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Chronic Inflammation of the Womb

(METRITIS)

AND ITS TREATMENT

Read at the West Herts Branch of the Brit. Med. Assoc. July 1894

BY

VINCENT DICKINSON, M.D.LOND.

Senior Physician to Out-Patients at the Chelsea Hospital for Women;
Examiner in Obstetric Medicine to the Society of Apothecaries

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Chronic Inflammation of the Womb (Metritis) and its Treatment.

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INFLAMMATION of the uterus (metritis) and its results are among the most frequent of ailments for which women seek advice at the hands of physicians at the out-patient department of a hospital specially devoted to disorders of this kind.

Of acute uterine inflammation, occasioned by exposure to cold, or due to sexual excesses at the menstrual epoch, as occurring during the acute stage of gonorrhœa, or during the progress of an exanthem, I shall have little to say, as it is a condition for the most part incapable of being differentiated from other forms of acute pelvic inflammation.

The chronic form, on the other hand, presents many different aspects more or less associated, and includes:

(1) Cervical catarrh and glandular degeneration.

(2) Endometritis proper.

(3) Areolar hyperplasia and subinvolution.

And being considered as a chronic affection of local origin as well as local manifestation, necessitates, in a number of instances, some kind of local treatment, varying in its intensity from the application of a medicated tampon to the complete ablation of the mucous membrane of the uterus. It is to en-

able the practitioner to appreciate the necessity, on the one hand, for severer measures, or, on the other, the advisability of refraining from active treatment, that these remarks are made and lines of action are suggested, from a survey of 300 cases collected in the out-patient department of the Chelsea Hospital for Women from the year 1884 to 1889.

As stated above, the term chronic inflammation of the uterus covers both cervical and corporeal endometritis, as the author is of opinion that in the catarrhal form of the affection no hard and fast line can be drawn between the disease as it affects the cervix or corpus uteri, from a clinical point of view, whatever may be the difference functionally and structurally between the two parts. As a matter of location the difference is obvious, as a matter of pathological speculation the question is one of great interest, but in practice the disease must be treated where it is found to exist: catarrh will spread when it is *severe* from the cervical cavity to the uterine canal, and *vice versâ*, with as much facility as from the fauces to the Eustachian tube, or from the urethra to the bladder, and while *milder* forms of cervical catarrh do not necessarily spread to the uterine cavity, yet one rarely meets with a case of catarrhal endometritis, however mild, without the cervix being involved to a greater or less extent.

The extension from the cervix to the uterus is merely a matter of severity and time. The severer forms such as result from gonorrhœal infection extend rapidly, as is well known, from the fundus vaginæ and cervix, to the uterine cavity, and along the whole length of the genital track; while a milder form, such as one sometimes sees as a result of excessive coitus, if treated carefully will be well before it has time to spread to the uterus. Cases intermediate in their degree of severity such as those associated with laceration of the cervix invariably affect, to a greater or less extent, the uterine cavity if allowed to remain untreated. The above remarks refer exclusively to the catarrhal form of the affection. Of the other two recognised varieties, the hæmorrhagic and neoplastic, the former has never been known to occur in the cervical canal, while the latter presents differences, both pathological and clinical, which will be discussed further on.

Now we may classify our case of chronic uterine inflammation thus:—

(A) *Endometritis* (i.) *Cervical.*
i. Catarrhal.
(ii.) *Corporeal.* } Erosion of cervix.
i. Catarrhal.
ii. Hæmorrhagic.
iii. Neoplastic.

(B) *Metritis* (i.) *Cervical.*
Follicular degeneration, areolar hyperplasia.
(ii.) *General* (chronic metritis).
Subinvolution, hyperplasia.

Glandular degeneration of the cervix or "erosion" is an associated condition of both cervical and corporeal endometritis. Its pathology, so long misunderstood, is now so well known that no repetition of its main points need be made here; suffice to say, that it has been fully demonstrated that the apparently raw surface is a "*new formed glandular structure*" due to proliferation of the epithelial lining of the cervical glands, and in which the normal secreting surface of the cervical canal extends beyond the os externum. Fischel considers erosion due to the persistence of the cylindrical epithelium, which in the fœtus extends *beyond* the os externum, into adult life, and the desquamation of the squamous epithelium which had come to cover it, but the exact pathology of the origin of this epithelium is still a matter of dispute. Be this as it may, it must always be borne in mind that erosion is a secondary condition associated with catarrh of the cervix or of the uterine cavity, and must be considered always in relation to these, and hence its treatment depends on the treatment of these, and is cured by the cure of these; no treatment specially directed to it as "ulceration" is justifiable. It is only when the body of the cervix participates in the same degeneration that treatment other than that for the catarrh is necessary.

We will now proceed to consider uterine and cervical catarrh together, as they do not differ in their cause, pathology, nor essential treatment.

Causation.—Nearly all the cases occur in multiparæ and are subsequent to parturition or abortion, especially when the cervix has been lacerated, due probably to the circulation of

blood and lymph in that structure being interfered with by that accident. It may also occur in virgins and nulliparæ, and is then generally found in conjunction with an ill-developed uterus having a long, pointed cervix and small os externum. I think these cases are due to the want of free exit and retention of secretion which acts as an irritant to the cervical mucous membrane.

In other cases we find the condition associated with the presence of polypi, direct injury from a pessary, or excessive coitus and cold during menstruation.

Now the greater part, if not all of these cases, are kept up by *microbic infection* whether specific or pyogenic, and I have no doubt in my own mind that gonorrhœal infection plays a very prominent *rôle* in the causation of most of the cases which present themselves; the continual relapses and the frequent simultaneous occurrence of vaginitis lend support to this view. The other fertile cause is puerperal sepsis, and the possibility of the introduction of germs in these cases is patent, and given the retention of blood or serum any undue length of time, an opportunity is afforded to the micro-organisms to develop with rapidity and infect the tissues.

In virgins the explanation is more difficult. Shroeder states that microbes are always present in the vagina and cervical canal unless the hymen be imperforate, hence debility and anæmia by leading to deficient phagocytosis might render microbic infection more active, and its results more deeply seated and permanent. If this statement be correct it is unnecessary to have recourse to the somewhat repulsive theory that microbes are introduced by masturbation. Moreover, Laplace, in an interesting paper in the American *Journal of Medical Science* for October, 1892, has described fully the organisms he has found in the normal endometrium of the uterus and cervix, some of which possessed poisonous qualities when injected into guinea-pigs. In cases of chronic endometritis he found much larger quantities of micro-organisms, and the mucous membrane and fibrous tissue greatly hypertrophied under their continual development: and whether this condition be simple or gonorrhœal the germs

are found both in the epithelium and connective tissue. When an opportunity for development is furnished by retained blood or serum the germs invade the tissues deeply, increasing with enormous rapidity.

Boulangier has gone so far as to make a special class of endometritis for each special variety of microbe, as the gonococcus in blenorrhœa, the streptococcus after parturition and abortion, and the staphylococcus in other forms of pyogenic infection, but it suffices to make two divisions: (1) gonorrhœa, due to infection with gonococci; (2) pyogenic, due to infection with other kinds of microbes.

Histology.—The exact histology of chronic catarrhal endometritis is derived mainly from scrapings obtained after curetting. In the cervix it has already been alluded to, and in the uterus there is general hypertrophy of the mucous membrane and glands. It is said that in very chronic cases the epithelium becomes squamous and the mucous membrane resembles more a layer of connective tissue.

Symptoms. — In addition to the subjective symptoms of pelvic and lumbar pain, there is a *triad*, which taken together is said to be diagnostic of endometritis, namely leucorrhœa, hæmorrhage, and dysmenorrhœa. Of these, the first is by far the most important and constant, and it must be borne in mind that, while in many cases the introduction of a speculum reveals clearly the presence of a secretion of very characteristic appearance, yet it is not always the case, and it becomes necessary to obtain other evidence of the existence of a purulent secretion from the interior of the uterus. The old method was to leave a tampon saturated with a 20 per cent. solution of glycerole of tannin in the fundus vaginæ for forty-eight hours, which, on removal, shows the presence of a characteristic muco-purulent secretion. Dr. Puech, of Montpellier, however, describes a more simple and more satisfactory procedure. When a spray of hot water is allowed to play upon the cervix through a speculum, it is observed to change colour; it becomes paler, owing to the production of a kind of local anæmia due to the contraction of the uterine muscular tissue under the influence of

heat. At the same time, any muco-purulent secretion is expelled by the same means, and enables a diagnosis to be made. The method is also useful in deciding whether a course of treatment has in reality effected a cure, which a single examination *per speculum* might lead one too hastily to affirm.

Whenever there is erosion there is always inflamed mucous membrane in the cervical canal; how far this extends into the cavity of the uterus is a matter of inference. If there is much menorrhagia; if the secretion is blood-tinged and more watery; if the cavity is patulous and tender on passing the sound, we may infer the existence of a greater or less degree of endometritis proper, according to the prominence or absence of these symptoms.

As regards the second symptom, hæmorrhage, I think that it is not nearly of so frequent occurrence as one would be led to infer from the text books. From a large number of consecutive cases I found menstruation copious in 25 per cent. only, scanty in 27 per cent., and normal in the remainder; thus the deviation is rather on the side of its becoming scanty than excessive. Pain was nearly always present, its chief locality being lumbo-sacral in 30 per cent., iliac in 28 per cent., the left side being more frequently affected than the right in the proportion of about 2 to 1. Dysmenorrhœa was only noted in 30 per cent. of the cases. Many writers mention sterility and abortion as symptoms or results of chronic endometritis, and I found that abortion had occurred in 31 per cent., but among married women who had been married more than three years, only 5 per cent. were sterile.

Diagnosis.—The diagnosis is easy, if attention be paid to the following points: The secretion from the inflamed uterine canal is always turbid, muco-purulent; but absence of secretion or the presence of clear secretion issuing from the cervix does not preclude the possibility of there being turbid secretion higher up out of sight. The methods of ascertaining this have been already described.

The points of differential diagnosis between corporeal and

cervical endometritis have also been touched upon. Fundal vaginitis must not be mistaken for cervical catarrh. The cervix participates in the redness of the fundus vaginæ and the mucous membrane covering it is turgid; but careful examination fails to reveal any erosion or discharge from the os. Tubercular disease of the mucous membrane may exist—it occurs in young adults, and is usually associated with a similar condition of the Fallopian tubes and peritoneum. In such cases autopsy reveals the mucous membrane deeply injected, and presenting tubercular nodular growths of various sizes and of the usual appearance—there may be ulceration.

Treatment.—It is always dangerous to leave an endometritis untreated or partially cured only to relapse. A purulent secretion from the uterus will result in salpingitis and pyosalpinx with its accompanying peritonitis. Even in cases where the latter exists, suitable treatment and free drainage, by removing a focus of sepsis, may allow a natural cure to result. Reverting to the microbic character of the disease as detailed above, the principles of treatment are as follows:—In slight cases, by antiphlogistics and astringents of an antiseptic character, to lessen the exudation of serum which forms a cultivating medium for the microbes. In severe cases, to destroy the superficial tissues, which are already deeply infected, thereby enabling the antiseptic to come into contact with the deeper parts. The details of the procedures which these principles embody may be now described.

If we find a small area of erosion, with a small plug of viscid opaque muco-purulent discharge issuing from the cervix, with no pain or tendency to bleed on passing the sound gently into the canal, we order an antiseptic astringent injection of boric acid (ʒi. to Oi.), boro-glyceride (ʒii. to Oi.), or sulpho-carbonate of zinc (ʒi. to Oi.) to be used in conjunction with the hot douche (temperature 105° to 110°) twice daily. The use of the latter is not only to thoroughly cleanse the fundus of the vagina, but by equalising the pelvic circulation it lessens the exudation of serum. Further than this, a tampon of cotton wool soaked in glycerole of lead, borax, or boric acid is inserted into the fundus vaginæ every night, and allowed to remain till morning.

In some cases the "boracic pack" will be found useful, but I should not recommend its use when there is very free secretion, or at least until the excessive flow has been combated by the above methods, as a mortar-like mass is apt to form, making a complete cast of the portio-vaginalis and fornices of the vagina, which the patient experiences a great deal of difficulty in removing. The application of the pack is as follows:—Pass a Fergusson's, or other tubular speculum, taking care to choose a size corresponding as nearly as possible to the bulk of the cervix, and with the aid of a small scoop and a cotton wool mop, insert and pack tightly round and over the cervix about half an ounce of finely powdered boric acid—a large dry cotton wool tampon retains it *in situ*, and the speculum is withdrawn; the powder remains until it is washed away by douching.

If these methods do not produce the result required, or if the case be one of more severity, an antiseptic application should be made once a week or fortnight to the cervical canal. I have used but three—pure carbolic acid, iodised phenol, and pure ichthyol—and I use them freely and find them sufficient for all cases. The cervix and canal should always be thoroughly cleansed, first with dry wool on a Playfair's probe, and then the medicament applied on the same kind of instrument, using plenty of it, and two or three times if necessary; and I am in the habit of applying it freely to the erosion at the same time.

Under this treatment the cervix and cervical canal desquamate just as the skin does under the same influence, the superficial infected epithelium is shed, as can be easily demonstrated by anyone, and gives way to a stratified layer which gradually grows over the cervix from the edge of the erosion and restores it to its normal appearance.

In severer cases, where the cavity is patulous and tender, bleeding on passing the sound, and where there is evidence of the mucous membrane of the uterus itself being implicated to a marked extent, I adopt the following method, based on the assumption that the disease is microbic in its nature: (1) Destruction of the superficial highly infected epithelial tissue;

(2) the perfect and complete application of an antiseptic; (3) free drainage. Polk adopts the same principle, and packs the cavity with iodoform gauze after dilating, curetting, and washing out, leaving it in for a week if not discharged before. My plan of *intra-uterine tamponment* answers the same purpose, and I am of opinion that with perseverance, thoroughness and care, most cases can be cured by this method, rendering dilatation and curetting unneccessary.

The first indication, that of destruction of the superficial epithelium, is accomplished by the insertion into the uterus of a zinc-alum point, composed of equal parts of sulphate of zinc and alumina, and fused into a suitable shape. The cavity is previously cleansed and swabbed out freely with pure phenol, not only to aid the exfoliation of the epithelium, but to render the cavity aseptic—a dry tampon retains the zinc point till it melts. At the end of a few days, during which time the patient is directed to use an antiseptic douche, a thin slough is expelled, and the cavity is ready for the application of the antiseptic. The second indication, thorough application of an antiseptic, and the third, drainage, are accomplished by the same process, viz., the insertion of an *intra-uterine tampon*, and for this purpose I use a Barnes' tent introducer, and wrapping a layer of wool (not too tightly) over the end so as to make a kind of wool tent, I soak it in phenol or ichthyol, or dust it over with iodoform or iodol, and insert it into the uterine cavity as one would a tent, and leave it there. A medicated vaginal tampon is then applied to the cervix to retain it, which is removed in twelve hours, and the intra-uterine tampon is extruded by the uterine contractions and comes away with the douche. It acts by keeping the antiseptic medicament in contact with the interior surface a much longer time than is effected by swabbing out, and it also acts as a drain. No ill effects follow its use. I employ it in the out-patient department every week, patients walking home, in some instances a long distance; it obviates the confinement to bed which curetting necessitates, though I order patients to lie down for the rest of the day. This procedure is repeated once a week, the injection and vaginal

tampon being used on intervening days. In very severe cases I have used it twice a week, employing the zinc alum point once a fortnight.

The dry form of tampon has this advantage, that on the patient's moving, directly after the application, there is no danger of the guarding vaginal tampon becoming soaked or displaced, so that the medicament acts on the vagina, as may be the case when liquid medicaments are used. And, moreover, the dry tampon acts as a more efficient drain. The success of all local medicaments that have been used for endometritis depends on the efficiency of their antiseptic power and the completeness of their application, and the good result which may have been achieved from the use of others than those mentioned are due to the same cause. Nitric acid, chromic acid, and tannin are favourites with some, and their efficacy is due to their antiseptic property. The old-fashioned nitrate of silver is a very potent germicide and antiseptic. According to Behring, it is more potent than mercuric chloride for destroying pathogenic bacteria in blood serum and other albuminous fluids. Its disadvantage for use in the treatment of intra-uterine disease consists in its lack of penetrating power. Many others might be used; resorcin suggests itself as likely to be valuable.

There is a class of cases before alluded to, namely, cases of marked endometritis occurring in virgins and young nulliparæ, associated with a small uterus, with pointed cervix and pin-hole os, and which are sometimes rebellious to treatment. In such a condition there is not sufficient free exit for the discharge, and I recommend incision of the external os, with the object of making a more patulous cervix. After this has been done, the methods above described will complete the cure.

Hartmann, considering the cause invariably gonorrhœal, and finding that cases resisted treatment by curetting, has devised a method of cure in which he advocates paring off the internal surface of the cervix with a bistouri, swabbing with creasoted glycerine (1 in 3) and plugging with iodoform gauze. He claims for this method cure in fourteen days.

Hæmorrhagic Endometritis (Syn. E. Fungosa).—This condition may exist independently of any catarrhal affection; probably some constitutional tendency determines that the stress of the proliferation which occurs in all chronic inflammation of the endometrium should fall on the blood vessels rather than on the glands or connective tissue elements. It is characterised by an excessive vascular hyperplasia resulting sometimes in a villous or polypoid condition, each villus or process being covered by a single layer of proliferating epithelium which is swollen, the surface abraded and engorged—the thin-walled capillaries easily permit rupture. This condition does not affect the cervical canal, the fungosities never occur in the cervix. Retained deciduæ from abortion seems to be its most frequent determining cause.[1]

Symptoms.—As its name implies, the prominent symptom in these cases is hæmorrhage, which has been noticed to commence after parturition or abortion. Very often the patients tell one, in addition, that the menses have been "always free," showing perhaps a tendency to vascular engorgement. The amount varies from a prolonged menstrual period to an almost continual flow. In addition, there is usually a thin red or brown discharge observed when the patient is not actually losing blood. Sometimes there is a leucorrhœal discharge, but there is usually some complication to account for this in the shape of cervical catarrh or vaginitis. Physical examination reveals, as a rule, an enlarged uterus, with some tenderness and a patulous condition of the cavity; sometimes irregularities or roughness of the mucous membrane may be detected with the sound.

Diagnosis must be made from other conditions which cause hæmorrhage. Those most likely to give rise to difficulty are climacteric menorrhagia—in which the age and

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[1] The whole pathology of hæmorrhage endometritis must be considered still *sub judice* and many authorities do not regard it as inflammatory. The author has therefore thought it uncalled for to enter into a discussion on disputed points of pathology in a work essentially clinical in its aims and objects.

neurotic symptoms will guide the practitioner—morbus cordis and other disorders of circulation—the physical signs peculiar to each of which will be noted—and malignant disease of the body. Whenever cases of marked endometritis occur in women beyond the menopause, more especially if accompanied by one or more of the symptoms of loss of flesh, pains in the back and thighs, and a reddish purulent discharge, the possibility of cancer of the uterine body should be borne in mind. Such a condition is difficult to diagnose, and may be impossible to determine accurately without having recourse to microscopic examination of a portion of the detached mucous membrane. In such cases the cavity may be found, on exploration, to be smooth everywhere, there being no growth projecting enough to be scraped off, and no ulceration. Such a case is recorded by Herman. (*Transact. Obstet. Soc.*, xxxiii.)

The possibility of an intra-uterine polypus must be borne in mind—it can only be diagnosed by exploring the cavity of the uterus after dilatation. Lastly, hæmorrhage in women past the climacteric may exist independently of cancer or endometritis. It occurs in stout people of diabetic diathesis, and does not seem to interfere with the general health.

Treatment.—Very few cases can be cured without curetting, but in mild cases the method advocated above may be tried, adding 10 per cent. of perchloride of iron to the carbolic. Ergot and hydrastin should be given at the same time, and the persevering use of the douche is essentially indicated, as it causes contraction of the uterine vessels. The use of the curette is almost a *sine quâ non* when the affection has resulted from a recent abortion or parturition, as a portion of degenerate decidua not improbably remains and keeps up the process, and there is no other means of satisfactorily and safely getting rid of it than the curette. In some hands nitric acid and nitrate of silver have been productive of good results, but I have seen a very severe metro-peritonitis caused by the former. The method of curetting preceded by dilatation, and followed by the free application of iodised phenol, carries out the three principles before

mentioned, namely, destruction of the superficial diseased tissue, antiseptic application, and free drainage. I use laminaria tents for dilatation, and have always found the result of the operation highly satisfactory.

Neoplastic Endometritis.—I now proceed to describe a class of cases which, to my mind, undoubtedly exists, but which requires further elucidation. Now and again cases are met which derive no benefit from curetting, and which terminate fatally from progressive anæmia and cachexia, and which result apparently from malignant degeneration of the endometrium. Clinically, they resemble cases of endometritis, and I have, therefore, placed them under this head. De Sinéty described a variety of endometritis in which there were vegetations consisting of embryonic tissue with some blood vessels and mere traces of gland tissue, and vestiges of epithelium more or less degenerate; and Olshausen describes conditions where there is proliferation of all the elements and cellular infiltration. Such conditions are closely allied to the adenomata and sarcomata. Gland proliferation may lead to an adenomatous condition, in which new crypts and small cysts are formed, and which borders, on the one hand, on endometritis fungosa, and on the other, on malignant sarcoma. Winkel and Hirschfeld have described diffuse papillary adenoma of the endometrium, and Lusk has published a case of a woman who died of progressive cachexia, who had intra-uterine vegetations which were removed with the curette. Examination revealed a condition which he describes under the name of villous degeneration of the uterine mucous membrane, and which consisted of soft, pulpy, shaggy masses seeming to spring from the whole surface of the lining membrane. The microscope showed single or branched connective tissue bodies, very slender, grouped together, and covered with a layer of easily detected epithelium.

Kireioff, of St. Petersburg, relates two cases more decidedly malignant in their aspect.

The following case occurred in the Chelsea Hospital for Women :—

E. F., aged 30; married six years; three children; one

abortion. Last pregnancy two months previous to admission; had been losing almost constantly ever since. On admission, November 13, temperature 100.6°. Vaginal examination discovered projecting from the os a smooth firm mass the size of a pear—seeming to have no peripheral attachment. This was removed by the ovum forceps and ergot administered. Six days later (Nov. 19) the cervix was found well contracted; nothing in cavity. There was no fœtor of discharge and no hæmorrhage. After this, the temperature continuing above normal, the uterus was curetted (Dec. 6). Three weeks after admission a small portion of what appeared to be placental tissue removed, and the cavity swabbed with iodised phenol. In spite of this the temperature continued high, the discharge offensive—at times blood-stained. There was progressive anæmia and cachexia. A second curetting was done a month later (Jan. 5), and strong carbolic applied three days later (Jan. 8).

On January 13, after tenting, several projecting nodules of tissue were removed from the endometrium with the curette, iodine applied, and the uterus packed with gauze. The portions removed resembled placental remains. The symptoms continued without sign of improvement, the patient evidently losing ground. A slight attack of pleuro-pneumonia now supervened. The brown discharge continued, and on February 2 she was again curetted. On February 9, the uterus was washed out with carbolic and iodised phenol applied. Temperature remained at about 101° and discharge continued. On February 19, thoracic condition had recovered, but the uterine symptoms remained. Some tissue was removed from the posterior uterine wall with curette, and a large quantity of placental looking *débris* with the ovum forceps. Patient died ten days later. No *post-mortem* examination could be obtained.

This case illustrates a condition of endometritis set up by abortion, and resulting in malignant degeneration. The masses removed were evidently not remains of placenta, but a new tissue which had been formed from the decidua. Placental remains under the microscope would show large

nucleated ovoid epithelioid cells, which might easily be confused with those of malignant tissue. Rouyer, as early as 1848, described the hypertrophied mucous membrane obtained by the curette as consisting of "masses of a spongy character *resembling* placental tissue."

Often such cases cannot be diagnosed except by the absence of improvement after curetting, which in simple hæmorrhagic endometritis is invariably followed by cure. Nothing short of total extirpation affords any prospect of relief.

Metritis.—We now come to the consideration of the second group in the system of classification, namely, metritis. When the inflammatory or hyperplastic process is not limited to the lining of the canal of the uterus or cervix, but occurs in the parenchyma itself, and may or may not be associated with endometritis, it may exist in the cervix alone or be more or less general.

Cervical.—When cervical catarrh has existed for some length of time chronic inflammatory changes occur in the tissue of the cervix; the glandular proliferation, instead of being more or less confined to the mucous membrane and submucous tissue, takes place in the entire cervix, and follicular or cystic degeneration results. This pathological change is produced by hypertrophy of the glands, and the obstruction of their ducts, which results from increased formation of connective tissue. The glands become distended and form retention cysts which, when the enclosed secretion becomes inspissated, are felt as firm pea-like bodies. Sometimes the contents suppurate and form abscesses, and sometimes the whole substance of the cervix becomes converted into a cystic mass. When the connective tissue exceeds the glandular element we get the cervix hard and nodular, a condition of "areolar hyperplasia." Laceration is a frequent complication of this condition, and, owing to its influence as an agent in disturbing the circulation of the cervix by keeping up a venous hyperæmia on the torn surface during abortive attempts at repair, may be looked upon as one of its most frequent determining causes.

The etiology has been sufficiently considered under the head of cervical catarrh, of which it is the direct result, and the symptoms caused by it are the same.

Diagnosis from early malignant disease is most important, but, unfortunately, very difficult. It is possible that one condition passes into the other, and Shroeder has an illustration from a microscopic specimen, showing a portion of inflamed mucous membrane of the cervix with glandular hypertrophy lying between the healthy cervix, with its covering of squamous epithelium, and a carcinomatous nodule. In doubtful cases a piece of tissue must be removed for examination. We can often do no more than suspect the existence of malignant disease until this be done. The family history of the patient, hardness of the cervix, excessive readiness to bleed, and the presence of true ulceration, are points to be borne in mind on forming a diagnosis.

Treatment.—If cervical catarrh still exists treatment must be directed to it specially. As the preliminary stage is one of hyperæmia, this should be remedied by the persevering use of the hot douche, by the application of glycerine tampons, and by occasional scarification. Scarification is a much more satisfactory proceeding than leeching. Leeches are not always at hand, and the amount of blood withdrawn cannot be so easily controlled; scarification can be repeated as often as necessary and its amount regulated. Its performance is very easy. The vagina and cervix are thoroughly swabbed out with carbolic solution 1 in 40, and a tubular speculum introduced. A series of scratchings in a latticed fashion are made with a lancet-shaped knife on a long handle, and some superficial punctures, and the blood allowed to flow into a tray. The more the cervix is congested the more blood flows: thus the result accommodates itself to the needs. When about an ounce has been abstracted a little pressure on the cervix with a wool mop will arrest any further loss; some iodoform is dusted on and a dry vaginal tampon inserted. Superficial distended follicles should be punctured, and after evacuation of their contents the cyst touched with chromic acid or iodised phenol. Great relief followed this plan of treatment. When

the follicles are more deeply seated, benefit results from igni puncture. Through a short wooden tubular speculum from six to a dozen punctures with Paquelin's cautery are made deep into the diseased tissue of the cervix. The result is a general contraction of the cervix in bulk, diminution of the hyperæmia, and destruction of the cysts. Glycerine of Papain on tampons may be conveniently employed as a dressing; it promotes a healthy separation of the sloughs caused by the cautery.

When laceration exists with a hypertrophic and cystic cervix, I prefer to amputate rather than perform Emmett's operation of trachylorrhaphy. It is impossible to gauge how far the diseased tissue extends from the surface, and by paring the edges of the laceration and bringing them together a large amount of diseased tissue is necessarily left behind. The results of trachylorrhaphy have been disappointing, as far as permanent relief of the symptoms is concerned, and I have now abandoned it in favour of excision of the cervix, which, if performed on Professor A. R. Simpson's method, is a far easier operation, and attended with far more satisfactory results, as it does away with the laceration and the diseased tissue of the cervix as well.

An additional reason for amputation is found in the proposition, that if there be a pre-cancerous condition of malignant disease of the cervix, we should most likely find it in laceration combined with gland hypertrophy, and in suspicious cases, especially in women at the age of the menopause, excision of the cervix should be advised, instead of resorting to any of the means described above.

General chronic metritis is the result of a long period of uterine congestion. This congestion may be *active*, as the result of an acute process, or some cause which keeps up the hyperæmia, such as retention of the products of conception, repeated abortion, pelvic inflammation and long standing endometritis; or *passive*, caused by interference with the blood circulation in the uterus or pelvis such as displacement, especially descent and prolapse. After parturition or abortion, this descent from the increased weight, and from too

early leaving the recumbent position, keeps up a condition of passive congestion which hinders the normal process of involution, and substitutes for it a chronic proliferation of connective tissue elements. I found there was marked displacement in 30 per cent. of the cases of chronic metritis that came under my notice.

When the hyperæmia set up by one or more of the above causes has existed some time, effusion of fibrin takes place, which assumes an irregular arrangement, and hence enlargement of the organ is produced by this method, and not by an increase of existing tissue or a development of more of the same kind. The result is a perivascular sclerosis with dilatation of the lymphatic spaces.

The term subinvolution is often used as synonymous with chronic metritis, but a distinction should be drawn between the two. Subinvolution is one, and by far the most frequent cause of general chronic metritis. A uterus in which involution is incomplete will in time develop that irregular perivascular sclerosis in which chronic metritis consists, and this is very important from a clinical point of view, and should lead the practitioner to endeavour to further by all the means in his power a perfect involution of the womb after parturition and abortion. Dr. Jacobi describes cases of chronic metritis occurring in nulliparæ, which she considers are produced by what she terms " menstrual subinvolution " due to deteriorated general health. After a succession of these menstrual subinvolutions, in which the womb remains engorged, the venous hyperæmia invades the parenchyma and leaves it painfully congested, sensitive, swollen, and rigid, corresponding to the chronic metritis met with after confinement.

Symptoms.—In subinvolution pure and simple, symptoms are mostly referable to the increase of weight and bulk of the organ and the venous hyperæmia which accompanies it. The uterus is large, although its shape is not altered ; insensitive, rather than painful ; the sound passes three inches or more into a patulous cavity, and often causes bleeding. The patient complains of bearing down pains, dragging sensations, and weakness in the back. In nearly every case menstruation is

excessive. Leucorrhœa only exists as a result of a co-existing endometritis, and dysmenorrhœa is not marked. Constitutional symptoms are legion, and are associated with debility and neurasthenia. Most sufferers are women who have had to undertake laborious employment too soon after confinement. In itself it does not seem a bar to conception, though it is a fertile source of repeated abortion. Flexions and downward displacement of the uterus are common. In chronic metritis proper we have to consider an active morbid process initiated at a varying data after confinement, and continuing to progress indefinitely. The womb is not so large, and there is tenderness evinced on bimanual examination, and also on passing the sound. Dysmenorrhœa is the rule, and is of a burning character mingled with cramps, and the pain becomes radiatory and darting in the abdomen and sacro-lumbar region, aggravated on the approach of the catamenia. Tympanitis and nausea are common reflex symptoms.

Diagnosis must be made from early pregnancy, in which we have the cessation of menstruation to guide us. In chronic metritis the uterus preserves its flattened shape, and there is no bulging of the anterior wall, the cavity is generally patulous. Small fibroids may be differentiated by careful bimanual manipulation.

Treatment.—In the early stages when subinvolution exists, pure and simple, or before the secondary process of metritis is far advanced, we employ the means already noticed to reduce the hyperæmia, such as the hot douche, glycerine tampons, and occasional scarification. Rest is an important item, but in out-patient practice cannot be ensured. When ordered it should be *regulated*, the patient being advised to lie down at stated times every day. Due attention must be paid to the bowels, and a course of ergot and strychnine is very useful in cases seen soon after parturition or abortion. All displacements should be carefully rectified, as such conditions keep up the hyperæmia. For prolapse and excess of anteflexion I use an indiarubber ring pessary, and for retroversions and flexions I prefer a Hodge or Albert Smith, carefully reducing the displacement first. In the case of

retro-*flexion* as large a size as can borne must be used, else the enlarged fundus will fall back over the posterior limb, which then finds its way into the bend of the uterus and aggravates the mischief. An examination should always be made within a week after insertion to ascertain whether the object of reducing the displacement has been attained. After this the instrument should be taken out and re-inserted every two or three months, the patient meanwhile being directed to syringe daily, otherwise irritation is set up. Attention must be given to any endometritis that exists, and I employ iodised phenol in preference to any of the other applications mentioned in the method of intra-uterine tamponment described, as being more likely to cause absorption.

When the disease has become more chronic, and a true condition of metritis exists, I recommend iodide of potassium and bark. Foreign spas are out of the question for many people, but from the good results I have seen in some patients from the waters at Woodhall Spa (which resemble those at Kreuznach) have led me to entertain very favourable opinions of their efficacy. Even in very old-standing cases benefit may result from treatment directed to any associated condition, especially endometritis, and to laceration by excision of the cervix.

Treatment by electricity.—Since Apostoli's method of treating uterine fibroids by a constant current came into vogue I have employed it largely in old-standing cases of subinvolution and chronic metritis, and so great has been the resulting benefit that I can highly recommend its employment. The length of the process and the time and trouble involved are amply repaid in the results obtained. Like my method of intra-uterine tamponment I employ it at the out-patient clinique and in my own consulting room. It occasions but little pain afterwards, but I direct patients to lie down for the rest of the day. The positive pole is made intra-uterine, and consists of a specially constructed, guarded sound ; the negative is abdominal, or if there is much backache complained of may be placed on the dorso-lumbar spine, and consists of a

thick plate of a soft adhesive rubberine.* On an average, 100 milliampères are employed, the duration of each *séance* lasting ten to fifteen minutes, and repeated twice in each week. Previous to the introduction of the intra-uterine pole, which has been immersed in 1 in 20 carbolic solution, the vagina is thoroughly swabbed out with 1 in 40 of the same substance with a mop. After withdrawal, an iodoform tampon is inserted into the vagina.

I will now briefly relate one or two cases occurring in my out-patient practice.

Case I.—J. D., aged 21 ; children two. No miscarriages. Last pregnancy two months ago—did not suckle. Menstruation copious every three weeks, lasting ten days. Free yellow discharge, bearing down and pain in left groin. Some dyspareunia. Uterus large, cavity patulous, cervix lacerated, no erosion. Applications commenced February 1, 1890; repeated weekly. Average strength of current 80 to 140 milliampères. On February 27 pain in groin had almost disappeared ; no discharge. Last period six days ; not profuse. Applications continued till April 30, *i.e.*, three months in all, during which time ten were made altogether. At the end of this time the patient expressed herself as being quite well.

Case II.—A. B., aged 28; one child, nine years previously. Menstruation, which had always a tendency to be profuse, had for the last nine years become more so, and now lasted over eight days, and recurred every fortnight. There was slight pink discharge, bearing down, and pain in the left groin. Uterus large, retroverted, cavity patulous. Seven applications were made, lasting five months, owing to interruptions in her attendance. From 100 to 180 milliampères were used. At the end of this time she expressed herself quite well, menstruated regularly, and what she calls "very little." Two years later I saw her again for another ailment, and she told me that the improvement had been permanent, and that after she ceased attending the periods had been getting less and less in quantity.

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* These are made for me by Messrs. Coxeter & Sons.

Case III.—E. B., aged 36. Pregnancies seven. Last two years ago, since which time menstruation, though regular as to time, had been very copious. There were "forcing pains" in the left groin, and bearing down. Uterus large, retroverted, cervix fissured. She wore a pessary for some time, and was treated by the hot douche and administration of ergot. Emmett's operation was performed before electrical treatment was commenced without much benefit resulting. Fourteen applications were made, lasting over a period of five months. The strength of the current was 40 to 160 milliampères. The patient then expressed herself well enough to discontinue treatment. The menstruation lasted seven days, and less in quantity. Two months later she returned, saying she had not been so well since leaving off the treatment. Three more applications were given and then she left off treatment, considering herself cured.

Case IV.—S. B., aged 36; one child and two miscarriages. Menses every month, lasting nine days. Pain in left iliac region and bearing down. Thin yellow sanious discharge. Uterus large, retroverted, cavity patulous; cervix otherwise healthy. She had had intra-uterine treatment, igni puncture, and wore a ring pessary, having been under treatment during five years previously. Twelve applications were made—current strength 100 to 140 milliampères—during four months, at the end of which time the patient expressed herself as much better.

Space does not permit more cases being quoted, but enough has been given to show the benefit, which there is every reason to believe was permanent, resulting from a few months' treatment by electricity, after other treatment had been ineffectual for a much longer period.