

the vaginal-portion is simply due to the vagina being reflected off at a higher level than usual. The sound shows the entire length of the uterus to be normal.

The seat of the obstruction, then, I believe to be most commonly at the os externum. The obstruction is due chiefly to the small round os itself; partly to the pointed elongated form of the lower part of the vaginal-portion; and partly to an unusual rigidity of structure of this part, which impedes the expanding action natural to the healthily formed os uteri.

When obstruction is experienced at the os internum, I have almost always found it to be due to the flattening of the canal at this point, caused by extreme flexion or angulation of the body of the uterus upon the neck. The sound will generally pass, by giving it a moderate curve, by tilting up the down-bent body with a guiding finger, and carrying the handle of the sound well backwards in the case of antelexion, and *vice versa*.

The *consequences of the described obstructions* take place in retrograde or ascending order above the seat of obstruction. They are: 1. Congestion and enlargement of the body of the uterus, disposing to menorrhagia at first, and causing uterine spasm and colic; 2. A similar condition of the Fallopian tubes, and tendency to undue patency of the uterine mouths of the tubes; 3. Congestion, enlargement, inflammation of the ovaries, determining (*a*) intra-alar hemorrhage, (*b*) retro-uterine hæmatocele, (*c*) limited pelvic peritonitis, with or without adhesions of tubes and ovaries to surrounding structures; 4. As an ulterior result, continued obstruction may entail, through the action of inflammation or long interference with function, atrophy of the ovaries, and extinction of the menstrual phenomena.

All the above consequences may occur in single women.

When the subjects of uterine obstruction enter upon married life, other consequences are added. These are: increased congestion and inflammation of the body of the uterus; increased liability to ovarian irritation; increased tendency to menorrhagia; acute and chronic cervicitis with leucorrhœa; vaginitis; vaginismus; dyspareunia; sterility; or, in the rare event of impregnation, abortion or dystocia. A history of abortion is generally to be mistrusted. A presumed abortion is likely to have been nothing more than menorrhagia. The barren woman would fain console herself with the delusion of a blighted hope. Of course it is not intended to convey the idea that these consequences are, one and all, constant. But I believe it is rare for the subject of narrow os externum uteri, alone or combined as it frequently is with retroflexion of the uterus, to escape from some of them. Dysmenorrhœa, dyspareunia, and sterility will commonly follow; and, continued through the period of ovarian activity, will render life miserable, even if health be not utterly broken down.

The *symptoms* of dysmenorrhœa from obstructed excretion express the several pathological conditions which are called into action. Pain is the most urgent symptom. This usually comes on as a heavy aching sensation, even before the flow appears. The seat is pelvic, spreads to the sacrum, loins, one or both iliac regions, and often extends down the thighs.

As the flow appears there is sometimes relief from pain, but more commonly it assumes an expulsive bearing-down character. It rises sometimes to such intensity that the patient is obliged to take to bed. The constitutional reactions of this pain are often great. Prostration approaching to collapse may ensue; violent headaches, syncope, retching, vomiting are not infrequent. I have witnessed marked stupor and hebetude, loss of memory, loss of energy, want of all power of fixing attention, delirium, even mania. These symptoms subside, or are mitigated as the flow ceases, but occasionally last for several days, leaving the patient so exhausted and depressed in body and mind that she has scarcely time to rally before the next period returns, when all her distress is renewed. That these symptoms depend chiefly upon the hyperæmic state of the uterus seems proved by the observation repeatedly made, that touching the cervix or fundus with the finger will produce the same phenomena, and that the uterus is really enlarged and painful. Enlargements of the abdomen from perverted nervous action, resembling those which occur at the climacteric period, are frequent at the menstrual periods. The breasts also frequently enlarge at these times, and become painful, in response to the ovario-uterine distress. The effect upon the menstrual function varies. In one class of cases menorrhagia is induced, the result, no doubt, of the extreme hyperæmia caused by the obstruction. In these cases the intermenstrual interval is often reduced to three weeks or less, whilst the flow persists for a week or longer. Clots are frequently passed indicating retention in the cavity of the uterus. The case then resembles abortion, and, not seldom, patients believe they have aborted. The menorrhagia is commonly followed by leucorrhœa, another means which Nature adopts to lessen the hyperæmia. More or less pain often persists throughout the interval, and is liable to exacerbation on any exertion or emotion. This is due to the continuance of hyperæmia, and even to some hypertrophy of the uterus.

When dysmenorrhœa depends upon obstruction of the os externum or retroflexion or antelexion, it commonly begins with the first advent of the ovarian function, and continues in spite of all ordinary treatment. I have notes of a case which shows in a striking manner the severity of the symptoms sometimes produced. A young lady had been married two years without pregnancy. Since marriage she had suffered from metrorrhagia, and several attacks considered to be, and treated as, peritonitis. During the last six months she had a constant sense of swelling, with pain in the left ovarian region; vomiting attended the pain. This had been relieved by leeching. When I saw her, metrorrhagia had lasted six weeks without cessation. Great prostration was present, with irritative fever, reminding me of pyæmic puerperal fever. I found a small conical cervix, with an os so minute that it required considerable pressure to introduce the uterine sound; the cervix was deviated to the left; there was defined tumefaction and pain in the left ovarian region. I inferred that the narrowed os externum, impeding the flow of blood from the uterus, led to the formation of coagula in the cavity; that these coagula were broken up by decomposition; that absorption of septic matter took place, causing constitutional symptoms, and possibly peritonitis or cellulitis in the left broad ligament; that the tumefaction in the left broad ligament

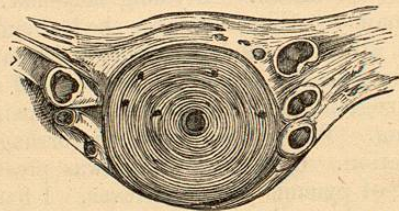
might also be due to hemorrhagic effusion, or to congestion of the ovary. I split the cervix with my scissors. The metrorrhagia, which had persisted for six weeks, and was abundant at the moment of the operation, ceased in a few days, the pain abated, and recovery ensued.

Passing the sound, however gently, commonly causes a little bleeding. This is evidence of extreme hyperæmia and also of a morbid condition of the cervical mucous membrane, in which the epithelium is easily shed. This is further shown by the frequent escape of a muco-purulent offensive discharge, when the os externum is opened by incision.

The association of painful menstruation, uterine hemorrhage, and sterility, with a peculiar formation of the os uteri, has long been recognized. Indeed, this fact in pathology appears to be simply a recovered legacy from the remote epoch of medical history. There is a passage in Aëtius, in which not only is the dependence of sterility upon a contracted os uteri pointed out, but the supposed modern treatment of dilating it by compressed sponge-tents is also described. The late Dr. Macintosh was mainly instrumental in reviving and applying this knowledge to practice. Professor Simpson in Edinburgh, Dr. Oldham, myself, and others, in London, accepted the doctrine. On the Continent it has met with less favor. But in America it is almost universally recognized.

Opinions differ as to the exact nature and seat of the obstruction. If the obstruction be always, or even often, at the os internum, as some contend, it follows that treatment must be directed to the dilatation of this part. Now, dilatation of this isthmus by bougies or expanding tents is attended but with transitory results. The isthmus very soon regains its ordinary calibre. Dilatation of this part by incision is not only of transitory result, for the isthmus quickly contracts again, but it is attended by great danger. The bloodvessels enter the cervix just about this level; some penetrate deeply into its structure, and the venous canals are maintained as more or less rigid tubes. An incision half an inch, or even a quarter of an inch deep will be very liable to divide some of these vessels. Hence, as a first danger, we have to apprehend profuse, even "furious" bleeding; next, from the gaping of the divided veins and the injury

FIG. 68.



Section of Uterus made at Os Internum (ad Nat.).

Showing the normal size of the os internum, the circular disposition of the fibres around it, and the bloodvessels in proximity (R. B.).

to the tissues in which they run, there is great liability to pelvic inflammation and septicæmia. These are no theoretical dangers. Many cases, some fatal, are well known. To illustrate this point, I made many sections at the level of the os uteri internum. This disposition of the vessels is shown in Fig. 68. The same figure shows, what almost every section

at this level shows, that the natural calibre of the isthmus will just about admit the passage of the uterine sound. This coarctation has been demonstrated to be normal by Dr. H. Bennet in the living, by Boullard in the dead, and is no longer disputed. No operation, then, is needed to make it larger. If the sound will pass, we may be satisfied as to the efficiency of the os uteri internum; and in my experience it is very rare indeed to find serious difficulty in passing it. If it does not pass readily, by far the most common cause is excessive flexion of the body upon the cervix. This is overcome by the skilful use of the sound. What need, then, to enlarge the orifice by incision? Will incision help to straighten the uterus? The rational course is, where there is obstruction from angulation, to attack the flexion.

Before describing the operation of incision, it is proper to describe and to discuss the value of the methods of dilating by bougies and tents. This was first done in recent times by Macintosh, and has been largely followed. It had been practised by Paré. Various dilating materials have been used. One was to fashion a tent made of ivory out of which the bony matter was taken by hydrochloric acid. Such a tent, when applied inside the cervix uteri, will swell to about double its ordinary size, and so distend the canal in which it is placed. Metal bougies have been applied of gradually increasing size, as for stricture of the male urethra. Steel sounds provided with a mechanism for expanding after introduction into the cervix have been advocated. Of late the favorite agents have been compressed sponge and laminaria tents. The sponge is made into a conical form and waxed over. Tents of this material, when introduced, soften and swell by imbibition of the fluids secreted.

The patient should be undressed, in bed, and lie on her left side, knees drawn up. To introduce the sponge-tents, first of all pass the uterine sound to determine accurately the dimension and direction of the canal.

The laminaria tents are now usually made about two inches long and hollowed out, that is, tubular. I have contrived a very convenient instrument (see Fig. 49) to carry them into their place, which has been sold by the London instrument makers for several years. A suitable laminaria-tube is mounted on the stilet, when it virtually forms part of the equivalent of a uterine sound, and is almost as easy to introduce. The forefinger of the left hand, serving as a guide, is applied to the edge of the os uteri, whilst the instrument carrying the tent is handled by the right hand. The tent end is carefully slipped up, until nearly the whole length has passed the os externum. By this, and also by a sense of resistance overcome, we know the os internum has been passed. Then, keeping the forefinger on the os, withdraw the handle of the instrument, whilst the catheter is kept steady against the os. The stilet thus withdrawn from the laminaria-tube, this is left *in situ*. To secure it here, until it swells, when it will hold itself, plug lightly with lint soaked in carbolic acid oil.

The tent takes about six or eight hours to swell to its full extent. If the constriction be rigid, or the patient very susceptible, it is not uncommon for vomiting and pain to come on when the eccentric pressure stretches the uterine fibre; it is therefore desirable to give a sedative an hour or two after the application. The necessary time taken for the action of

the tent suggests a practical rule in the selection of the hours for introducing it. It will combine the least distress to the patient with the greatest convenience to the surgeon, to introduce the tent in the evening, and to visit her early in the morning to remove it; or, it may be introduced in the morning and removed in the evening. The os internum yields with most difficulty. Sometimes the tent is gripped at this point so forcibly, that a deep furrow or circular constriction is formed, and the part of the tent over this point having expanded freely, considerable resistance is opposed to the removal.

What is the effect of these measures? The immediate effect is undoubtedly to expand the cervical canal. A laminaria-tube, the size of a No. 8 bougie, will so expand the canal that it will admit the finger. The irritation produced by the presence of the tube causes a free secretion of mucus, which lasts for a day or two. But in a very few days it has contracted to its old diameter, and matters are *in statu quo*. To meet this, the operation has been repeated time after time, either until the patience of the sufferer was exhausted, or until serious accidents arose.

The accidents attending the process are not inconsiderable, and have been too much underrated by those who prefer dilatation by tents to incision, on the mistaken presumption that incision is more dangerous. Numerous cases have occurred of pelvic cellulitis or peritonitis, and some of septicæmic fever after the use of sponge-tents; and similar accidents have followed the use of laminaria tents. Marion Sims relates several such cases, some so severe as to threaten to be fatal. Dr. L. Aitken¹ relates others, and one in which retro-uterine hæmatocele also occurred. He insists upon the very proper caution that they should not be used when there is any inflammation. The risk of septicæmia may be lessened by using tents saturated with weak solution of iodine or carbolic acid. We may then conclude that the use of tents to dilate the cervix uteri is not efficient, and does not possess the advantage of being safer than incision.

The operation of *Dilatation by Incision*. I have already pointed out the objections to dividing the os uteri internum. By eliminating this proceeding we greatly lessen the danger, and do not, I believe, diminish the benefit of the operation. Further to lessen the danger we must eschew a class of instruments which must be regarded rather as machines than as surgical instruments. I am very unwilling to underrate the ingenuity which has been displayed in the contrivance of the various two-bladed metrotomes. It is, however, against these that my objection is urged, and especially against the most ingenious in its mechanism of all, that of Dr. Greenhalgh. This is adapted to divide the os internum, and therefore is already excluded by the reasons advanced against this proceeding. It moreover exceeds the rest of the two-bladed metrotomes in its automatic character. The blades cut as they are set, beyond observation of sight or touch; the incisions they make cannot be regulated according to indications obtained during the operation. The blades may be of unequal sharpness. Now, the thickness of the cervix uteri at the place of incision, and the nearness to which the vessels may approach

¹ Edin. Med. Journ., 1870.

the inner surface, are not absolute invariable quantities. Setting the blades to diverge one-eighth of an inch only beyond the limit of safety—a limit which it must be borne in mind we are unable to determine—will involve the dangers of hemorrhage and septicæmia. Moreover, there may be obliquity of the uterus; and difference in thickness and density on the two sides. I have been informed of one case in which one side of the cervix was so completely divided that an opening was made into the peritoneal cavity.

The objections stated apply, although with less force, to all two-bladed metrotomes, even when designed to cut the lower or vaginal-portion of the cervix only. The degree to which this portion projects into the vagina varies greatly. Thus, in some cases the vaginal-portion forms a conical mass, projecting an inch and a half into the vagina, whilst in others there is hardly any projection, the os uteri being almost flush with the vaginal roof. It is difficult to work two blades simultaneously with the required precision in all cases. It is generally safe, although unnecessary, to divide all that part which projects into the vagina. But where the cervix is entirely supra-vaginal, a degree of nicety is required which it must be difficult to secure with two blades working at once.

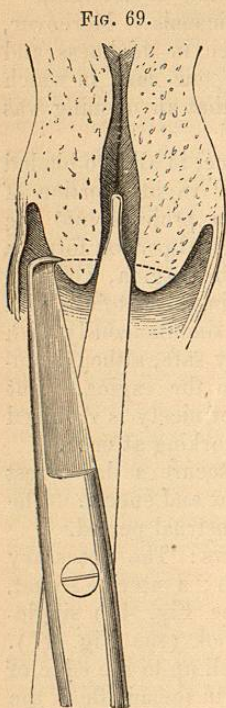
As a preparation for the operation, it is well to secure a day's rest beforehand, and to clear out the bowels by an aperient and enema. The best time to select is during the week following a menstrual period.

The *operation*, as I now perform it, is as follows: The necessary instruments are: my crescent-speculum (see Fig. 42); a uterine sound, a Küchenmeister's (see Fig. 45), or Simpson's (see Fig. 46) single-bladed metrotome, and a Sims' single tenaculum-hook (see Fig. 47). The patient lies in bed, undressed, the nates drawn well up to the edge of the bed, the thighs flexed, the head resting on a pillow in the middle of the bed, the shoulders being kept low. I have not usually induced anæsthesia. The operation, although annoying, is not protracted, and only in rare cases very painful. Where, however, the patient is very nervous, it is better to give chloroform or ether.

The sound is introduced to take exact survey of the direction of the cervix and uterus. The speculum is then introduced so as to bring the vaginal-portion well into the field. The advantage of my speculum is here seen in its bringing the vaginal-portion forwards, so that in almost every case it can be touched with the finger. The probe blade of the scissors is passed into the cervix from half an inch to an inch, and the part intervening between the blades is divided by a quick stroke. The blades are then reversed, and the opposite side of the cervix is dealt with in like manner. Generally, if Küchenmeister's scissors are used, the hooked blade having secured the part so as to prevent it slipping back under the stroke, the operation is now completed. But if other scissors are used, it is desirable to hold the vaginal-portion steady by Sims' tenaculum during the cut. The operation may be done with Simpson's metrotome instead of scissors, and sometimes when it is found that the scissors have not cut sufficiently, Simpson's instrument may be used to complete the incisions.

The operation, if scissors alone are used, is thus necessarily limited to the vaginal-portion; that is, it is by the very conditions of the operation

kept within the bounds of safety. It is not often necessary to divide the vaginal-portion quite up to the angle of reflection of the vagina. It is



Shows the Action of Küchenmeister's Scissors in enlarging the Os Uteri Externum (R. B.). (Full size.)

enough to make a fair transverse slit, or *ostium*, which shall give free communication between the cavity of the cervix and the vagina. Indeed, Dr. Peaslee contends that a very slight incision is all that is necessary.

The division of the cervix is sometimes followed by nervous disturbance out of all proportion to the severity of the operation. This is greatly emotional, and depends upon the susceptibility of the patient, and of the degree of mental tension sustained before and during the operation. The consequence is generally restlessness, sometimes hysteria. In the event of sleeplessness, nervous disturbance, or pain, it is proper to provide a sedative to be taken at night. Occasionally there is retention of urine during the first twelve hours.

The after-treatment is simple. To avert the risks of hemorrhage and inflammation, the patient should keep her bed for four days, and not be allowed to leave her room under a week. The ordinary diet may be given. It is important to avoid stimulants. The sound may be passed on the fourth day, to lightly part the freshly-cut lips of the wound, and secure against reunion. When the operation has been performed as described, and these precautions have been observed, I have never seen any serious symptoms arise. Where symptoms of peritonitis have occurred it has generally been from getting up too soon, from exposure to cold, or undue excitement. It

is not, however, possible to affirm absolutely that in even the most favorable condition there is no risk. The simple passing of the uterine sound for the purpose of diagnosis, has been followed by pelvic cellulitis or peritonitis. But with due care the risk of danger from the operation is infinitely small, and not to be compared with the protracted and repeated suffering and danger attending the obstruction which the operation is designed to remove.

In the event of secondary hemorrhage occurring, as it sometimes will, within the first twenty-four hours, it is well not to trust to ordinary plugging. The most satisfactory plan is to introduce the speculum, to bring the os uteri well into view, to wipe away all blood, to seize one lip with a Sims' tenaculum-hook, so as to open the os, and steady it; then to insert into it a small strip of lint, soaked in perchloride of iron or tincture of iodine. This direct application of the styptic is generally effectual. When the styptic plug is applied, the vagina may be packed below by strips of lint, soaked in carbolic acid oil.

Immediately after the operation, or on the next day, it is generally useful to insert an intra-uterine pessary. I formerly used Wright's. I

now prefer my galvanic coil pessary. Its flexibility adapts it more easily to the uterine conditions. It tends to straighten the uterus without injurious rigidity, and it stimulates development. Pregnancy has more frequently followed since I adopted this instrument.

Results and appreciation of the operation.—The operation as described, or as modified according to the views of different practitioners, has certainly now been performed some thousands of times. The accidents that have attended it are almost all explained by the imperfection of the methods adopted, or by the neglect of proper precautions. At one time Professor Simpson and some others regarded the operation as so slight, that they did not hesitate to perform it in their consulting-rooms, sending the patients home in cabs immediately afterwards. Bleeding and peritonitis were not uncommon results of this practice. I have seen several cases of chronic pelvic cellulitis arising in this manner; and some cases of fatal bleeding are known to have occurred.

The wished-for result is not always immediate. In a certain number of cases, indeed, the next ensuing menstruation is perfectly easy, and future immunity is attained. But not infrequently, the first period or two after the operation are even more painful than before. This may be accounted for by the congestion which remains after the operation, and by the extreme nervous irritability of the subject. The sympathetic distension and pain in the breasts, a frequent concomitant of dysmenorrhœa, is commonly relieved or removed after the operation.

That relief should not be immediate is not surprising, when we consider the state to which protracted suffering and impaired nutrition have usually reduced the patient. The balance of the nervous system has to be restored; every tissue in the body wants regeneration. For this, time is essential. In the great majority of cases, relief more or less complete is gradually established within six or eight months, and ultimate entire disappointment is quite exceptional. One benefit is immediate. Where there has been great congestion or inflammation, this is almost instantly relieved by division of the vessels. It acts like scarification or leeches.

Success is in proportion to the earliness of treatment. If carried out whilst the patients are comparatively young, and within two or three years of marriage, the prospect of complete relief is very great. In a considerable proportion of cases pregnancy has followed. But even after the age of thirty, success more or less decisive is still the rule. The important point is to operate before secondary changes in the uterus and ovaries have been established.

Amongst those who have criticized the operation with most minuteness and authority, stands Scanzoni.¹ His objections are partly theoretical, partly clinical. They are aimed at the operation as a remedy for sterility, and as a remedy for dysmenorrhœa. These conditions are so frequently associated in nature that it is not easy to discuss them apart. One argument for the division of the narrow os uteri lies in this, that the narrow os obstructs alike the outward excretion of the menstrual fluid and the ingress of the seminal fluid, and hence the corollary that enlargement of the os may be expected to remove both difficulties. Now, Scanzoni ad-

¹ Scanzoni's Beiträge, 1870.

mits that the dysmenorrhœa is frequently relieved, but contends that the sterility persists notwithstanding. Thence, he urges that far too exclusive importance is attached to the mechanical hindrances to the meeting of the semen and ova. He says, we know as yet little as to the influence of the various morbid conditions upon the fertility of the semen and ova. Diseases of the testicle, it is known, sometimes lead to the absence of spermatozoa. May not the frequent diseases of the ovaries lead to the production of diseased or defective ova? Manifold experience proves that, during extreme anæmia, conception does not take place. Here is a proof that in the case of the ovaries, as in that of other glands, a bad condition of the blood leads to bad secretions—ova incapable of fructification. Another series of difficulties arises when we consider the indispensable locomotion of the semen and of the ovum. It is only necessary to call to mind the frequent abnormalities of the Fallopian tubes met with in autopsies, such as congenital or acquired shortenings, dislocations, adhesions, which are completely beyond clinical diagnosis. Scanzoni then puts the case of typical dysmenorrhœa with narrow os uteri and sterility. The os is split, the dysmenorrhœa is relieved, but the sterility continues; and Scanzoni asks, must it not be admitted that there is here a cause of sterility which lies in other and unknown conditions?

This may be freely granted. The cure of the sterility is not nearly so frequent as the cure of dysmenorrhœa. Impregnation is a far more complicated process than menstruation. But is the cure of dysmenorrhœa unimportant? The suffering attending this condition it is which urges by far the greater number of patients to seek advice. The sterility is with many a secondary consideration, or does not so much as enter into their minds. In a considerable number of cases conception does follow; and the chance, if only a remote one, will be esteemed worth taking. It may, then, be assumed as in the highest degree probable, that the narrow os uteri is *one cause of sterility*. It is perfectly logical and good practice to remove this cause, giving the patient the possible benefit of its being the only cause. Sound clinical reasoning dictates that we should eliminate all the known complications of a morbid state, and not leave them to harass a patient because there may be others which we cannot relieve.

A further reply to Scanzoni's objections is justified by observation. He insists upon the frequency of abnormalities in the Fallopian tubes and ovaries, met with in autopsies, which are completely beyond diagnosis. Now, it is in a high degree probable that some, if not many of these very abnormalities, especially inflammatory adhesions and altered conditions of the ovaries, are the consequence of the narrow os uteri, and might have been prevented, had this obstruction to menstruation been removed at an early period of life. This opinion is based upon three orders of facts which have come under my observation. First, the removal of sterility, as well as of dysmenorrhœa, is probable in proportion to the early removal of the obstruction. I have repeatedly seen women who have passed one, two, or three years of married life without pregnancy conceive within two or three months after the operation, whilst women who had remained sterile for ten years or more were cured of the dysmenorrhœa only. The second clinical fact is, that I have frequently observed

symptoms of peritonitis attending dysmenorrhœa; occasionally I have seen retro-uterine hæmatocele, both of which conditions will leave adhesions. The third fact is, that in single and married women who have suffered some years from dysmenorrhœa at first attended with menorrhagia, the menstrual discharge gradually tended to disappear, sexual indifference set in, the uterus underwent marked atrophy; in short, that premature sexual decrepitude had been produced, depending probably upon atrophy of the ovary, which itself was probably the result of inflammatory adhesions, or of the protracted struggle against impeded function.

OVARIAN DYSMENORRHŒA; DYSOOTOCIA; OOPHORIA (HYSTERIA); TUBAL DYSMENORRHŒA.

When we reflect upon the importance of the ovary in the function of menstruation, upon the structure of the organ, and the activity of the processes going on in it, we shall not be surprised to find that dysmenorrhœa is sometimes due to conditions of the ovary. The ovary is, as we have seen, the *primum mobile* of menstruation; the first and most important part of the function takes place in its structure. This part of the twofold function is ovulation or ootocia; the uterine part consists in the secretion of blood. Difficulty in the ovarian part of the function, then, means difficult ovulation, a distinct thing from difficulty in the secretion and excretion of the menstrual blood, which is the duty of the uterus. It is very important to keep this in mind. Dysmenorrhœa fails to express the idea of difficult ovulation; and, thus failing, we are apt to lose sight of the clinical fact that in many cases the source of the distress lies in the ovary. I have therefore sought to designate difficult ovulation by a term in accordance with medical nomenclature. After consultation with Dr. W. H. Stone, I venture to propose the word "Dysootocia."¹

The clearest cases of ovarian dysmenorrhœa are those where there is pain at the menstrual periods, and no uterus, or only such an imperfectly-developed uterus as to be unfit for its function. In these cases the cause of distress seems, *ex necessitate rei*, concentrated in the ovaries. I have observed signs of local fulness with pain; but the chief distress has been in the nervous centres; severe headaches, with such mental disturbance, marked by prostration, as to lead to fear that the mind would give way. Strange to say, I have known two cases of this kind to be almost completely relieved when a vagina had been made by dissecting up, although no menstrual flow was established.

But when the entire sexual apparatus is well developed, the ovaries still may exhibit the only signs of periodical activity. There is the monthly pain in one or other iliac region, the increased nervous irritability, perhaps general vascular excitement or tension, leading possibly to Schneiderian epistaxis; but the uterus takes no obvious part in the effort.

These cases show that an attempt at ovulation is often made, and that the menstrual effort is exhausted in this attempt, no uterine menstruation occurring. These cases are usually classed under amenorrhœa; but

¹ From *δύ-* and *οὐτῶσαι*, to lay eggs.

strictly, they should be called cases of imperfect or abortive menstruation. They are really very common.

A form of ovarian dysmenorrhœa which I have noted, occurs in connection with commencing ovarian disease. In many cases of ovarian dropsy I have ascertained that some time preceding the development of the tumor, or the suspicion of it, dysmenorrhœa has been complained of. In some cases I was able to ascertain that there was no complicating uterine abnormality to account for the trouble. It seems to me, therefore, reasonable to infer that the dysmenorrhœa was due to the morbid process going on in the ovary. In other cases where the ovarian tumor began at the end of sexual life, dysmenorrhœa was not complained of. But no doubt there are exceptions to both these rules.

The cases described by Dr. Priestley,¹ under the title "Intermenstrual or Intermediate Dysmenorrhœa," should, I think, be classed as cases of ovarian dysmenorrhœa. Severe pain is felt midway between the periods, and commonly ceases before the flow sets in. The suffering is referred to one or other ovarian region; and in three cases out of four referred to by Dr. Priestley, marked tumor, or thickening from old adhesions, was found in that locality. He conjectures that the pain is due to commencing ovulation-process, in ovaries affected by thickening of the indusium. I have seen a considerable number of similar cases. In some there was uterine complication, which may, however, have been secondary.

The existence of adhesions or marked tumors, observed by Dr. Priestley in his cases, is by no means necessary to the production of ovarian dysmenorrhœa. At least, in the majority of cases which have come under my observation, no such complication was present. Swelling, indeed, sometimes considerable, of the ovary commonly attends the process even of healthy ovulation; but this is not necessarily indicative of recent or old inflammation.

Sometimes ovarian dysmenorrhœa is the expression of some form of oophoritis, more especially of that form which Négrier called "vésiculite" or inflammation of the follicles. In other cases there is congestion, swelling, tension of the entire ovarian shell or capsule, producing a kind of strangulation more or less painful in the organ. In these cases the local symptoms are soon subdued or masked by various extraordinary nervous phenomena, usually designated as hysteria.

The work of ovulation, like that of pregnancy, excites, first, a higher degree of irritability of the cerebro-spinal centres; secondly, exalted tension of the vascular system; thirdly, if the investment of the ovary, or the follicle itself, present any obstacle to the free swelling and bursting of the follicle, or if there be any morbid condition, as subacute inflammation in the ovarian structure, then, ovulation being impeded, disordered, there is a source of irritation. These conditions combined will not unfrequently issue in the phenomena called "hysteria."

If the phenomena of dysmenorrhœa, that is, of the complex form in which there is difficult ovulation as well as difficult secretion and excretion, be observed and recorded with precision, it will, as a rule, be found that the so-called hysterical phenomena occur early. They coincide

¹ Proceedings of Med. Chir. Soc., 1871.

with the first part or stage of menstruation, that is, with the ovarian difficulty. They appear before the uterine or hemorrhagic stage begins; and often subside when secretion and excretion are established. This history implies two things: first, hysterical phenomena find their source or their exciting cause in the ovary, not in the uterus; secondly, the ovary having discharged its function soon undergoes involution, returning to quiescence.

An objection, it must be said a superficial one, has been urged, that even the most severe and palpable diseases of the uterus and ovaries, such as cancer and ovarian dropsy, do not evoke marked nervous phenomena; and hence, by a false *à fortiori* argument, it is concluded that disorders of less severity cannot evoke them. It is quite true that diseases of the uterus, not only those which are severe, but also those which are comparatively slight, rarely of themselves call forth hysteria or other nervous disorders. During the ordinary state the uterus is a passive organ; it has no great sensibility. It may be cut, cauterized, and otherwise manipulated; it may be eaten away by malignant ulcerations, without producing severe nervous phenomena. During menstruation its sensibility awakens, and if the escape of the ovum be hindered, there will be increased and prolonged hyperæmia and hyperæsthesia of the uterus.

Difficult ovulation is almost always attended by increased afflux of blood, marked by increase of bulk of the ovary. The ovario-uterine vascular system is so entirely one, that increase of uterine afflux necessarily attends. It may therefore be expected that increased menstrual flow should be a consequence or symptom of difficult ovulation. Generally this is so. Menorrhagia is often the exponent of ovarian dysmenorrhœa. And whether menorrhagia be produced or not, some degree of pain referred to the uterus is often experienced. Thus we have combined the two forms or elements of dysmenorrhœa, the ovarian and the uterine. If we seek to analyze such cases, to resolve them into their component parts, we find no great difficulty. The ovarian distress almost invariably manifests itself first. Pain is complained of in one or other iliac or inguinal region, often for days before the flow appears, and before the uterine distress is felt. In many cases there is little or no uterine pain; and when the flow appears the ovarian pain subsides. In the case of uterine dysmenorrhœa, the pain complained of is central, pelvic, and lumbo-sacral.

In connection with ovarian dysmenorrhœa I may cite some views of Négrier which he deduces from striking clinical observations. He describes what he calls the "ovarian temperament." It depends upon large size and energy of the ovaries disposing to early menstruation, to profuse menstruation, to the persistence of the function to a late period of life, and to excessive sexual passion. He finds evidence of this ovarian predominance in the hyperæsthetic temperament; in the persistence of menstruation during the early months of pregnancy; in the quick return of the function after childbirth; and in dysmenorrhœa, characterized by a sudden attack of acute pain in an iliac fossa, confined to a space which may be covered by the palm of the hand. This pain is not in paroxysms, but permanent; it does not resemble intestinal colic, but more that of