to be distinguished from pointing intra-abdominal abscesses by the absence of an expansile impulse coughing, and by the entire irreducibility of the swelling by pressure. Great care is required to distinguish the thrusting impulse of all swellings in the abdominal wall from the increased tension and filling out of the tumour, which characterise fluid swellings of the cavity extending into the walls. The *subaponeurotic abscesses* can be distinguished from localised collections of pus in the peritoneal cavity only by operation; a previous history of fever is a point in favour of intraperitoneal suppuration.

CHAPTER XXXIV.

DIAGNOSIS OF CASES OF INTESTINAL OBSTRUCTION.

THE first step in the investigation of cases of intestinal obstruction is to learn exactly the mode of onset of the symptoms, for such cases naturally group themselves into two classes, the *acute* and the *chronic*. In the one class, the patients state that having been in their usual good health, with regular performance of digestion and defæcation, they have been suddenly seized with pain in the belly, absolute constipation (not even flatus being passed), and vomiting, and the surgeon finds them in a state of more or less well-marked collapse; the most familiar example of such cases is afforded by a strangulated hernia, and they are well known as cases of *acute obstruction.* On the other hand, patients present themselves with a history of long-standing trouble with their bowels, constipation with or without diarrhœa at times, lessening size of the motions passed and increasing discomfort in the

belly, at length culminating in complete obstruction (though often flatus is passed), inappetence, wasting, and vomiting; cases of cancer of the rectum afford the best example of this *chronic obstruction.* We must consider the diagnosis of these two classes of cases separately.

Acute intestinal obstruction. — Having arrived at the conclusion that the patient is suffering from *acute obstruction,* the first step in the diagnosis is to determine whether there is any *external hernia.* The usual and also the unusual seats of hernia must each and all be carefully examined with this view; and if a tumour be found, which is fixed to the belly-wall, tense, painful and tender, and dull on percussion, it is to be regarded as a *strangulated hernia.* Should the surgeon be in doubt as to whether a given swelling is a hernia or not, when there are symptoms of acute obstruction he should at once explore the nature of the swelling by operation. If no hernial tumour be detected, inquiry should be made as to whether the patient is the subject of a hernia which has been reduced, and if so, what relations as regards time the onset of the symptoms of obstruction had to the reduction of the hernia, and whether the reduction offered any difficulty. It must be remembered that a patient may himself accomplish a *reduction en bloc* of a hernia, and the author lately saw a case in which this had happened, although the patient had not noticed any difficulty whatever in the taxis. When, then, it is known that the patient is the subject of a reducible hernia, the ring and hernial canal should be very carefully explored, and it may even be justifiable to try to get the rupture to descend to make certain that it is not the seat of the obstruction.

If the surgeon is able to exclude altogether external hernia, the problem then is to distinguish between

the various forms of INTERNAL STRANGULATION In a large number of cases it is impossible to determine the exact cause of the strangulation without actual exploration of the abdominal cavity; *intussusception* is capable of more certain diagnosis than any other form of acute internal strangulation. Where, early in the case, the collapse is very marked, the pulse being small and feeble, and the skin cold and bathed in sweat, it indicates *tight strangulation.* When vomiting sets in early, is frequently repeated, and quickly becomes stercoraceous, and the belly is uniformly and only moderately distended, and the excretion of urine is small, the obstruction is known to be seated in the *small intestine,* and the higher up the strangulation the more marked are these distinguishing features. Where, on the other hand, the abdomen is greatly distended, and the vomiting is less urgent, and a longer interval elapses before it becomes stercoraceous, it indicates that the obstruction is in the *large intestine.* In these cases it may be possible to see or to mark out by percussion the cæcum and colon, and where the obstruction is in or near the transverse colon the right loin may be much more distended than the left. Three chief forms are to be distinguished: *intussusception, internal hernia,* and *volvulus. Intussusception* is most common in children, but is not limited to them. Its signs should first of all be sought, as it may admit of other than operative treatment. Note the time at which vomiting set in, its urgency, and how soon, if at all, it became stercoraceous; estimate the collapse of the patient, and then examine the amount of distension of the belly, and whether it is uniform or localised. Then feel carefully for a tumour or undue resistance, especially in the right iliac and lumbar regions. Observe whether there is any discharge from the anus, and then pass the finger into the bowel to feel for intussusception, for pelvic

tumour, for an obturator hernia, or for coils of collapsed intestine fallen into the pelvis.

In cases of acute internal obstruction there is no advantage for purposes of diagnosis to be derived from the administration of copious or repeated enemata, or from attempts to pass a long rectal tube.

If an elongated tumour be felt in the position of the cæcum, or in the course of the colon, and if there be frequent tenesmus, and a discharge of bloody mucus, or even of pure blood from the anus, *intussusception* is to be diagnosed. In some cases the lower end of the strangled bowel may be felt in the rectum, or it may be even extruded beyond the anus. If the patient have been suddenly seized with localised pain in the belly which has rapidly become greatly distended, and a rounded tense swelling or tumour can be detected in either iliac fossa or flank, it may be diagnosed as a *volvulus.* This condition is met with more frequently in the large than in the small bowel, and particularly in the sigmoid flexure, and the twisted part may become enormously distended, and be plainly perceptible through the abdominal walls. When there is but moderate distension of the abdomen, and no tumour or swelling or seat of special resistance can be detected, and further where the vomiting sets in early and quickly becomes stercoraceous, it may be diagnosed as an *internal hernia* or strangulation of the bowel by a band. This diagnosis acquires greater probability if there is an old hernia, or if there is a history of some previous attack of peritonitis, or of an intraperitoneal operation such as ovariotomy, or if the patient has been subject to attacks of colic.

If a patient who has been suffering from jaundice, pain in the hepatic region, sickness, and other signs of gall stone, suddenly exhibit signs of acute intestinal obstruction, it may be attributed to *impaction of a gall stone.* These cases are usually rapidly fatal.

Chronic intestinal obstruction. — Whilst the first class of cases which we have just been considering consisted of those in which a part of the bowel is strangulated, this is made up of cases in which there is simply an obstruction to the passage of the intestinal contents. This condition is most frequent in the large intestine, and particularly near its lower end.

The surgeon should first of all obtain an accurate history of the case, noting particularly the duration of the symptoms and the character of the evacuations. The symptoms may indicate merely an exaggeration of a condition of constipation, the motions being hard and lumpy, or even of their normal size. Or there may be a gradual march of the symptoms with lessening size of the motions down to marble or pea-like lumps, and these may be mixed with abundant mucus or blood, and if the quantity of mucus be great it may be discharged frequently, and give the patient the impression that he is really suffering from diarrhœa. In rarer cases there may be a history of gall stone, or of a previous attack of chronic peritonitis which has gradually interfered with the peristalsis of the intestine. Having investigated the history of the case, the surgeon should proceed to the examination of his patient. This should consist first of all of an exploration of all the seats of hernia to exclude that source of obstruction. Then the rectum should be examined to exclude pressure upon or stricture of this tube, intussusception, and impaction of fæces, a gall stone, or any foreign body. (*See* page 169.)

If the disease be still undetected, the belly must be examined to notice the amount of distension, and whether this is uniform or localised. This was referred to in the last section, and its bearing upon diagnosis pointed out. Of course an abdominal tumour will be diligently sought for, and if such be

found, all its features will be carefully noticed. The belly will then be examined, to determine, if possible, where the obstruction is. By percussion it may be possible to map out the distended colon, and to determine that only a part of it is distended. Further, the age of the patient and his general constitutional condition must not escape observation.

If the patient be otherwise in good health, but pass a hard motion only at long intervals, the motion being dark in colour and of normal size, and the rectum be found healthy and empty, the belly not greatly distended, nor containing a tumour, and particularly if the patient be an anæmic young woman, it may be considered as a case of *atony of the bowel.*

If with symptoms like the above the rectum is found full of hardened fæces, or similar fæcal masses can be felt in the colon, it is usually spoken of as a case of *fæcal impaction.* The two cases have very much in common. In fæcal impaction the patient may pass even daily small hard lumps of fæces, or be troubled with tenesmus and a frequent evacuation of mucus stained with fæces. This condition is often met with in elderly people.

If with the signs of chronic obstruction an elongated tumour is felt in the belly, and the patient discharge mucus with a small amount of fæcal matter from the rectum, and complain of irregular colicky pains and tenesmus, *chronic intussusception* is to be diagnosed. The end of the intussuscepted length of bowel may be felt in the rectum.

For the diagnosis of *simple* and *malignant stricture of the rectum, see* page 487.

If these causes can be excluded, the surgeon must attempt to determine by the amount and character of the abdominal distension whether the obstruction is seated in the large intestine or in the small. Malignant disease is much more frequent in the large than the

small bowel, while chronic peritonitis or adhesions or traction most often affect the small intestine. If a tumour can be detected through the abdominal wall it is of great value in the diagnosis. By listening over the cæcum while a large enema is being administered it may be possible to hear whether the fluid reaches the cæcum, or to make out where its passage is blocked. By the introduction of the hand into the rectum and colon an obstruction, otherwise obscure, may be detected. (*See* page 483.) If the signs point to obstruction in the small intestine, and there be a history of previous peritonitis, or of pelvic inflammation or tumour, and the constipation be not absolute, the condition may be attributed to *chronic peritonitis*, or some similar cause dragging upon or binding down the intestine and impeding its peristalsis. Where, however, the obstruction is seated in the large intestine, and the disease has steadily and continuously progressed, whether a tumour can or cannot be felt, it must be attributed to *cancer of the colon.* The signs of obstruction will probably be combined with mucous or bloody diarrhœa, rapid emaciation and progressive anæmia. Secondary deposits may be detected in the liver and elsewhere.

Diagnosis of cases of congenital intestinal obstruction.—Whenever a new-born infant does not pass the meconium within twenty-four or forty-eight hours, it should be carefully examined to ascertain whether there be not some deformity of the lower bowel. Vomiting and abdominal distension are other symptoms calling attention to this condition. The surgeon will have to ascertain three facts: whether the anus is developed, whether the rectum is developed, and whether the rectum has formed any unnatural communication with the bladder, uterus, or vagina. By inspection of the perineum it will be at once obvious whether the *anus is developed* or not. Having

ascertained this point, the surgeon must try to determine whether the rectum is developed. Passing his little finger into the anus he feels for a tense bulging swelling filling out the pelvic cavity; this may be felt separated from the anus by a thin septum, or at a greater distance; or, on the other hand, the finger may quite fail to find any such swelling in the pelvis. If there be no anus, the surgeon feels carefully in the perineum and notices whether it bulges when the child cries or strains, or when pressure is made upon the hypogastrium and iliac fossa; by such signs the distended rectum may be diagnosed. If, however, the perineum be hollow, and there be no evidence of the presence of a distended rectum, the surgeon should make an incision in the median line in the normal position of the anus, and carefully dissect up along the front of the sacrum, endeavouring to feel for the swelling of the distended bowel. Communication of the rectum with the bladder or urethra, or with the vagina, will be shown by the escape of the meconium in the urine, or from the vulval orifice. The author once met with a case, which he believes to be the only one of the kind recorded, in which the obstruction was due to a plug of inspissated mucus in the lower end of the ileum.

CHAPTER XXXV.

DIAGNOSIS OF ABDOMINAL HERNIA.

THE phenomena of hernia vary so much in different cases that there are only three features common to it in all conditions. These are (*a*) the presence of a tumour; (*b*) its connection with the abdominal

cavity; (*c*) the fact that it has suddenly or gradually appeared as a protrusion from the belly. In the great majority of cases we find the tumour at one or other of the favourite seats of hernia, and learn that it is or has formerly been reducible with reappearance of the tumour under effort or strain, and we are able by the characteristic feel of the tumour, by tympanitic percussion, or by a gurgle in it, to demonstrate that its contents are one or other of the abdominal viscera.

Diagnosis of the anatomical varieties of hernia.—All scrotal and labial herniæ descending from the groin are *inguinal.* A hernia occupying the fold of the groin may be either inguinal or femoral. Abduct the thigh and make the adductor longus tense, and then run the finger up along it, to the pubic spine; if, now, this point of bone be internal to the hernia it is *femoral;* if external, the hernia is *inguinal.* In men the surgeon should push his fore-finger into the bottom of the scrotum and up along the cord to the external abdominal ring and inguinal canal, when he will be able to feel whether the tumour occupy that canal or not. If the hernia be distinctly below Poupart's ligament it is *femoral.* A small hernia lying in the inguinal canal is called a *bubonocele.* A hernia at or close to the umbilicus is known as an *umbilical* hernia; when congenital the protrusion is through the umbilical orifice; in later life the "ring" is often an aperture in the linea alba close to this. A hernia protruding at any other part of the abdominal wall is known as *ventral;* these occur at the seat of old cicatrices or muscular ruptures, and differ from other herniæ in having no "neck" to the sac.

Should a hernial tumour be found below Poupart's ligament, to the inner side of the femoral vessels and deep among the adductor muscles, it is an *obturator*

hernia. It is rare for this variety of hernia to form a distinct tumour; there may be nothing but a slight sense of resistance deep down beneath the pectineus muscle, with tenderness on pressure at this spot, eversion of the hip causes pain shooting down to the inner side of the knee. A careful examination of the inner aspect of the obturator ring should be made from the rectum or vagina. Other rare forms of hernia are *vaginal, pudendal, perineal,* and *ischiatic.*

Inguinal hernia.—Whenever a hernial tumour of some size is suddenly produced, its sac has been preformed; where, on the contrary, the hernia has been slowly produced, its sac has been formed by a gradual protrusion of the parietal peritoneum. Any hernia, therefore, which at its first formation reaches into the scrotum has a preformed sac. If a scrotal hernia, which was suddenly formed, be found to completely envelop the testicle, it is a *congenital hernia,* or a hernia into the tunica vaginalis. If a suddenly-formed scrotal hernia extend to the top of the testicle, the testicle forming as it were a second tumour separate from and movable over the hernia, it is a *funicular hernia,* or a hernia into the unobliterated funicular process of peritoneum. Where an inguinal hernia has originated as a small protrusion which has gradually increased, it is an *acquired* hernia; when of large size in the scrotum the testicle will be found behind the hernia; this form may be "*oblique*" or "*direct.*" To distinguish between an *oblique* and a *direct hernia* look at and feel the direction of the swelling in the abdominal wall, and then reduce the hernia, and, putting the finger in the canal, get the patient to cough and notice where the protrusion of the gut is felt. When the neck of the hernia forms an oblique swelling in the groin, and especially when its first protrusion is felt to be outside the external abdominal ring, the hernia is *oblique.* As an oblique

hernia when old and of large size becomes direct, it is only possible to distinguish between them when recent and of small size. When such a hernia is felt to protrude immediately behind the external abdominal ring it may be diagnosed as *direct.* Congenital and funicular hernia are always oblique.

Diagnosis of the contents of a hernia.—If a hernia be tympanitic on percussion, smooth, rounded, and elastic, yielding a gurgle on manipulation, it is an *enterocele.* When it is dull on percussion, firm, lobulated and not yielding any gurgle, it is an *epiplocele.* But if in places it be tympanitic on percussion and soft and gurgling, but in others firm and lobulated, it is an *entero-epiplocele.* When part of a scrotal hernia is found to fluctuate, and on pressure urine is evacuated or the patient experiences a strong desire to micturate, the surgeon may diagnose a *cystocele.* This form of hernia is rare in the male, and quickly becomes "irreducible"; in the female, under the form of a vaginal protrusion it is more common.

Reference may here be made to the diagnosis of *umbilical epiplocele,* which has to be distinguished from a subcutaneous *lipoma* and an outgrowth of *subperitoneal fat.* All alike consist of soft, rounded, lobulated masses of fat. If the tumour be freely movable in the belly wall, quite irreducible and without an expansile impulse, it is a *subcutaneous lipoma.* If the tumour on its deep aspect be fixed to the belly wall, be not and never have been reducible, and have no impulse on coughing, it is a *subperitoneal lipoma.* If the tumour be fixed deeply to the belly wall, and be or have once been reducible wholly or in part, and have an expansile impulse on coughing, it is an *epiplocele.* It may be impossible to distinguish between the last two tumours without operation.

Diagnosis of pathological varieties of hernia.—1. If the hernial tumour entirely disappear

on lying down or on gentle taxis, slipping up with a gurgle and redescending on coughing or assuming the vertical position, it is a *reducible hernia.* After reduction the surgeon can feel the sac of a hernia as a more or less marked thickening of the part, and also the canal or ring through which the hernia has passed.

Supposing the hernia or any part of it is not thus completely reducible the surgeon should learn the age of the hernia, how long it has been unreduced, whether it is now larger than usual, and, if so, whether that increased size is the result of a strain or effort, or is quite spontaneous. He should examine the tumour, noticing its outline, tension, and sensitiveness, whether there is any impulse on coughing, or fluctuation, and whether it is dull or resonant on percussion. He should inquire when a motion was last passed, and whether flatus has been passed since; if vomiting have occurred he should examine the vomited matter to estimate from what part of the alimentary canal it has been regurgitated, and he should also learn the frequency of the vomiting, and examine the belly for distension and tenderness. Finally, he should investigate the patient's general condition, pulse, temperature, tongue, facies, and urine.

2. If the hernial tumour be free from all signs of inflammation or tension, have an impulse on coughing, and there be no signs of intestinal obstruction, it is a *simple irreducible hernia.* If there be a history of attacks of pain in the hernia, there are probably adhesions in the sac. If there have never been such attacks of pain, but the patient have become stout, it is probable that the increased bulk of the contents (epiploon or mesentery) has led to the irreducibility.

3. If there have been a sudden formation of a hernial tumour or a sudden enlargement of an old hernia from some strain or effort, and if the tumour be

tense, dull on percussion, and perhaps fluctuating, tender, and sometimes acutely painful, without impulse on coughing; and if there have been absolute constipation, not even flatus having been passed since the occurrence of the increased swelling, and vomiting, first of food, then of bile, and latterly of stercoraceous matter; and if with this the patient be found more or less collapsed, with cold skin, pinched features, rapid small pulse, tongue brown with a tendency to become dry, the hernia is *strangulated.* In some cases the pain and local tenderness are very marked, in others hardly noticeable; the vomiting may be very urgent or less severe, and the signs of collapse may be slight or intense; the local changes in the hernia together with the absolute obstruction, the vomiting and the collapse, usually render the diagnosis unmistakable. When the parts around the strangulated hernia become swelled, purplish, and œdematous, and the vomiting ceases and is replaced by hiccough, the patient becoming cold, livid, and very collapsed, *gangrene of the hernia* is to be diagnosed. Should a patient with an unrelieved strangulation suddenly complain of acute pain in the belly, and the collapse be notably increased, and this be quickly followed by distension of the belly, pain in the back and great abdominal tenderness, *extravasation of fæces and acute peritonitis* must be diagnosed.

4. If an irreducible hernia be of larger size than usual to it, heavy and full, but somewhat tympanitic on percussion and gurgling or pitting under the fingers, with a slight impulse on coughing; and if the surgeon find that there is no, or but slight, tenderness and no marked collapse, but a sense of fulness of the belly with nausea and vomiting when food is taken; and if there be a history of constipation for some time, or of a large and indigestible meal, and the bowels are confined although flatus may be passed, it

is an *obstructed hernia.* This condition is met with most often in large old irreducible herniæ, and in patients who are careless about the regular action of the bowels.

5. Whenever a hernial tumour shows signs of inflammation (redness swelling, local heat, pain and tenderness, with fever), it is an *inflamed hernia.* This may be due to local peritonitis set up by injury, to obstruction, or even to strangulation and sphacelus of the contents of the sac: in all cases the cause of the inflammation must be ascertained.

Diagnosis of the effects of taxis.—When, during taxis, hernial tumour yields with a sudden slip and a gurgle, and the contents then gradually pass into the belly and leave the canal clear except for the presence of the sac, the surgeon may be satisfied that the *hernia is reduced.*

Should the hernia yield gradually, go up bodily without a gurgle, and leave the ring unusually free, no sac being found in it, the surgeon must suspect *reduction en bloc;* and if, on pressing his finger well up into the canal, a sense of resistance is met with, or if the symptoms of strangulation persist, this diagnosis becomes established. Reduction *en bloc* may be very easily effected, even by the patient himself.

If, in attempting to reduce a hernia which has been some time strangled, the tumour be found to yield gradually under the fingers, but not disappear, and the outline and tension of the parts be altered, while at the same time the patient becomes profoundly collapsed, the surgeon is to diagnose *rupture of the intestine.*

After reduction of a hernia *peritonitis* may set in without rupture of the bowel. (*See* page 155.)

When after reduction of the hernia the pain referred to the umbilicus subsides, and the patient

recovers from the collapse, but there is no passage from the bowels, and the abdomen becomes distended and there is localised tenderness, the surgeon is to diagnose *laming of the intestine* from the prolonged congestion.

CHAPTER XXXVI.

DIAGNOSIS OF THE DISEASES OF THE ANUS AND RECTUM.

It will be convenient to discuss very briefly the diagnostic value of the common symptoms of anal and rectal disease; but although this is done, it cannot be too clearly stated that in no case should a diagnosis rest upon such data, but that in every case a careful and thorough exploration of the parts is necessary; these symptoms may enable a surgeon to *guess* the nature of a patient's malady, but a careful examination will alone enable him to arrive at a *diagnosis*.

Pain is perhaps the most frequent of these symptoms. It may be an *itching* more or less severe, known then as *pruritus;* this is particularly associated with external piles, herpes, erythema or eczema of the anus or adjacent skin, external fistula, ascarides, constipation, and sexual irregularities. When *throbbing* in character it is generally due to acute inflammation and abscess, or to strangulation of prolapsed piles or mucous membrane. When *colicky* in nature and *preceding* and *accompanying defœcation,* it is generally caused by ulceration of the bowel. When of a dull *gnawing* character with exacerbations and continuing for a long period *after defœcation* it is caused by an irritable *ulcer* or *fissure* of the anus. Pain in the

region of the *sacrum* is often due to malignant disease of the bowel, and when to it are added pains shooting down the thighs, it indicates that the disease is implicating the sacral nerves. *Tenesmus* is particularly caused by polypus and foreign bodies in the rectum, constipation, dysentery, stone in the bladder, or hypertrophy of the prostate.

Diarrhœa, in the sense of the passage of the intestinal contents too hurriedly, and in a too liquid form, is not a symptom of rectal disease; but in the sense of a too frequent evacuation of the lower bowel it is a common symptom of rectal ulceration which induces it, either by the active peristalsis excited by the contact of fæces with the ulcerated surface, in which case fæcal matter of usual consistence and size is passed frequently in small quantities along with much mucus, and with colicky pains; or by the amount of mucus, serum, or blood poured out from the diseased surface. A frequent discharge of mucus, mixed with more or less fæcal matter, may occur in cases of fæcal accumulation in the rectum. Indeed, this symptom is so frequently associated with rectal obstruction that it should invariably suggest to the surgeon the necessity of a thorough exploration of the rectum.

Constipation is quite as often a cause as a consequence of rectal trouble; it appears to induce piles, certainly promotes thrombosis in external piles, and increases the hæmorrhage from internal piles, and it is regarded as leading to anal abscess, to fistula, and to fissure. The affections of the rectum which lead to it are painful fissure of the anus (owing to the dread with which the pain of defæcation is regarded), stricture of the anus or rectum, and atony of the bowel by which its expelling force is diminished; this last, leading to impaction of fæces, may then set up a spurious diarrhœa. The association of "diarrhœa" and "constipation," by which is meant the frequent