patient ultimately died. At the post-mortem examination ten ounces of very foul pus were found in the right renal well and paracolic groove, quite shut off from the general peritoneal cavity.

CASE 4. Appendicitis; localised abscess in the right kidney well; supposed typhoid fever; evacuation; recovery.—A man, aged 18 years, came into hospital as a supposed case of typhoid fever. When the history was investigated it was found that the onset was sudden and accompanied by some vomiting. There had also been abdominal pain, at first about the navel and later in the right iliac fossa. His tongue was dry and coated, the pulse of normal rate, the temperature 103° F. The abdomen was slightly distended and the note hyper-resonant. The motions were like pea-soup. No typhoid

spots were found, the spleen was not enlarged, and the serum reaction for typhoid was twice negative. The temperature at first fell and the abdominal tenderness and distension abated. The temperature then gradually mounted again; some tenderness was found below the right costal margin and in the right lumbar region; the upper level of liver dulness in the axilla was two ribs higher than it should be. Aspiration of the chest in the axilla was negative, but incision of the right loin far back evacuated pus from the right kidney well. The liver dulness gradually descended and an uneventful recovery ensued.

To enter into a detailed description of the characteristics and limits of abscesses in the lesser sac of the peritoneum and those in the pelvis would require more time than is available for this address.

The treatment of intraperitoneal abscess is essentially surgical. When there is reason to suspect one of these collections it should be drained. The process of localisation takes from seven to ten days or more. The dangers of secondary diffuse peritoneal infection, of infection of the pleural sac and lung, and of portal pyæmia are always present.

The fallacies which attend the use of the aspirator needle for the diagnosis of subphrenic collections I have already mentioned. The needle, if used, should only be introduced after a close consideration of the history and careful weighing of the clinical signs. It may give accurate information as to the nature of the pleural exudate and quite unreliable indications as to the abdominal condition. It should, needless to say, never be used for puncture below the ribs, nor yet below the diaphragm on the left side. The presence of the liver on the right is in some measure a protection. In a doubtful case where the needle has failed, as it often does, or the patient's progress and symptoms point to suppuration, the boldest course, of exploring by surgical incision, is the safest and most successful in the long run. The most suitable incision varies with the position, size, and apparent cause of the collection.

An extensive right subphrenic abscess, caused by recent rupture of a gastric or duodenal ulcer, is usually explored first from the front on account of the causal lesion. Should the collection be localised posterior transpleural drainage is usually adopted. The ascending subphrenic abscess due to appendicitis, often associated with a collection in the right renal well, may be treated by an incision high up and far back in the flank, but should the subphrenic collection be of any magnitude it is unsafe to rely on the flank incision alone, and better to open the subphrenic space higher up by the transpleural route, steps being taken to shut off the pleural cavity. In one intractable case, complicated by empyema, the condition, which appeared hopeless, was successfully treated by Mr. C. S. Wallace, who excised the ninth rib from the posterior axillary line forwards to the costal margin, a procedure which afforded excellent drainage of the pleura and the whole subdiaphragmatic space.

The left subphrenic abscess is treated on the same lines as the right. The anterior incision may be necessary for the exploration of a perforated stomach, but for a localised collection of pus far back around the spleen the transpleural route should be taken. The locality of the abscess is best exposed by resection of rib, not higher than the seventh.

A point worth mentioning is the position in which patients suffering from appendicitis should be nursed. There is much to be said for the Fowler position, the back being elevated by pillows and the nates supported by a bolster placed transversely beneath the thighs and tied to the bed-frame. This position has the merit of preventing ascending infection, but the state of the pelvis should not be lost sight of, since it favours drainage into this cavity.

Cases of intraperitoneal inflammation well repay careful watching and continued efforts to limit the infection. The first operative procedures are not always successful, but this must not discourage further attempts. Success may only be attained by persistent efforts to reach and drain the various infected localities.

Devonshire-place, W.

THE APOTHECARIES' HALL OF IRELAND.—The quarterly examinations will take place on the following dates:—First professional, Monday, April 18th; second professional, Thursday, April 21st; third professional, Monday, April 25th; and final professional, Wednesday, April 27th.

THE TREATMENT OF PSORIASIS.¹

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PSORIASIS is one of the most ancient of skin diseases. Naaman the Syrian, commonly called Naaman the leper, probably in reality suffered from this, and the ages have revealed no remedy comparable in swiftness and certainty with the immersion in the River Jordan, which we are told cured him. "Lepra" was the name for certain clinical types of psoriasis until quite recently; Bateman's Atlas, published in 1840, has a plate (No. VII.) of "Lepra vulgaris, the common leprosy," which is certainly psoriasis as we know it. The "leprosy" of the Middle Ages must have been largely composed of psoriasis, and it is sad to reflect how much avoidable misery the victims of this disease must have endured from that unhappy confusion. The sum of suffering for which psoriasis is responsible still remains very great, for it is in our climate, next to eczema, the commonest of skin diseases.

The frequency of its occurrence in a general dermatological clinique may be estimated from the following figures. Of 11,500 cases of general skin diseases recorded in my department at St. Mary's Hospital, 465 were instances of psoriasis—i.e., almost exactly 4 per cent. Dr. Radcliffe Crocker's statistics quoted in his text-book (718 in 10,000 cases) give a much higher percentage; the difference in the two sets of figures may perhaps be accounted for by the fact that in my records care is taken to exclude the entry of the same individual case more than once, recurrent attacks not being recorded.

Psoriasis was included in Dr. Crocker's six diseases of the skin with which every practitioner should be quite familiar. A detailed exposition of some forms of treatment may, therefore, be acceptable to you, for its management requires the utmost patience and resourcefulness on the part of both the patient and the medical practitioner. Inasmuch as its causation remains still completely obscure, it is impossible to devise a rational treatment which would aim at removing the cause, and we are obliged to be satisfied with the teachings of experience as to what remedies are most successful in removing the eruption at any particular time. The pendulum of practice has swung to and fro between the claims of internal and external medication and a combination of both. It may be said that the present methods of treatment are more directed to external than to internal therapeutic measures, the long abuse of arsenic in this disease having produced a reaction, which has perhaps gone beyond its just limit, against all internal treatment.

Diagnosis.

A few observations on diagnosis may fitly precede the consideration of therapeutics, which must rely upon diagnosis. Psoriasis is usually one of the least difficult of diseases of the skin to recognise, since it follows such a characteristic and typical distribution and course. Cases, however, in which these are anomalous are not infrequent, and attention to certain points will be of essential aid to the practitioner in forming his conclusions.

Character of the initial lesion.—This is always a papule in its earliest stages, of conical shape, and of the same colour as the surrounding skin, from which it is, however, quite appreciably raised; later the papule becomes pink and enlarges, but retains an outline which is circular, not polygonal as in lichen planus. It is also pinker than the papule of lichen planus, in which a blue tint is added to the red, and than the papule of syphilis, in which a brown shade mingles with the red. What has been described as the "bleeding test" may be applied to the papule at this stage; it consists in gently removing the uppermost scale either with the finger-nail or, better, with a small scalpel; a pink, shiny surface comes into view, and if further removal of epithelium is effected by scratching or otherwise, a number of minute bleeding points are seen. The explanation of this phenomenon probably lies in the histology of psoriasis; the

¹ Paper founded on a lecture delivered at the Medical Graduates' College and Polyclinic.