Suppuration goes on, in many cases for two or three or four weeks before the pus breaks through its investing sac. This event is achieved in one or more of three chief directions: 1, through the skin; 2, through a mucous membrane; 3, into the serous sac of the peritoneum.

In some cases imperfect and temporary relief only is obtained on the discharge of pus. The hard tumefaction in the pelvis subsides but slightly. Hectic or irritative fever continues. Pus continues to flow in more or less remittent or intermittent discharge; and sometimes successive purulent collections form, and burst at intervals, extending over weeks, months, and even years, until the patient sinks exhausted.

In some cases of this class, happily the most frequent, the suppurative action at length ceases, the cavities contract, the solid deposits gradually become absorbed, and the recovery may be complete, even the adhesions disappearing. The rigors cease when the pus finds an external vent. But patient and physician must be prepared for a tedious course of treatment.

Where the septic element has been inconsiderable, and especially where the inflammation has been excited by disease of the tube or the ovary proceeding slowly, or only inflicting upon the peritoneum a succession of slight injuries, repeated at long intervals, the pelvic organs may, as in more acute cases, be found embedded in thick masses of hard brawny effusion, involving the rectum and the superincumbent small intestines and omentum. This condition may last, kept up or extended by occasional accessions of fresh inflammation, for many months, or even years. This is the case especially when the inflammation is excited by a diseased ovary, cystic or dermoid. But sooner or later, under the irritation of the advancing disease, or of some accidental intercurrent cause, suppuration comes on. The pus forming in the substance of the effused mass, commonly beginning at the surface or in the substance of the diseased organ—by a process incident to the disease, one of the events of which is bursting or perforation—forms an abscess, or a congeries of purulent collections. Up to a certain time an abscess thus formed may be fairly encysted or isolated by effusions which shut it off from the healthy portion of the peritoneal sac. The imprisoned pus may even undergo a transformation which ends in absorption. But in the majority of cases the sac of the abscess, extending its adhesions by eccentric action, effects a consolidation with some structure through which a communication can be made with the exterior. Thus a pelvic abscess will make its way to the external surface through the skin, or into the intestine, bladder, vagina, or rectum; or unfortunately failing in these directions, it may perforate its own sac, and pour its contents into the peritoneal cavity. In this latter event we shall have the ordinary phenomena of "abdominal shock," often fatal speedily; and if not so, then followed by peritonitis, from which the patient may or may not recover.

If the pus work its way out by the skin, the place of election is most commonly the iliac region above Poupart's ligament. Before this happens there will have been a history of irritative fever, marked generally by rigors more or less distinct; by small pulse, ranging from 100 to 120; by temperature running up to 101° F., 102° F., or 103° F.; by sweats; occasionally by diarrhœa. The hard, somewhat elliptical mass, becomes

softer, doughy; near the skin, a patch at first red, then bluish appears; fluctuation becomes distinct; and then, if the abscess be not opened, it bursts.

Sometimes the abscess points nearer to the median line below the umbilicus. This is more likely to be the case if the cause of the peritonitis be a dermoid ovarian cyst. Where the inflammation takes its rise deep in the pelvis by the side of the vagina, it will sometimes find an exit by the outlet of the pelvis through the perineum. I have seen several examples of this in puerperal cases. In these the evacuation has been preceded by great distress from the intra-pelvic pressure on the bladder and nerves. It has also made its way by the sacro-sciatic notch, or by the side of the anus.

I believe, however, the route most frequently selected is the vagina. An opening is made through the roof, mostly behind or to one side, more frequently the left, of the cervix uteri. This issue, as well as that by the rectum, is sometimes overlooked. The pus escaping perhaps gradually is not distinguished from the other discharges. When the inflammation is retro-uterine, the pus will almost always make its way by the roof of the vagina or by the rectum, just as a retro-uterine hæmatocele will do. I have known one or two cases in which the abscess opened into the cervix uteri.

Occasionally abscess after abscess points in different places, or sinuses keep open, and continue to drain off the secretions formed in the suppurating cavities. These cavities seem to be prevented from closing by the rigid walls composing them being fixed to the sides of the pelvis or to the intestines. An exhausting suppuration then goes on, lasting for months and even for years, until the sufferer sinks from inanition, the wear and tear of pain, and the gradual impairment of vital functions. These cases of protracted suppuration are, I believe, mostly the result of inflammations set up by the perforation of ovarian cysts, or of an extra-uterine gestation cyst, or a dermoid cyst into the vagina or the rectum or some higher part of the intestine. The issue is not seldom fatal.

But I have seen similar cases which followed upon labor and abortion, after surgical operations upon the uterus, and after wearing a fixed intra-uterine pessary.

The protracted intermittent course of some of these suppurating cases is partly explained by the multilocular character of the abscesses or suppurating cavities. These burst successively. Perhaps the suppuration in one compartment sets up suppurative action in the rest, and so on. How these multiple abscesses form is probably accounted for by the irregular shape and the movements of the organs which form the framework or scaffolding of the peritonitic effusions. The intestinal fold and convolutions form endless recesses and projections, and the plastic layers which invest them will follow, to a great extent, these recesses and projections; whilst the incessant vermicular movements and the alternations of distension and collapse of the coiled intestinal tube, acting whilst the effused matter is still soft, will leave irregular spaces, divided partially or completely by septa running in various directions. These hollow irregular spaces will in the first place be filled with serum, or sero-purulent fluid, which at a later time is replaced by pus. When the solvent process of

suppuration has set in, the septa gradually break down; the pus-containing spaces are fused together more or less completely. But the process is tedious, and it may be long before it is complete.

This irregular multilocular arrangement will also account for the fact that perimetric abscesses sometimes open in several directions. Thus we may see an abscess first make an exit at the iliac region; then, successively, it will burst in the rectum and vagina.

When such abscesses with thick walls, not capable of collapsing under atmospheric pressure, burst or are opened, air is sometimes drawn in. Decomposition of retained pus and blood ensues, so that the discharge becomes extremely offensive. The sac, which hitherto emitted a dull sound on percussion, will now be resonant. To a certain extent, often effectual, pressure by well-regulated compresses will supplement the failure of atmospheric pressure, in keeping the walls of the empty sac in contact.

One possible termination, happily rare, of which I do not remember having seen an unequivocal example, is sloughing or gangrene. Grisolle[1] describes it as follows: "Gangrene is scarcely ever observed except in abscesses consecutive to mortification of the cæcum or of its appendix, and to the escape of stercoraceous matter into the neighboring cellular tissue. I do not believe that gangrene has ever been observed in abscesses of spontaneous origin, which are developed in the sub-peritoneal cellular tissue. If, on the contrary, the inflammatory engorgement, although spontaneous, is subjacent to the fascia iliaca, this may produce there a true strangulation of the inflamed parts; and it will be sufficiently common to see in those sub-aponeurotic abscesses the fibres of the iliac muscle blackish, softened, and exhaling a fetid odor. No symptom can produce a sure diagnosis of this unfortunate termination; but, when issue is given to the effused matter, it exhales a fetid odor, and brings with it gas, feces and bits of cellular tissue, of muscles, and of mortified tendons. One can understand that death should be the consequence almost inevitably of such disorders."

I, however, once tapped an encysted serous peritonitic effusion giving issue to a small quantity of fecal matter, foul gas, and horribly stinking serum, which ended in recovery.

Matthews Duncan mentions as one "peculiarity of pelvic, and probably of perimetric abscess only, that some have no tendency to burst at all. He has repeatedly opened such abscesses, whose existence certainly dated several years before his seeing them, and which showed no tendency to point in any direction." Such abscesses are occasionally found in the dead-house. One was observed in a woman who died shortly after admission into my ward at St. Thomas's. I had recognized in her a pelvic peritonitis six years before. The inflammation and suppuration were found to have arisen around a dermoid cyst.

The *course* that perimetric inflammations run, and the *pathological appearances* will vary according to the parts involved, the complication with, or absence of, septicæmia; the diathesis or constitutional state of the patient; the treatment and other accidental circumstances.

[1] Arch. Gén. de Médecine, iii. série, tome iv.

In puerperal cases, perimetric inflammation, including cellulitis, is especially prone to arise in women of strumous diathesis. The same subjects are particularly prone to inflammation and abscess of the breast. I have little doubt, although I have not made out the fact with equal distinctness, that the same diathesis also disposes powerfully to like inflammation in the non-pregnant state. In women of this constitution lymph is rapidly and freely thrown out, forming large tumefactions. The effused matter, more readily than in sound constitutions, degenerates into pus. Dissections at different stages of perimetric inflammation appear to me to prove that it is not always, perhaps not even generally, the plastic or semi-coagulated lymph which, in the first place, is transformed into pus. There is commonly a considerable quantity of thin serous fluid which becomes inclosed by the plastic effusion, forming a cyst single or many-celled around it. It is this serous fluid which forms, as it were, the focus of the phlegmon which becomes turbid and purulent. Very soon no doubt the innermost layer of the plastic investment breaks down in part, and contributes to the purulent collection, helping to form the abscess.

That this plastic investment does give way is proved by the abscess bursting or perforating.

The effusion sometimes takes place with great rapidity, as in the following not rare case: A young lady, who had been delivered of her first child about two months, and had returned to usual avocations, took a long walk, came home fatigued to her husband, was next day seized with intense pain in the lower abdomen and vomiting; constipation and tympanites followed. On the fifth day, I found the uterus set fast in a mass of firm effusion; the bowel also was so compressed that there was nearly complete obstruction for nine days. Under rest, opium, and enemata, she got well.

In a number of cases, very difficult to estimate, the inflammation terminates in resolution. The effused consolidated masses of plastic matter gradually disappear. As this process goes on, the uterus recovers its mobility, if not entirely, to a great extent. The finger begins to travel around the vaginal-portion. The subjective symptoms become moderated. This process usually takes several weeks, even months, for its completion. In a considerable proportion of cases I have seen the whole process completed in eight, ten, or twelve weeks. But the last stage often lingers longer still.

In not a few cases, when the bulk of the effusion has melted away, there remain *cellular adhesions* which may restrain the movements of the uterus, and bind it down in various directions. Thus, adhesions between uterus and bladder will produce anteversion; adhesions in the retro-uterine pouch will produce retroversion; and we may find lateral inclination from ovario-uterine and alar adhesions. These adhesions undoubtedly often practically disappear—that is, under the constant strain of the pelvic organs in their functional movements, the adhesions incessantly stretched undergo atrophy complete or partial, so that they no longer impede the uterus. In the case of retro-uterine adhesions, I have often accelerated their atrophy by the use of a lever-pessary, which, lifting up the fundus uteri, puts these bands on the stretch. One very efficient cause of their

disappearance is pregnancy. The uterus enlarging, drags and attenuates them, so that they undergo atrophy. On the other hand, they sometimes last an indefinite time, binding the uterus down in various abnormal positions, impeding this organ in its natural movements, and thus leading, as Madame Boivin insisted, to abortion. The ovaries, which possess much more limited natural movement, and are, moreover, smaller and less rigid bodies, are not so capable of exerting a strain upon adhesions, and are consequently more frequently doomed to perpetual bondage.

Aran examined fifty-three women who died in his wards with reference to this point. He found adhesions in twenty-nine. The adhesions were twice as common in women who had had children as in women who had not. These, of course, are selected cases dying in a special gynæcological ward, and cannot represent the general proportion of adhesions.

I have had the opportunity of watching the course of several cases of adhesions with requisite precision. A young woman was admitted into my ward with retro-uterine hæmatocele. The blood-mass made its way through the roof of the vagina, and on several occasions we saw blood oozing through the opening. I passed a probe three inches into it. When the opening closed the tumor gradually disappeared, and it was found that the body of the uterus was pulled back, and held in that position by adhesions. Six months later the uterus had nearly recovered under the gradual lifting action of a Hodge-pessary.

When the uterine adhesions are persistent and short, binding the uterus down tightly, they may be the source of severe pain. They may keep up congestion or chronic metritis. And so long as adhesions remain there is a liability to renewed attacks of peritonitis. This disposition to relapses, or the "*redoublements*" of French authors, is always to be borne in mind in the antecedent stages whilst the inflammatory effusions are still thick and hard.

The *symptoms* of perimetric inflammation are generally compound. In order of time, signs of disease of the uterus, tubes, or ovaries commonly take precedence. Then follow those of perimetric inflammation. And these are for the most part severe enough to overwhelm and obscure those of the original disease. This addition of perimetric inflammatory signs is usually more or less sudden. It is marked by acute intra-pelvic pain; more or less shock, according to the cause; acceleration of pulse to 120 or 130; heat of skin, the temperature rising to 103° F., 104° F., or even 105° F.

There is a sense of fulness and pressure, sometimes of bearing-down. The bladder and rectum are often disturbed in their functions. Tympanites, the result of a kind of paralysis of the intestines whose peristaltic movements seem to be instinctively restrained in order to avoid pain, is a common symptom. This induces constipation, which is further caused by the narrowing by compression of the rectum, and by the inability to exert effectually the expulsive movement necessary to defecation. Some amount of dysentery is not uncommon. Colic pains, tormina, flatulence, are often exceedingly distressing.

The bladder symptoms are often distressing, but are not constant. There is dysuria, frequent call to pass water, an unsatisfied sense of the bladder not being emptied. This distress is partly due to the interference

with the contractile action of the bladder, and with the abdomino-pectoral act of expulsion, and partly to the irritating quality of the urine. This is often loaded with lithates and mucus. If an abscess be about to burst into the bladder, the dysuria increases, and not uncommonly there is retention of urine. When the bursting has been effected, of course pus will be voided with the urine. Retention may also precede the bursting of an abscess into the rectum or vagina.

The ovario-uterine function is variously affected. Sometimes there is metrorrhagia. This is especially the case when there is concomitant metritis or sub-involution of the uterus with abrasion of the mucous membrane of the cervix. But, not uncommonly, even in post-partum cases, in which sub-involution is a tolerably certain attendant condition, menstruation is scanty or suspended.

The secretion of milk is generally suspended either quickly or gradually. In spite of the mother's anxiety to keep it up, it falls off; it is rather exceptional for it to last out the course of the disease; and still more rarely is it judicious to make the attempt.

When the seat of the inflammation is in one side of the pelvis, the thigh is commonly kept slightly flexed to relieve the pain which extension by stretching the inflamed structures produces. This causes the patient to limp on the affected side when walking. This lameness is so characteristic that I have often diagnosed lateral pelvic inflammation to my class on seeing a woman enter the consulting-room with the anæmic aspect following parturition, and this painful limp.

In some cases the patient finds she cannot get the heel to the ground. In not a few cases one or both legs swell soon after labor, constituting the earliest sign to attract attention.

Sciatica on the side of the effusion is a symptom I have several times observed. In one the pain along the sacral plexus of the left side was very severe, and underwent exacerbations marked by recurrent suppurations, over a period of twelve years. The sciatica disappeared when the disease was cured.

When suppuration is proceeding, the sense of intra-pelvic tension and of pain is increased.

In some puerperal cases I have observed pelvic inflammation to be complicated with metritis. This indicates, I believe, a strumous or leucophlegmatic diathesis.

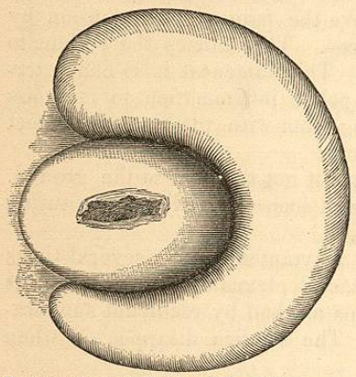
The Diagnosis.—The objective signs are made out by abdominal, vaginal, and rectal touch. *Palpation over the lower part of the abdomen*, especially if the hand be pressed into the pelvic cavity, gives rise to acute pain. There is often some degree of tympanites; and almost always tension of the abdominal muscles, excited by the dread, even more than by the act, of examination. In the early stage no very marked tumefaction or irregularity may be felt in the pelvic brim; but very soon a firm mass, more or less rounded or cylindrical, is made out in one or other, or in both sides of the pelvic brim; the hand encounters resistance in the attempt to pass it into the pelvis above Poupart's ligament; as the disease continues, this tumefaction extends out of the pelvis, spreading laterally and forwards into the iliac fossæ, bulging out above Poupart's ligament, and sometimes rising as high as the level of the umbilicus.

This swelling is hard, brawny, tolerably uniform, cylindrical. At an early stage the skin can be moved over it; but later, especially if the process be tending to suppuration, the abdominal wall becomes one with the tumefaction underneath.

The shape and limits of the tumor rising out of the pelvis can usually be defined by the hand pressing in the abdominal wall above, and getting even a little way behind the tumor. By percussion the evidence thus obtained may be checked and extended. An area of dulness will correspond with the tumefaction behind the abdominal wall, whilst resonance will disclose the position of the intestines.

The *vaginal-touch* gives the most decisive evidence. The examining finger entering the vagina is first conscious of increased heat and puffiness of the walls. The os uteri is reached much more readily than in the ordinary state, because an almost invariable effect of the perimetric inflammation is to bring the uterus down to a lower level. The situation of the os uteri is usually near the centre of the pelvis. This is the case when the chief seat of inflammation is in the broad ligaments or in the sides of the pelvis. If one side be chiefly affected, the cervix may be pushed over towards the opposite side. But if the case be one of retro-uterine cellulitis and peritonitis, the uterus is pushed bodily forwards, coming sometimes so close to the symphysis pubis as to compress the neck of the bladder, and cause retention of urine.

FIG. 106.



Representing the Collar of Hard Inflammatory Effusion encircling the Cervix Uteri. (R. B.).

In post-puerperal cases the os uteri is generally more or less patulous. Surrounded as it is by inflammatory effusion, contraction and involution are impeded. Feeling round the margin of the os uteri, we commonly fail to define accurately the usually projecting vaginal-portion. Instead of the hemispherical or conical smooth mass, merging at the fundus of the vagina into soft yielding tissue, we find hard brawny bumps occupying the summit of the vagina, encircling the os down to, or even below its level, preventing our feeling any portion of the cervix. If the inflammation be general, that is what is felt. But if the inflammation be unilateral or anterior or posterior only, the inflammatory swelling projects in the corresponding part only, leaving the remaining part of the circumference of the cervix accessible to the finger; and the uterus will be fixed on the side of the swelling. This is represented in Fig. 106, from a case under my care.

When the inflammation is limited to the peritoneum of the body of the uterus and the utero-vesical reflection—and I have seen several such cases, strictly "perimetritis"—the adhesions contracting in the chronic stage pull the fundus down in nutation; the os uteri is thrown up and backwards in the contrary direction, so that it is actually higher than

normal. And since the mass of cellular tissue between the cervix uteri and the base of the bladder may not be affected, the finger is free to travel all round the vaginal-portion in front as well as elsewhere. But by pressing a little firmly in the anterior vaginal roof we are sure to come upon a firm resisting plane or prominence, which is caused by the inter-utero-vesical consolidation.

Fixing or immobilization of the uterus may generally be accepted as a sign of peritonitis with adhesive effusions. In the case of localized cellulitis, especially in the utero-vesical connection, the uterus may move alone with the phlegmonous mass and the bladder.

In the case of retro-uterine peritonitis, the tumefaction or rather tumor formed by the effused lymph and serum, may attain considerable magnitude, pushing the uterus forward, rising above the fundus of this organ, and coming within reach of the fingers applied above the symphysis pubis. In not a few cases, even, the peritoneal investment of the opposed intestines and omentum being caught, a large firm tumor may be formed, reaching to the umbilicus and even higher. This is especially the case when the peritonitis is caused by a retro-uterine hæmatocele.

When the inflammation is unilateral, I have often been struck with the sensation of a firm, almost knife-like, or rather "hog-back" ridge, running from the edge of the os uteri across to the side of the pelvis. In these cases, in the adhesive stage, the fundus uteri is pulled towards the affected side.

The sound, although not generally necessary, often lends precision to the investigation. For instance, when adhesive inflammation prevents the finger in the vagina, or hand above the pubes from tracing the form and position of the body of the uterus, this being concealed in a mass of firm effusion, we cannot easily tell whether a hard rounded mass projecting the posterior roof of the vagina be the retroflected uterus or a retro-uterine mass of inflammatory deposit. The sound at once puts us right by defining exactly the course of the uterus. The sound in the uterus thus serves as a central axis from which we may estimate the relations, bulk, and nature of all the surrounding structures. It also enables us to test more closely the degree of mobility the uterus enjoys. The sound being in the uterus, on depressing the fundus or the inflammatory mass above the pubes, any movement imparted is clearly seen and felt by the descent or obliquity communicated to the handle of the instrument. Mobility *en bloc* is preserved in a modified degree until the adhesions extend to the walls of the pelvis.

When suppuration has taken place and the abscess is pointing in the roof of the vagina, we may feel a part which before had been hard, brawny, become soft, permitting the tip of the finger to sink in, and immediately to bulge again as pressure is taken off. This is fluctuation. The pointing spot, soft and prominent, is surrounded by a hard mass.

Rectal touch furnishes valuable assistance. It checks and extends the information obtained by abdomen and vagina. The finger, coursing along the anterior wall of the rectum, can reach considerably above the level of the os uteri. If the case be one of inter-utero-vesical cellulitis, the finger can explore the posterior wall of the uterus, determine its condi-