In certain not very numerous cases (of which I have seen four well-marked instances) a considerable enlargement of the spleen is combined with malignant swelling of the glands of the neck, axilla, &c.; this variety of splenic tumour is distinguished from that of leukæmia by the circumstance that it is not accompanied by any augmentation in the number of the colourless blood-corpuscles. This condition has been designated *splenic anæmia*, or pseudoleukæmia.—*Hydatid* disease of the spleen is rare, there being up to the present time but 26 cases recorded in medical literature. When it does occur it may give rise to great deformity and enlargement of the spleen; if the liver be simultaneously infested by echinococci, little doubt is left as to the cause of the swelling, but when the parasites are lodged in the spleen only the principal guide to the true character of the tumour is the discovery, on its surface, of a circumscribed spot of soft, elastic consistence to palpation—the echinococcus-cyst.—Other tumours (carcinoma) are developed only secondarily in the spleen.

Splenic enlargement can scarcely be mistaken for any other variety of swelling found on the left side of the body, from whatever organ or tissue it may spring, if due attention be paid to all the details of the examination.

Palpation of the Stomach and Intestinal Canal.

Palpation of the stomach enables us to detect pain or abnormal resistance to pressure in the epigastric region. Pain felt over a circumscribed area and aggravated by pressure, almost invariably indicates gastric ulcer; diffuse pain, on the other hand, occurring periodically, is observed in almost all diseases of the stomach, whether neuralgic or associated with tissue-changes in the walls of the organ, from simple catarrh to the gravest forms of malignant growth. The pain in the purely neuralgic affections comes on in paroxysms; starting from the epigastrium it radiates both to left and right and backwards towards the vertebral column, and is sometimes of a degree of severity such as is experienced in no other disease of the stomach; occasionally also, unlike the pain due to round ulcer of the stomach, it is relieved by pressure on the epigastrium.

The new formations which are found in the stomach, usually of a cancerous nature, are almost always in their advanced stages appreciable by palpation when, as is most usual, they have their

seat at the pylorus; cancer of the larger curvature of the stomach, a rarer variety of the disease, may also be felt with the hand, but that of its cardiac end or of the smaller curvature is too deeply-seated for examination with the finger. They generally form tumours of greater or less size, of considerable density, painful both spontaneously and to pressure, occasionally sharply defined from the neighbouring parts, at other times extending beyond the epigastric region and then often having intimate connections with the liver. But a painful epigastric tumour, perceptible to the touch, is not necessarily of gastric origin,—it may spring from the left lobe of the liver; the diagnosis of gastric cancer therefore is warranted only on observing the other symptoms which point to disease of the stomach.—In some rare cases the tumour of the stomach is due to hyperplasia of the muscular coat of the organ (*myoma*) or to sarcoma. These swellings, though usually small, may attain such dimensions as to constitute a distinct tumour in the epigastrium.—In pathological dilatation of the stomach the extent to which its greater curvature is displaced downwards may be demonstrated by passing a sound and feeling its point through the abdominal coverings (Leube).

Diseases of the *intestines* do not frequently present signs which are appreciable by palpation.

Large, hard, *fæcal accumulations* in the intestinal canal are usually felt on the right or left side of the abdomen as irregular, movable masses; their true nature is apt to be mistaken, particularly when, as occasionally happens, they do not disappear even on the administration of strong purgatives.—In cases of stenosis of any part of the canal the peristaltic movements of the bowel may be observed on passing the hand over the abdominal wall, which in such circumstances is generally thin and emaciated, and on the surface of which the intestine stands out in elongated, rounded and firm ridges. These movements are set up by the irritation of the mass impacted above the constriction; occasionally also they become apparent spontaneously, independently of the presence of any such cause of distension of the intestine.

Of the many varieties of painful sensations, differing widely from each other in character and distribution, associated with inflammatory affections of the bowels, that most worthy of notice from the diagnostic stand-point is the *ileocæcal pain connected*

with inflammation of the cæcum, typhoid fever, and perforation of the processus vermiformis. If in the course of the latter affection exudation takes place a semi-solid tumour is formed, tolerably sharply defined from the neighbouring parts, perceptible to superficial or deep palpation according as the amount of the exudation is great or small.

The presence of *fluid in the gastro-intestinal canal*,—in the stomach in cases of dilatation, in the bowel often as the result of simple catarrh or of Asiatic cholera (in which the intestine is frequently loaded with an enormous quantity of fluid),—is marked by the occurrence of a loud splashing, which is not only felt but is also distinctly audible, on pressing firmly and quickly on the abdomen (see p. 371). In typhoid fever this gurgling is generally limited to the ileocæcal region; the same symptom, however, similarly circumscribed, is occasionally noticed in catarrh of this part of the intestinal canal.

The principal diseases to which the *omentum* is subject are the various new formations, especially tuberculous and cancerous degeneration; the parts in which these changes have taken place are often felt through the thin abdominal wall as hard cord-like masses. Not uncommonly they give rise to tumours of greater or less size (fibroma, sarcoma, lipoma, carcinoma, hydatid and vascular growths) whose point of origin can be determined with certainty only when the neighbouring structures are not involved in the swelling; but when this is the case, when the adjoining organs are likewise enlarged and invaded by the same degenerative process, the resulting tumour may be of such enormous size and so irregular in form that it is no longer possible to discover what share each part takes in its formation.

Tumours of the *pancreas* and of the *retroperitoneal glands* may sometimes be detected by palpation. Those of the pancreas are rare, almost always of a cancerous nature, and very seldom primary or unassociated with similar changes in other organs; they form in the epigastrium hard, immovable or only slightly movable tumours, which are evidently deeply rooted in the abdominal cavity. Under favourable circumstances the connection of these growths with the pancreas can sometimes be demonstrated during life, but a confident diagnosis becomes impossible when, as in most of the cases hitherto recorded, they are merely part of a general swelling of the abdomen. This applies also to

cases of enlargement of the retroperitoneal glands, which is occasionally primary, more often secondary, and developed in the course of very many of the general constitutional diseases.

Palpation in Diseases of the Peritoneum, and in cases of Accumulation of Fluid in the Peritoneal Sac.

In diffuse peritonitis, whatever be its cause, gentle pressure or even a light touch with the finger at any part of the abdomen causes the most acute pain; in circumscribed peritonitis this extreme sensibility to palpation is observed only over the area affected. Cancerous degenerations of the peritoneum are characterised by the presence of irregular nodules, always painful to pressure, which may be defined with the hand provided there is no over-distension of the abdomen with ascitic fluid; tubercular degeneration and thickening are likewise sometimes distinguishable by palpation.

The differential diagnosis between the conditions described is based, leaving out of consideration the great difference in the course of the two diseases, on the results of the examination of the other abdominal organs; cancer of the peritoneum is found to be merely one manifestation of a much more widely spread morbid process, while tuberculosis of the peritoneum, on the other hand, occurs only in the more advanced stages of pulmonary phthisis.

Large quantities of free fluid in the peritoneal sac,—which consist usually of *transuded serum*, more rarely of exudation,—give a sensation of *fluctuation* to palpation. On placing the patient on his back or in the upright position and striking with the finger of one hand on the abdomen, a sense of fluctuation is transmitted to the other hand laid flat on the abdominal wall either near or at a distance from the part percussed; a distinct wave is also usually seen to pass over the surface.—The force of this wave depends on the quantity of fluid present and the consequent tension of the abdominal parietes; if the latter be still flaccid, the amount of effusion being small, fluctuation may be quite wanting or appreciable only in the upright position, in which the fluid sinks to a lower level in the cavity and there renders tense the superficial parts. Further, if the effusion be scanty the undulatory sensation may be elicited only in the neighbourhood of the spot percussed, and not at more distant parts.—The level to which the fluid subsides may be

defined with considerable precision by noting how far upwards fluctuation extends.

Encysted peritoneal exudation, hemmed in by inflammatory adhesion of the peritoneum with neighbouring organs, gives no sensation of fluctuation. Peritoneal *transudations*, not being of inflammatory origin, are not usually encysted; where, however, transuded fluid is found enclosed in this manner the adhesions by which it is confined must be the remains of some antecedent inflammatory process.

Friction-murmurs are sometimes appreciable by palpation. If, for instance, the parietal layer of the peritoneum, and that which covers a large hepatic or splenic tumour, become roughened by chronic inflammation, the opposed peritoneal surfaces come into more intimate contact with each other during the inspiratory and expiratory movements of the liver and spleen and rough friction takes place between them, capable of being considerably aggravated by pressure on the enlarged organ.* The conditions most favourable to the development of the friction-murmur are presented in carcinomatous disease of the liver, when the peritoneum over the irregular nodules with which the organ is studded is at the same time inflamed; on the other hand, this abdominal friction is absent when the tumour is chronic in its progress, there being no provocation to inflammation of the peritoneum when the enlargement of the organ is slow.—In connection with other abdominal tumours also, when they contract adhesions with the peritoneum, evidence of friction may be obtained by palpating deeply or by moving the affected organ slightly with the hand.

Palpation of the Uro-genital Apparatus.

The *kidneys* become accessible to palpation when they shift from their normal situation and sink deeper in the abdominal cavity (*movable* or *wandering* kidney), or when they are the seat of great enlargement,—particularly that due to *hydronephrosis*.

* Peritoneal friction, first accurately described by Désprès, gives to the finger the same impression as pleuritic friction,—that of scratching or grating. In one case which I saw the friction-murmur was so marked that the patient himself drew my attention to it.

The movements of the heart also, as in a case observed by Emminghaus, when the contiguous peritoneal surfaces of the liver and the diaphragm are covered by rough fibrinous deposit, may give rise to a *systolic* friction-murmur.

Dislocation of the kidney, which is very seldom congenital, but most usually acquired, occurs most often on the *right* side, rarely on the left. Relaxation of the ligaments predisposes to this affection, a fact to which is to be ascribed the greater frequency of floating kidney in women after confinement; violent physical exertion is also occasionally a cause of this displacement.

The data on which the diagnosis of movable kidney rests are the presence in the abdomen of a palpable tumour having the anatomical form of the kidney, and, if further proof be desired, the absence of the renal percussion-dulness in the region in which it is usually found.

As the dislocated kidney lies comparatively close to the abdominal wall the *smoothness* of its surface and its characteristic bean-shaped outline are readily made out when it can be sufficiently fully grasped between the two hands. On account of its extreme smoothness and very free mobility it often slips from under the finger when pressed upon. The further it has wandered from its original position the more easy is it to fix it; if it has moved only from the right lumbar region into the right hypochondrium it sometimes disappears spontaneously, or on attempting to examine it with the hand, or occasionally in consequence of various movements on the part of the patient, sinking behind the hypochondrium again and passing for a time beyond the reach of the finger. Palpation of the dislocated kidney gives no pain; it is only on using considerable force that uneasy sensations are felt in the part.

Over the region which should be occupied by the kidney the sound to percussion is clearer than that obtained at the corresponding point on the opposite side; this clear sound becomes dull when the kidney is returned to its normal position.

The palpation-signs and those elicited by percussion are as a rule sufficient to prevent a movable kidney being mistaken for an abdominal tumour. It is only in those cases in which, by pressing upon and irritating the neighbouring tissues, it has excited inflammation and thickening of the surrounding parts, as in two cases which I observed, that the diagnosis presents any difficulty, as the organ is deprived of its mobility and its distinctive outline is then no longer recognisable. In such circumstances the objective examination must be supplemented by a careful consideration of the history of the development of the disease.

If the kidneys undergo extensive degenerative changes and at the same time increase so much in size that they may be appropriately described as large renal *tumours*, they may come near enough to the surface to be examined satisfactorily by palpation. Hydronephrosis, due to the presence of some mechanical impediment to the flow of urine into the bladder, constitutes a swelling of this character. If this obstruction, arising from compression, adhesion, or malformation of the part at fault, affects only one of the ureters the hydronephrosis involves only *one* kidney, but if both ureters become impassable, or if the obstacle be situated at the urethral orifice of the bladder (cases which are somewhat rare), bilateral hydronephrosis results. The largest tumours are seen in hydronephrosis on one side; double hydronephrosis ends too rapidly in death to permit of the development of swellings of great size, while in the unilateral form of the disease the discharge of the urine secreted by the other kidney goes on unhindered.

The tumour produced by hydronephrosis, when it is of considerable magnitude, is felt both posteriorly in the lumbar region and in front through the abdominal walls, as a soft fluctuant mass of somewhat spherical shape. Its volume may lead to its being taken for an ovarian growth, but the history of the manner in which the tumour was developed and the data furnished by further physical examination, usually render such an error in diagnosis impossible.

An enormously distended *bladder*, (which has been known to reach as high as the umbilicus), is recognised by inspection, and still more positively by palpation, as a firm, elastic, oval-shaped tumour in the lower part of the abdomen.

Hypertrophy of the prostate may be diagnosed by palpation through the rectum.

Among the diseases of the female *genital apparatus*, tumours of the ovaries and of the uterus may usually be made out with the greatest ease by palpation. Ovarian tumours are generally unilateral, frequently irregularly spherical in shape, and movable. In most cases they contain a large quantity of fluid, and yield then a distinct feeling of fluctuation to firm pressure (ovarian *cysts*). In other less common cases they appear to the touch to be solid throughout; they may, nevertheless, enclose fluid, fluctuation being wanting merely because the force exerted by the hand in

palpating through the thick coverings of the cyst is insufficient to set its fluid contents in motion. In multilocular ovarian cysts also there is no fluctuation. On the other hand, ovarian tumours have been observed which, during life, gave very distinctly the sensation of fluctuation, but which at post mortem examination were found to contain no fluid; they were exceedingly soft and flabby in consistence, their whole tissue being infiltrated with serum.—There is, in general, no difficulty in ascertaining whether the tumour springs from the right or the left ovary, even when it is so large as to pass to some distance over the middle line; but if from the enormous bulk of the tumour, which may fill up both sides of the abdomen equally, it becomes impossible to make this distinction by physical examination, the patient's recollections as to the part in which the swelling first appeared will usually afford trustworthy enough indications as to its starting point.

The history of the case, and especially examination per vaginam, by which latter means the growth can always be reached with the finger, will generally serve to distinguish ovarian from other forms of abdominal enlargement; the diagnosis of hydrovarium from ascites may be made with a like degree of certainty by combining palpation with percussion and by giving due weight to the history of the course of the disease, to the results of the exploration of the other organs, &c. (see p. 363).—It may seem to some impossible to confound an ovarian tumour with a gravid uterus, yet this has often been done.

Enlargement of the *uterus*,—physiological in pregnancy, pathological in cases of tumour of the uterine substance or of accumulation of fluid in its cavity,—are appreciable by palpation through the abdominal wall as soon as the organ emerges from the pelvis and rises into the abdomen.