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Medical Gynecology

# CHAPTER IV.

## DYSMENORRHEA.

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**Definition.**—The name "dysmenorrhea" signifies simply painful menstruation, and is applied without discrimination to all varieties of suffering associated with the performance of the menstrual function. The fact that we are still in the dark as to the etiology of menstruation is a serious obstacle to a better understanding of the true nature of dysmenorrhea. As things stand at present the theories advanced to explain it and the practices employed to relieve it are purely empirical.

**Menstrual Molimena.**—In any consideration of dysmenorrhea we find ourselves in a difficulty at the outset, from the fact that it is impossible to say exactly what constitutes normal menstruation. Theoretically, a woman in perfect health ought to know no difference between the menstrual and intermenstrual periods, but this state of things exists only among uncivilized people. The effect of civilization, and more especially of the complex conditions of our modern life, has been to intensify nervous excitability to such an extent that the woman who menstruates to-day without pain or reflex disturbances of some kind is altogether exceptional. Entire absence of suffering is indeed so unusual that text-books of gynecology all devote some space to what is called "menstrual molimena," that is to say, those local and general disturbances which it is assumed must habitually attend menstruation.

These disturbances consist of a certain amount of pain, situated in the pelvis and extending through the back and thighs; and of nervous excitability, manifesting itself most commonly in headache, depression, and disinclination to exertion. The symptoms frequently precede menstruation by a period varying from a few hours to a few days; in some cases they are relieved by the establishment of the flow, while in others the suffering is increased by its appearance. The nervous symptoms, such as headache, and reflex disturbances of various kinds, are sometimes more marked than the local suffering. The condition described may be considered as constituting normal menstruation; any marked increase upon the symptoms being pathological and coming under the head of dysmenorrhea.



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The constancy with which menstrual molimena occur has been investigated by Marie Tobler (*Monatsschr. f. Geb. u. Gyn.*, 1905, vol. 22, p. 1), who interrogated one thousand and twenty women with this point in view. She found that twenty-six per cent had local pain and both physical and mental disturbance, the term physical disturbance being used to indicate such constitutional phenomena as a sense of general discomfort, of malaise, or of weakness. Four and four-tenths per cent had only local suffering. Fourteen per cent had local and physical, but no mental disturbance; eleven per cent had physical and mental, but no local disturbance; six and nine-tenths had physical, but no local or mental disturbance. Seven and eight-tenths had mental disturbance only; five and six-tenths had mental and local, but no physical disturbance; while sixteen per cent were free from disturbance of any kind. In three and three-tenths per cent the patients felt better than at any other time; while in three and six-tenths per cent they felt better during the period, but were more or less disturbed just before or after it.

The reflex symptoms accompanying menstruation are extremely varied. In addition to headache, which is so common as to call for no comment, pains in the joints are often present, even in cases where no rheumatic or gouty tendency exists. Eye strain is quite common, with marked contraction of the field of vision in some cases, especially when there is a tendency to exophthalmic goitre. Skin eruptions, such as eczema and acne, make their appearance or are increased in virulence. Suffering of any kind to which the patient is subject, either temporarily or permanently, is apt to recur or to be exacerbated with the occurrence of menstruation; for instance, neuralgia in any part of the body is more likely to attack its victim at that time, and even so common a malady as toothache is influenced by it.

**Classification.**—From the standpoint of the subjective symptoms, dysmenorrhea may be divided into two classes, one, in which the character of the menstrual discomfort is identical with that which we have just defined as normal, but is much more severe; another in which the suffering is not only more severe, but of a different character from that just described.

In the class characterized by increase of the usual suffering, the pelvic pain begins from one to two days to a week before the appearance of the flow. It is of a dull, dragging character, extending all through the back and down the thighs, and is often accompanied by severe headache, occasionally associated with nausea, extreme lassitude, and nervous excitability. In some cases the symptoms are greatly relieved by the establishment of menstruation; in others they continue throughout its duration.

In the second class of cases, the pain begins just before, or exactly with the appearance of menstruation. It is sharp, well-defined, and cramp-like in character, coming on in paroxysms which last a minute or two and recur at short intervals. This form of dysmenorrhea is less often accompanied by reflex disturbances than the other.

There is still another variety of dysmenorrhea in which both types of

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pain are present, the spasmodic form being superadded to the dull persistent pain and the two being present in varying proportion.

I shall refer again to these two types of dysmenorrhea in the discussion of its treatment; at present I will proceed at once to consider the various theories as to its causation.

## CAUSES OF DYSMENORRHEA WHERE NO PATHOLOGICAL LESIONS CAN BE FOUND.

It has long been recognized that dysmenorrhea is not necessarily associated with a demonstrable abnormal condition of the reproductive organs. On the contrary, dysmenorrhea of the most severe and obstinate character may exist in the absence of any discoverable local disease whatever, while some cases of advanced disease in the uterus and appendages are entirely free from pain in menstruation. Various theories have been developed to explain the existence of dysmenorrhea in the absence of uterine or ovarian disease, the most widely recognized of which are the following:

**Mechanical Dysmenorrhea.**—This theory presupposes a constriction of the uterine canal, by means of which the escape of the menstrual fluid is impeded. It was first advanced by Sir James Mackintosh of Edinburgh and was further developed by Marion Sims and Sir James Y. Simpson. In detail it is based on the assumption that an obstacle is present in the uterine canal, and that in order to force the blood past this obstacle the uterus contracts forcibly, the contraction being realized subjectively in the form of uterine colic and constituting the pain known as dysmenorrhea. The obstacle in question, according to the advocates of the theory, may be: (1) A kink in the cervical canal, due to an anteflexion, or, more rarely, a retroflexion; (2) a stenosis of the internal os, which may be congenital, or the result of spasmodic contraction of the circular muscle fibres at the internal os, or of premenstrual swelling of the mucosa; (3) a congenital stenosis of the external os or of the entire cervical canal; (4) intra-uterine polypi acting as ball valves; (5) clots of blood, or (in membranous dysmenorrhea) a membrane forced into the internal os.

This theory affords a most plausible explanation of the clinical features of many cases of the spasmodic variety of dysmenorrhea, where the pain is sharp and colicky, comes on shortly before the flow, and is associated with scanty menstruation, becoming more free as the pain subsides. It received substantial support from the fact that dilatation of the cervix, which was supposed to remove the obstruction and should, therefore, theoretically, relieve the pain, was, clinically, a perfect success in many cases. These facts caused it to receive a ready welcome, but further experience and a closer examination of the results have to a large extent destroyed confidence in it. Vedeler (*Arch. f. Gyn.*, 1883, vol. 21, p. 211) has shown that out of a large number of women with

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anteflexed uteri, the percentage of those free from dysmenorrhea is as great as of those who suffer from it. Duncan has pointed out that observation of the section of a uterus in extreme anteflexion shows that the flow of blood along the flexed canal would be obstructed only in a degree which could not practically be of the slightest importance. Moreover, the uterine sound has been passed repeatedly through the internal os during menstruation, showing that at this time the stenosis does not exist. Again, it is estimated that the amount of menstrual blood lost is one drop in three minutes, and it has been demonstrated that menstrual blood flows easily at this rate through a tube much smaller than any possible stenosis of the os, or of the canal. It has also been shown that during the acme of the pain, and just before the flow is established, there is no blood in the uterus at all. In support of the theory it has been urged that when a uterine sound is passed into the nulliparous uterus, resistance is often encountered, but this does not necessarily imply the presence of a pathological stenosis, and careful examination usually shows that the difficulty arises from the tip of the sound being caught in the folds of the mucosa, or from its encountering a flexion.

**Dysmenorrhea Associated with Maldevelopment of the Reproductive Organs.**—Insufficient development of the reproductive organs is often associated with painful menstruation, but the relation between the two is not yet determined. Some authorities claim that this form of dysmenorrhea is a neurosis; others, that it arises from a deficiency in the calibre of the blood vessels, which are too small to receive the increased amount of blood necessary to establish the menstrual hyperemia; others, again, consider it due to the fact that the uterine cavity is too small to accommodate the swollen endometrium; and still another view claims that anteflexion is present in all such cases, on account of the maldevelopment of the anterior surface of the uterus, and that while the increased blood pressure tends to straighten the flexed organ, the resistance rendered by the lack of distensibility of the uterine parenchyma occasions the pain. None of these explanations can be accepted as satisfactory, and although there is no doubt that maldevelopment of the pelvic organs is an important causal factor in many cases of dysmenorrhea, we are at present unable to say more than that the incompletely developed organ is not capable of prompt, efficient response to a normal impulse, and therefore does not carry out its function with ease, hence the pelvis is not relieved of its increased blood pressure and there is a tendency to stasis. A poor physical development is often associated with a similar condition of the pelvic organs, but maldevelopment of the uterus and adnexa is not necessarily associated with general defective development. Women in robust health, whose only ailment is dysmenorrhea, sometimes present imperfectly formed uteri and ovaries of the puerile type.

**Neurotic Dysmenorrhea.**—In some instances, dysmenorrhea is undoubtedly a pure neurosis, explicable as a hyperesthesia of the endometrium; in other words, it is an abnormal perception of the uterine contractions physio-

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logically present at every menstrual period, but not usually appreciable, it being supposed that uterine colic is analogous to intestinal colic and due to a tetanic spasm of the circular fibres at the internal os. The pain may be due also to a physiological difficulty occasioned by the breaking down of the mucous membrane of the capillaries which induces a sort of pelvic headache. In dysmenorrhea of this type the patients are not anemic, their functions are well performed, and examination shows their reproductive organs normally developed, so that the dysmenorrhea must be considered as a pure neurosis whose exact nature cannot be clearly defined. It frequently happens that dysmenorrhea will make its appearance during neurasthenia in women who have never suffered from it before. In such cases it is often a nice question how much the dysmenorrhea is the result of the neurasthenia and how much it is occasioned by local disturbance of the organs.

**Nasal Dysmenorrhea.**—In 1897 Fleiss advanced a theory of dysmenorrhea based on the fact that certain cases could be relieved by the application of a twenty per cent solution of cocain to the so-called "sexual spots" in the nasal mucous membrane, urging in support of his theory that at the time of menstruation these spots increase in size and consistency, become cyanotic, and bleed easily. The theory found some supporters, amongst them J. Mackenzie, but it has never met with general acceptance. A most sensible paper on the subject by G. Kolischer (*Amer. Jour. Obst.*, 1904, vol. 49, p. 804), ascribes the good results observed in certain hysterical patients to the effects of suggestion, and points out that cocainization of other mucous surfaces produces the same effect. For instance, in two cases where relief was promptly experienced after the application of cocain to the "sexual spots," the same benefit was obtained at the next menstrual period from the application of cocain elsewhere, in one case to an erosion of the cervix, and in the other to a previously cleansed rectum.

**Dysmenorrhea from General Ill Health.**—There is still another variety of dysmenorrhea, common in young girls in whom the menstrual habit is becoming established, and usually associated with a variety of dyscrasias, the most prominent of which are anemia and chlorosis. This form does not usually persist beyond the twentieth year, although it is occasionally met with in young married women. Many of these patients live among poor hygienic surroundings which keep their physical vigor below par; others, on the contrary, are found among the higher classes who live amidst luxurious conditions, but are victims to the overstrain caused by the perpetual rush and excitement of constant social engagements, or the present efforts towards the higher education of women.

These are the principal theories concerning the etiology of dysmenorrhea not associated with gross pathological lesions of the reproductive organs. Other explanations less well recognized are to be noted also. Chronic endometritis, causing pain in menstruation through hyperesthesia of the endometrium is sometimes spoken of, and also chronic ovaritis; but neither

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of these causes has yet been demonstrated. In sixty-four cases of dysmenorrhea without abnormalities of the pelvic organs, which were treated in my clinic by dilatation and curettage, chronic endometritis was found on microscopical examination in only four cases, and in no one of the four was it well marked. A form of painful menstruation, known as ovarian dysmenorrhea, is sometimes spoken of, in which there is extreme tenderness of the ovary during the period, demonstrated by pressure upon it, and explained by thickening of the ovarian capsule preventing the expansion of the ovary during the period of congestion; it has never come under my observation. Perimetritis and salpingitis are sometimes the cause of pain in menstruation on account of the peritoneal pain occasioned by contractions of the tubes and uterus. Some writers recognize another form of dysmenorrhea known as "neuralgic" which is classed with the pure neuroses as analogous to intercostal or facial neuralgia. Dysmenorrhea is sometimes met with in women of a gouty or rheumatic constitution as a manifestation of the diathesis; its association with the dyscrasia being demonstrated by the entire relief afforded from remedies appropriate to its alleviation. In dysmenorrhea, not otherwise explicable, occurring in women with a rheumatic or gouty history, it should always be borne in mind as a possible cause, even if there are no other manifestations of the diathesis.

## CAUSES OF DYSMENORRHEA ASSOCIATED WITH GROSS PATHOLOGICAL LESIONS.

While there are many cases in which a most severe dysmenorrhea is present without the slightest local lesion or displacement, there are also a considerable number where it exists in the presence of some pathological condition, of greater or less significance, by which, there can be no doubt, it is sometimes induced. In order to investigate this matter, I inquired into the histories of one thousand patients admitted consecutively into the Johns Hopkins Hospital, and found that two hundred and twenty-nine of them suffered from dysmenorrhea which was apparently the result of a definite pelvic lesion. The abnormal conditions which may occasion dysmenorrhea are many and various, but the three most frequently met with are: (1) backward displacement of the uterus; (2) pelvic inflammatory disease; (3) myoma. Of the cases spoken of, forty-one per cent were associated with retrodisplacements of the uterus; thirty-seven per cent with pelvic inflammatory disease; and eleven per cent with myomata. The remaining eleven per cent were distributed among various minor conditions.

**Retroposition of the Uterus.**—Dysmenorrhea is more commonly associated with retroposition of the uterus than with any other abnormal condition of the pelvic organs. An analysis of a number of cases of backward displacements, treated at the Johns Hopkins Hospital, made by my former associate, Dr. G. R. Holden, showed that out of one hundred and twenty nulliparæ, one

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hundred and nine, or ninety per cent, suffered from dysmenorrhea before operation. In multiparæ, backward displacements are not so frequently associated with dysmenorrhea, there being one hundred and thirteen cases of it in two hundred and two cases of retroposition, or fifty-six per cent. Dysmenorrhea is occasionally the only symptom caused by the displacement, but more often it is only one of a series of manifestations, although, perhaps, the most severe. There is no constant type of dysmenorrhea associated with retroposition; it is more apt to continue throughout the entire period than the dysmenorrhea of nulliparæ without lesion. Gastric symptoms, headache, and other neurotic manifestations are often marked features, owing to the neurasthenia which almost invariably accompanies such cases.

**Pelvic Inflammatory Disease.**—About one-third of all the inflammatory conditions of the uterus, tubes, or ovaries, acute or chronic, are accompanied by dysmenorrhea. The proportion of cases with menstrual pain is about the same in acute and chronic affections, and the intensity of the suffering bears no relation to the extent of the pathological process. Cases in which the entire pelvic organs are the seat of inflammatory disease may have no pain in menstruation whatever, while a few adhesions binding down lightly one tube or ovary, or both, may give rise to severe suffering. Here also there is no constant type of pain. The suffering usually comes on a few days before the flow and lasts through the entire period. It is commonly dull in character, and is often referred to a wide area over the abdomen, back, and thighs. There may be no symptom of the condition except dysmenorrhea.

**Myomata.**—During the year 1907 the histories of two hundred cases of myoma in women under forty-five were examined at the Johns Hopkins Hospital to ascertain what percentage of their number suffered from dysmenorrhea. Ninety-four of the cases were white and one hundred and six black. Only those cases were considered positive which "showed the onset of dysmenorrhea with the present illness." Of these two hundred cases of uncomplicated myoma (adeno-myoma not included), twenty-five per cent showed that painful menstruation had made its appearance since the onset of the trouble for which the patient sought advice. This estimate of the proportion of dysmenorrheas associated with myoma may seem low, but another set of investigations carried on at the Johns Hopkins a little earlier gave a percentage of twenty per cent, which is even lower.

Dysmenorrhea is most frequently seen with submucous and interstitial myomata and is rare in the subperitoneal form. Here, again, there is no distinctive form of suffering. Severe dysmenorrhea is most often observed in the case of small tumors, and I pause here to call attention to the fact that a number of apparently inexplicable dysmenorrheas are due to the presence of extremely small myomata. In a case which passed through my hands not long since, the patient had been suffering for some years with extreme dysmenorrhea and more or less constant pain, so that her general health was quite broken down. When the uterus was



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opened a very small submucous myoma was found and removed, with complete relief of the suffering.

## TREATMENT OF DYSMENORRHEA.

An important question which at once arises in almost every case of dysmenorrhea is the propriety of making a local examination. There should, of course, be no hesitation in the case of married women, or in cases of inflammatory disease. But there are many instances of young women who suffer from dysmenorrhea pure and simple, when the question of examination must receive careful consideration. It is always best to exhaust all general therapeutic measures before making it; and, in a large number of cases, if these are carried out conscientiously over a long period of time, the suffering will be relieved. If, however, the case is an aggravated one when first seen; if it persists in defiance of all therapeutic measures; if it cannot remain under observation; or, if the circumstances are such as to prevent the general measures being consistently carried out, an examination should be made under an anesthetic.

With this precaution, an examination can be made without injury to the hymen, while, should any simple operation such as dilatation and curettage be indicated, it can be performed at the same time. Such a course enables the physician to dispense with the endless local treatments which are so objectionable in young women.

The various remedial measures which experience shows to be beneficial are as follows:

### GENERAL REMEDIAL MEASURES.

**Attention to General Health.**—In all cases of dysmenorrhea the closest attention to general health is indicated. In a large proportion of cases the patient will show more or less evidence of malnutrition of some kind or other, and this should be the object of persistent attention. A proper quantity of nutritious food is essential, and if, as often happens, the appetite is so impaired as to make it impossible to consume this at ordinary meals, the deficiency should be made up by feeding the patient in small amounts at frequent intervals. A glass of milk, a cup of beef tea, a sandwich, some malted milk, or any light nutritious food taken between meals and just before going to bed will generally be sufficient, and as the general condition improves, the appetite will increase.

**Sleep.**—A case of the kind under consideration should always have fully eight hours' sleep and more, if possible. In young girls who have not attained maturity, or in cases where the patient is markedly anemic, there must always be more, either at night or in the day time. An excellent plan is a sleep of one or two hours in the early afternoon. All late hours and excitement should be avoided with young girls at school, and the greatest care should be exercised to prevent over-exertion. The requirements of our large

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schools are such as to tax the capacities of a growing girl to the utmost, and if she is to keep up to them she must have every external aid in the healthy regulations of her life out of school hours. A young girl suffering from dysmenorrhea should never be sent to school during the menstrual period; and in a good many cases she should be taken away altogether for some months, or a year, if necessary.

**Fresh Air and Exercise.**—A considerable amount of time spent in the open air is of vital importance. The conditions of a woman's life in this respect are greatly improved upon what they were a generation ago, and a variety of outdoor amusements are now open to her. Walking, riding, driving, bicycling, or some form of active game, such as tennis, golf, or basket ball, are very desirable; and some hours spent out of doors, in all but the most inclement weather, should form part of the routine of each day.

**Rest.**—More benefit is derived from rest in the treatment of dysmenorrhea than from any one other remedy. Absolute rest in bed during the periods is essential. Every patient suffering from established dysmenorrhea should remain in bed for two to three days at each menstruation, and whenever it is possible, the rest should begin before the appearance of the flow. Careful observance of this rule in conjunction with other remedies will, in many cases, completely relieve the dysmenorrhea, and the patient will be able after some months to resume ordinary habits during menstruation. In other cases it will be necessary to continue the practice of rest in bed for at least the first twenty-four hours each time, if the relief from suffering is to be permanent.

**Regulation of the Bowels.**—Dysmenorrhea is frequently associated with constipation, so frequently, indeed, that keeping the bowels open, and even a little relaxed at the time of the menstrual period, is often most effectual in giving relief. I have known one case in which perfect relief for several periods was obtained by taking a heaping teaspoonful of Husband's magnesia every morning for three or four days before menstruation. In young girls who suffer from dysmenorrhea, it will often be discovered on close questioning that there is no regular evacuation of the bowels, and that the patient is quite unaware of the importance of the habit to either her general health or her menstruation. In such cases it is well to focus attention upon this point until the constipation is overcome, and this will often result in entire relief of the menstrual suffering.

## REMEDIES FOR RELIEF OF PAIN DURING MENSTRUATION.

Opium should rarely be given for the relief of dysmenorrhea, any more than for any other form of protracted suffering characterized by paroxysms, that does not tend to a fatal issue. The various forms of alcoholic stimulants so much in vogue are also contraindicated. There is a strong tendency among the poorer classes to seek relief in either

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gin or whiskey, and this point should be especially borne in mind among dispensary patients. The various patent medicines taken for the relief of pain all contain a large percentage of alcohol and their use should be systematically discouraged. The percentage of alcohol by volume in some of these compounds, as given by the Massachusets State Board Analyst, is as follows:

| | |
|---|---|
| Lydia Pinkham's Vegetable Compound | 20.6 |
| Peruna | 28.5 |
| Paine's Celery Compound | 21.0 |
| Jackson's Golden Seal Tonic | 19.6 |
| Schenk's "Sea-weed Tonic," "entirely harmless"! | 19.5 |
| Ayer's Sarsaparilla | 26.2 |
| Hood's Sarsaparilla | 18.8 |

It is necessary, however, or at any rate desirable, to combine a stimulant with the coal-tar preparations which are so much used for the relief of dysmenorrhea, in order to counteract the depressing effect upon the heart exercised by that class of remedies. Five grains of phenacetin with two teaspoonfuls of whiskey are sometimes given for the relief of menstrual pain, but it should always be given by the physician in the form of a prescription, and never put into the patient's hands as a remedy for general use, which she is at liberty to renew at her discretion. The evils of alcoholic stimulation are so great, however, that I prefer to give twenty to thirty drops of the aromatic spirits of ammonia in a little water.

The following formulæ for the relief of menstrual pain I have found useful in my practice:

℞ Phenac. } āā ..... gr. ij
Salol }

M. Ft. charta. Mitte tales no. vi.
S. One powder every four hours.

℞ Potass. bromid. ..... ʒij
Elixir guaran. and celer. ..... fʒij
M. S. One dessertspoonful every four hours in hot water.

℞ Acetanil. (Phenac.) ..... gr. v
Codein ..... gr. ss
M. Ft. charta. Mitte tales no. iv.
S. One powder and repeat in an hour.

℞ Apiol. ..... gr. l
Ft. caps. no. xii.
S. One capsule each night and morning for two or three days before menstruation.

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℞ Hydrastis canad. ..... f℥ij
S. Twenty-five drops in a wineglassful of water twice a day, beginning a week before menstruation and continuing through the flow.

Dr. Walter L. Burrage recommends the various *Helonias* compounds, which he has found useful. The best of them, in his opinion, are "Mistura Helonin Compound" and the fluid extract of "Helonias Compound." These preparations are safest in the cases under discussion, as they do not contain an opiate, which some of the other Helonias compounds do. The compound mixture of helonin, known as "Green Mixture," because of its brilliant color, may be given in doses of a teaspoonful in half a teacupful of hot water every fifteen minutes during a paroxysm of pain, or three times a day during the intermenstrual period, or for a week before the flow is expected.

The two following prescriptions given by B. C. Hirst ("Diseases of Women," 2d edition, p. 421) seem likely to be valuable:

℞ Acetanil. ..... gr. ij
Ammoniæ carb. ..... gr. iij
Heroin ..... gr. $\frac{1}{24}$
M. Ft. pil. Mitte tales no. vi.
S. One pill every hour for three hours.

℞ Tinct. opii camph. ..... f℥j
Tinct. zingerb. ..... f℥j
Spts. chlorof. ..... ℥ij
Syrup. acac. ..... f℥ss
Aq. menth. pip., q. s. ad ..... f℥iv
M. S. One tablespoonful when required for cramp.

In cases where the flow is scanty and the pain begins before its appearance, to be relieved by its establishment, I have found great benefit from the use of a rectal injection containing a heavy dose of sodium bromide in hot saline solution; it acts as a local sedative and also stimulates the flow by dilating the blood vessels. The formula for it is as follows:

℞ Sodii bromid. ..... gr. xl
Hot saline sol., $\frac{6}{10}$ of one per cent ..... Oj
M. S. Inject into rectum and retain.

Another rectal injection from which benefit is obtained is:

℞ Antipyrini ..... gr. xv
Sod. chlor. ..... gr. xxx
Aq. ..... f℥viij
M. S. Inject into rectum and retain.

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The application of heat externally often gives much relief. Hot water bags are excellent, or hot sand bags. A hot mustard foot bath is sometimes of service. For the latter purpose I use two teaspoonfuls of mustard in a foot-tub full of water, as hot as can be borne.

In cases where the pain is of the congestive character, T. A. Emmet recommends a plan of treatment directed to the relief of venous engorgement ("Principles and Practice of Gynecology," 3d edition, 1884, p. 177). A foot bath as hot as can be borne should be given, followed by some kind of hot drink. A hot mustard plaster is then applied along the spine. This should be about three inches in width and reach from the cervical region of the spine to the sacrum. As a rapid action is desired, the unadulterated mustard must be rubbed up into a thick paste with warm water and then reduced to the proper consistency by adding an ounce or two of syrup or molasses, which will at once develop the volatile oil. A piece of unstarched muslin, sufficiently long and some nine inches in width, is laid out at full length and the mustard is spread down the middle for one-third of the width, so that when the strip is folded over, the mustard will be covered on one side by two thicknesses of the cloth. The surface which is covered by the single thickness of cloth must be warmed and kept folded together until applied. The skin will become reddened in from ten to twenty minutes and the plaster must not be allowed to remain longer, even though the patient should not complain of pain occasioned by it. When the flow is delayed, dry cups, in Emmet's opinion, are more efficacious than the mustard plaster in bringing it on. These must be put on each side of the spinous processes and only in the immediate neighborhood of any point which may be found tender on pressure. The relief is more prompt when four to six large tumblers are used than it is with the ordinary sized cupping glasses. Unless the tumblers are unusually thick and heavy, there is no difficulty in making them hold on, after properly exhausting the air, by igniting a little alcohol which has been poured directly into the glass or upon some cotton on a piece of paper stuck to the bottom. The damp cotton must be firmly pressed against the bottom of the glass before dropping on the alcohol, and any excess of alcohol which may have run down to the edge of the glass carefully wiped up in order to avoid burning the patient. Fifteen to twenty minutes is long enough for the cups to remain in one place, after which they may be shifted to another. It may be necessary to repeat this treatment month after month until the local disease underlying the dysmenorrhea has yielded to treatment. During the interval between the menstrual periods, the general health must be carefully watched according to the rules laid down. A Turkish bath is often beneficial when taken within a week before the expected period.

When the pain is intense and all other remedies have failed, morphin may be given hypodermically as a last resort. As a rule, a single dose of one-eighth or one-fourth of a grain will be sufficient. It should always be controlled by the physician, and if a marked neurotic element is pres-

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ent he must exercise extreme caution, especially if the dose has to be repeated several times. The patient must always be kept in ignorance of what she is taking.

## REMEDIES FOR PERMANENT RELIEF OF DYSMENORRHEA.

**Pessaries.**—Dysmenorrhea associated with retrodisplacements of the uterus is sometimes relieved by an appropriate pessary. In one case under my care I found entire relief afforded by one of the Smith-Hodge variety. The selection of a suitable pessary and the best method of its application are discussed in Chapter XIII.

**Electricity.**—The treatment of dysmenorrhea by means of electricity was a subject of much interest some fifteen years ago, and promised to yield most excellent results, according to certain good authorities. The method has failed to fulfil its early promise, not because it has proved untrustworthy, but because there has been a general failure of interest in the question of the use of electricity in gynecology. It seems a matter for regret, however, that the electrical treatment of various gynecological affections should not receive more attention, and, therefore, I quote from some of the early papers on the subject in hopes that the various methods there described may be of use to the practitioner of to-day.

W. B. Sprague (*Ann. Gyn. and Ped.*, 1891, vol. 4, p. 402) says: "I have learned to take my battery with me whenever called to relieve a woman suffering at the menstrual period, if it be possible. For this purpose I generally use a Kidder five-post battery, and use the current from the extreme posts (the A-E current) with the shell of the magnet well drawn out. I thus secure a current of great tension, which is the best for relief of pain. Placing the positive electrode, usually a copper plate covered with some absorbent material which is well moistened, in the lumbo-sacral region, I use a small electrode covered with absorbent cotton over the hypogastrium with a kneading, rotary, and vibratory motion—a sort of electro-massage. This not only invariably relieves the pain greatly, but increases the flow materially, so that the only contra-indication is a tendency to menorrhagia. I have also used the static and galvanic currents to palliate the pain, with considerable, though somewhat less benefit—the former under similar conditions to those in which the faradic current is indicated, the latter in menorrhagia. . . . Only a moderate current is required in most cases—from five to twenty-five milliampères, but in cases of severe hemorrhage I have found it necessary to use from fifty to sixty milliampères. Strong currents, while necessary to check hemorrhage, generally increase the pain at first, but cessation usually follows, if it be gradually reduced and followed by the sacro-pubic administration for a few minutes following the removal of the internal electrode."

A. Lapthorn Smith (*Amer. Jour. Obst.*, 1891, vol. 26, p. 161) states that he has found the most important agent in the treatment of dysmenorrhea of uterine origin to be the application of the mild galvanic current to the

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inside of the uterus by means of the ordinary uterine sound, insulated to within two and a half inches of its end, to the handle of which was attached the negative pole of the battery. The treatment is usually less painful than the passage of the sound, as will appear from the following brief description of the method: "After a careful bimanual examination for the purpose of excluding pregnancy and ascertaining the position and condition of the pelvic organs, the vagina is disinfected by a douche, if this has not already been done at the patient's home. An ordinary Simpson's uterine sound of large size is then bent to the ascertained curve of the uterine canal, passed through the flame of the spirit lamp, cooled, and insulated with a clean piece of rubber tubing to within two and a half inches of its extremity, or less, if we have reason to think that the uterus is undeveloped. In the handle of the sound a hole has been bored, just large enough to hold the tip of the conducting cord from the negative pole or last zinc of the battery. The sound is then guided into the os uteri on the tip of the finger until it meets with some obstruction, when a current strength of ten milliampères is turned on. In a minute or two the obstruction will seem to melt away and the sound will glide into the cavity of the uterus. The current is now gradually raised until the patient says she can feel it in the uterus, generally between twenty and fifty milliampères, being at once lowered on the slightest complaint of pain. At the end of five minutes the current is gradually turned off again, when the sound will be found to drop out almost of its own accord, and very much more easily than it entered. This may complete the séance, or, as an adjuvant and safeguard a boroglycerid tampon may be inserted. The patient may return home on foot and resume her duties forthwith, as such mild applications do not require any precautions in the way of resting, etc. The positive pole of the battery is attached to the ordinary clay abdominal electrode." The following case is cited by Dr. Smith as an instance of the success of the above mode of treatment:

"Miss W. was sent to me on the third of June, 1888, by Dr. Reddy with a uterine fibroid and an enormous hypertrophy of the cervix. Her sufferings every month were unendurable. She had been employed as cook in a private family, but had to give up her situation, as during menstruation she was totally incapacitated. She described the pain as agonizing, her screams being heard all over the house. I gave her two applications a week from then till July 28th of the same year, less than two months, when she reported that she had had a period absolutely free from pain. I continued to treat her for another month, but she has never had a painful period since, and was still menstruating regularly up to a few months ago when I saw her last, in perfect health, and doing all the catering and cooking for a large boarding house."

A more recent paper than these is one by A. H. Goelet (*Internat. Jour. Surg.*, March, 1900). In this he speaks most highly of electricity in the treatment of dysmenorrhea associated with stenosis, obstruction, or flexion. In cases of flexion it may be necessary to use tampons in conjunction, to support

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the uterus at a higher place in the pelvis until its weight is diminished and it is no longer dragged down.

For the purpose of overcoming obstruction in the canal, whether associated with flexions or not, moderate electrolysis is employed. This produces distinct widening of the canal which promotes drainage of increased secretion, pent up in the cavity as the result of obstruction. The strength of the current (galvanic) employed for the purpose should not exceed ten milliampères, and the duration of the application should be three or four minutes. Thus cauterization is avoided as obviously objectionable, since it would eventually lead to permanent stenosis from cicatricial contractions. The frequency of the applications may be every second day for the first week or two, according to the condition; twice a week during the third; and cessation during the menstrual period. If complete relief is obtained at this stage, one application may be made two or three days immediately preceding the next two succeeding periods. The electrode is inserted with a speculum in the vagina or along the index finger as a guide. Strict antisepsis must be preserved throughout. The instruments and hands must be clean and the vulva and vagina thoroughly irrigated with an antiseptic solution immediately before treatment. Following each application the pelvis is submitted to faradization with the current from the long fine wire coil by means of the bipolar electrode in the vagina for the purpose of overcoming the pelvic hyperemia which constantly accompanies this form of dysmenorrhea. These applications should be continued for ten to fifteen minutes.

Goelet considers that dysmenorrhea due to ovaritis and salpingitis, without suppuration, is amenable to this mode of treatment, if the details are carried out with care. In these cases, particularly where there is much sensitiveness to digital pressure in the vagina, the treatment should begin with faradization (bipolar) through the vagina with the most sedative current obtainable, and these applications, which are repeated every twenty-four hours, should be continued each day for fifteen minutes, maintaining the current constantly throughout the application at a point where it is barely appreciable to the patient. The strength of stimulation of the current should be increased only with the decrease of sensitiveness. When this has been accomplished, negative electrolysis of the canal is employed, when necessary, to promote drainage from the uterine cavity and tubes. In the beginning it is best to start with an application of only five milliampères and continue it only two minutes. The application is repeated in two or three days, if no reaction follows to show that it is contra-indicated. The applications to the canal should be discontinued as soon as the necessity for drainage is no longer indicated, but the faradic applications are to be continued every second or third day until the cure is complete.

Dysmenorrhea due to anemia and impaired nutrition will yield to vigorous applications of static electricity, consisting of sparks over the spine and especially over the sacrum; sparks to the hypogastric region, repeated

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daily, or every second day; and the application of a stimulating static breeze applied generally. The applications are discontinued during menstruation. From two to three months are usually required to effect a cure.

Dysmenorrhea due to imperfect development of the uterus and ovaries can only be benefited by electricity, if treatment is instituted before the patient has attained maturity. The applications must be made directly to the uterus with the object of stimulating this organ, and through it, the ovaries. An electrode with two and a quarter inches of exposed surface is inserted into the uterus and connected with the negative pole of the faradic apparatus. The other pole terminating in a felt electrode the size of the hand, is placed over the lumbar region and the current is employed as strong as it can comfortably be borne. It should be maintained for five or ten minutes and its strength constantly increased throughout the application, so as to maintain a stimulation throughout, the object being to excite an increased blood flow to the uterus. The applications should be repeated every second day at first, and later every third day. Applications of static electricity at the same time will aid materially by stimulating an increased general nutrition. The method which is particularly effective is the static breeze: sparks to the spine, over the sacrum, and to the hypogastrium, with the breeze to the head for five to ten minutes after the other application. The static spark exercises a decided revulsive effect which relieves internal congestion, stimulates the general circulation, and, together with the breeze, promotes nutrition. The breeze to the head quiets nervous irritation and induces natural sleep.

It will be seen that the various advocates for the use of electricity in gynecology differ in regard to the details of its use, and no doubt every practitioner who makes use of it will find it expedient to develop his own method. It is to be hoped that gynecologists, and general practitioners who practice more or less gynecology, will give the use of electricity in the treatment of dysmenorrhea a thorough trial during the next few years, for it would seem to offer a fair prospect of relief in certain intractable cases, although it is still upon probation.

**Operative Treatment.**—Permanent relief from dysmenorrhea, if other remedial measures fail, must be obtained from operative treatment. In cases where the suffering is caused by lesions of the pelvic organs, the cure of these lesions will generally be followed by the disappearance of menstrual pain, but the treatment of such cases belongs to the specialist. For the relief of dysmenorrhea not associated with organic lesions, however, there is one form of operative treatment so simple as to be within the scope of the general practitioner, and therefore within the limits of this work, namely, dilatation of the cervix uteri, followed, when it is indicated, by curettage of the endometrium. In cases where the organs are apparently normal this mode of treatment has yielded the following percentage of good results in my clinic. Out of ninety-five cases, eighteen were entirely relieved with no subsequent return of the pain, and fourteen were greatly benefited, the pain never return-

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ing to its former severity. The periods of observation in these cases extended over from one to twelve years. Of the remaining cases, seven were relieved completely or in great part for periods of from one to twelve years, after which the dysmenorrhea returned. In thirty-nine instances, therefore, out of ninety-five, the results might be considered satisfactory. In twenty-one cases there was no relief at all, while the remaining thirty-five cases experienced more or less relief for a few months, but within a year the pain returned in the same severity as before. When the dysmenorrhea returns after a few years or months of comfort we are justified in recommending a second operation.

There is no symptom complex by which the cases where dilatation may be expected to do good can be differentiated with certainty from those in which it will not. In general, however, we may anticipate relief in cases where the pain begins a few hours before the flow, is sharp in character, and lasts but a short time. A marked neurasthenia does not necessarily forbid a good result, but if permanency of relief is to be secured, the neurasthenia must also be cured. An excellent plan in such cases is to institute a thorough rest cure by an ether examination and a dilatation, with curettage, if necessary.

## DILATATION.

This operation does not yet stand upon a scientific basis, for its mode of action is not clear and its results are far from uniform. It must always be borne in mind that not every case of dysmenorrhea is suitable for dilatation. The general practitioner, and even many a specialist, often make the mistake of beginning the treatment of every case of dysmenorrhea by dilatation, without a proper preliminary search for the cause of pain, forgetting that in certain cases the pain is due to the presence of definite lesions, such as ovarian disease, pelvic peritonitis, or small interstitial fibroids, which are not of a nature to be relieved by such treatment. In order to make clear the relation of dysmenorrhea to a variety of pelvic affections which are apt to escape detection upon a superficial examination, I analyzed two hundred and fifty-five cases, taken consecutively, of pelvic peritonitis with adherent tubes and ovaries, tubercular peritonitis, hydrosalpinx, and catarrhal salpingitis, and found that out of the two hundred and fifty-five cases, one hundred and eighty suffered from dysmenorrhea, while it was absent in only seventy-five cases.

If the physician has determined by a careful examination that no lesions of the kind described are present, and if the various remedial measures have been tried without success, dilatation should always be performed, and followed by curettage, if the latter seems advisable.

**Choice of Method.**—Slow dilatation by means of laminaria or tupelo tents, much used in Germany, has been generally abandoned in this country, for fear of septic infection. The class of uteri which need dilatation

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and curettage are often already infected, and the introduction of a hard foreign body in the form of a tent, which bruises and lacerates the tissues while it is being introduced and keeps up a constantly increasing pressure, affords just the condition most favorable to the entrance of pathologic organisms into the system. In many instances the patient recovers from the operation with a chronic pelvic inflammation, and not a few deaths have been due to sepsis originating in this manner. A fatal case of infection following slow dilatation has been reported by Dr. T. S. Cullen (*Johns Hopkins Hosp. Rep.*, 1897, vol. 6, p. 109). The patient was a young woman whose physician had thought it necessary to induce an abortion in the fourth month of pregnancy, and therefore he inserted a slippery elm tent into the uterine cavity. A few hours afterwards the patient suddenly became deathly pale and fainted away. On recovering she complained of great pain in the abdomen and had a slight uterine hemorrhage. Four days later she had a profuse hemorrhage, but it was not possible to ascertain whether the fetus had been expelled. On the fifth day she had a severe chill, followed by high temperature, marked abdominal distention, and extreme tenderness over the abdomen. The chills continued at irregular intervals until the sixteenth day, when symptoms of peritonitis appeared and death took place at the end of twelve hours. At the autopsy the peritoneum was found to contain several quarts of purulent fluid and the uterus was enlarged and softened. It was removed, and when the alcoholic specimen was examined it proved to measure 13 × 9 × 6 cm., while its cavity was 9 cm. in length. The latter contained six pieces of wood (the component parts of the elm tent), which, when united, formed a perfect cone with a hole perforating its base. The uterine walls were extensively necrotic and cocci were found everywhere in the uterine blood vessels, as well as in the thin sheet of fibrin which covered the uterus itself. This case is an excellent illustration of the fact that the tent ought only to be used in clean cases, that is to say, where there is no suspicion of any cervical or intra-uterine infection. I would not use it in a septic abortion or a sloughing fibroid.

Gradual dilatation by means of Hegar's graduated dilators has been successful in some cases. According to this method dilatation should be begun by dilators, measuring 3 to 5 mm. in diameter, the size being increased day by day during the interval between menstrual periods until 8 to 10 mm. is reached.

Rapid dilatation is, however, the method now most generally employed and it is certainly the safest.

**Preliminaries to Operation.**—The bowels must be carefully emptied by means of either a teaspoonful of liquorice powder the night before the operation, or an equal amount of magnesium sulphate on the morning of it. If it seems necessary, this may be followed by an enema of warm soap and water. The operating table is covered by a sterilized sheet and a rubber pad is laid over one end of it. The patient, after being anesthetized, is placed upon this in the lithotomy position. The vagina is now cleansed with soap and water

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on pledgets of cotton introduced by means of a long forceps. After this, it is irrigated with a solution of bichloride of mercury, 1:1,000. The best anesthetic is nitrous oxide gas, and if this does not give sufficient relaxation, a few whiffs of ether may be administered and the gas resumed. The whole operation should not take over five minutes. A careful bimanual examination

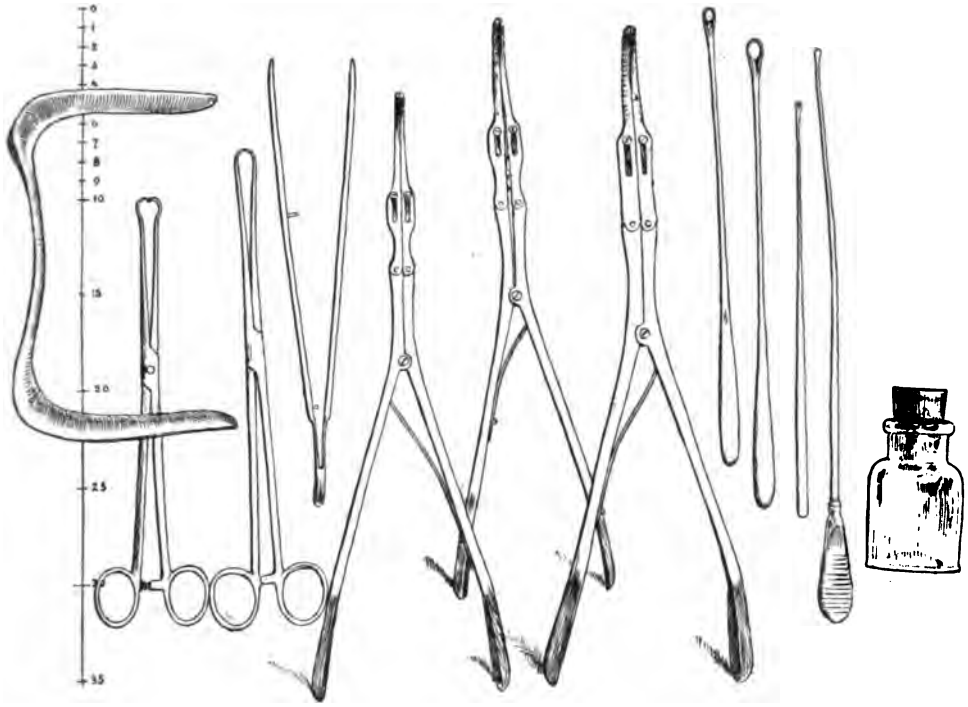

FIG. 52.—INSTRUMENTS USED IN DILATATION AND CURETTAGE OF THE UTERUS. These instruments are in order from left to right, Sims' speculum; two traction forceps; dressing forceps; three uterine dilators; two serrated curettes; one gauze packer; one uterine sound; bottle of formalin solution for specimen secured.

of the pelvic organs should always be made while the patient is under the anesthetic. Not only does it afford valuable information as to her condition, but if the direction of the uterine canal is known, it greatly aids the introduction of the dilators. The instruments used are shown in Figure 52.

**Operation of Rapid Dilatation.**—In the virgin the well-anointed index finger must be introduced into the vagina slowly and gently, to avoid injuring the hymen. When the finger touches the cervix, a pair of tenaculum forceps is introduced and the cervix firmly grasped by its anterior lip. The finger is then withdrawn, and traction made with the forceps until the os uteri is seen at the vaginal outlet (see Fig. 53). When the orifice is small, or the examining finger large, the position of the cervix must be determined without vaginal examination by a careful rectal palpation, in order to avoid injuring the hymen, after which the tenaculum forceps are introduced into the vagina, and under the guidance of the rectal finger the anterior lip of the cervix is cau-

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tiously drawn down to the outlet. In married women, and in those who have borne children, the posterior vaginal wall may be readily retracted by a Sims' or a Simon speculum or even with two fingers, so as to expose the cervix, which is then grasped by the tenaculum forceps and drawn down.



FIG. 53.—THE CERVIX CAUGHT AND EXPOSED BY RETRACTING THE POSTERIOR VAGINAL WALL WITH A SPECULUM, GRASPING THE ANTERIOR LIP WITH A BULLET FORCEPS, AND DRAWING IT DOWN TO THE VAGINAL OUTLET.

Dilators of the Goodell-Ellinger pattern of three sizes are needed (see Fig. 52). The smallest of these, which has smooth blades, is 4 mm. in diameter, while the two larger, which are 5 and 6 mm. in diameter, respectively, are both corrugated, as recommended by the late Dr. William Goodell. My own dilators have a spring between the handles, but are not provided with either ratchet or screw. The handles are bent at an angle and are made large enough to be grasped in the full hand; the dilating end is blunt and slightly curved. Light instruments with a strong curve and a tapering point are dangerous and must not be used.

The smallest dilator is now taken up, poised delicately between the fingers like a pen, and gently introduced within the external os, after which it is

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pushed up the canal to the internal os (see Fig. 54). The dilator must never be grasped with the handles braced against the palm of the hand and forced through obstructions. When resistance is encountered, as it commonly is, in passing from the internal os into the uterine cavity, the dilator must be withdrawn a little until by repeated efforts and without force, it finally passes the obstruction and slips in. The danger of forcing a sharp dilator into the uterine canal without due precaution is considerable. I have seen a death resulting from neglect of the precaution (*Amer. Jour. Obst.*, 1891, vol. 24, p. 42). The surgeon pierced the posterior wall of an anteflexed uterus at its cervical junction and bored a hole into the peritoneum. He then inserted a coarse sponge tent into the cervix, which projected partly within the peritoneal cavity. The patient died in a few days of peritonitis, in spite of an effort which I made to save her by opening and draining the



FIG. 54.—DILATATION OF THE CERVIX WITH THE GOODELL-ELLENGER DILATOR.

abdomen. The risk of perforating an anteflexed uterus is so manifest that I cannot avoid the conviction that such an accident has happened more frequently than is generally known.

The blades of the dilator being well introduced, the canal is first dilated in one direction; the pressure is then relaxed and, when the blades have closed, the dilator is rotated a little, so as to dilate another portion of the canal, this

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process being continued all around the circle back to the first point. The cervix yields to these repeated gentle impacts from within on all sides and is gradually and equably dilated to the necessary extent without laceration. In this way the canal is opened up within a minute or two, sufficiently to admit a large corrugated dilator with which the dilatation is continued in like manner from side to side, antero-posteriorly and at all points between.

This extent of dilatation, which is large enough to admit the introduction of a bougie 1 cm. in diameter, is usually sufficient for the relief of dysmenorrhea; a somewhat greater dilatation may be obtained by using the largest size dilator, but not without risk of great injury to the cervix. It is never justifiable to attempt the dilatation of the cervical canal sufficiently to permit the introduction of the index finger into the uterine cavity, for it can be accomplished only by extensive rupture of the cervix.

The method just described, in which the cervical canal is dilated through successive impacts on it from all directions, is far better than the common method of opening a dilator controlled by a ratchet or screw and expending all the force in one direction until the fibres split and a tear is produced. The damage done the cervix, the greater danger of septic infection, and the possibility of cancer developing in the scar which remains after the rent heals, are great objections to forcible dilatation in one direction.

In many cases it is advisable to follow up the dilatation by curettage, and the method for doing this will be found in Chapter VII.

After dilatation the patient should be kept in bed for from one to fourteen days, according to conditions. If her general health is good and her nervous system undisturbed, twenty-four hours will be sufficient; but if she is anemic and reduced by continued suffering, advantage should be taken of the opportunity afforded by the operation to give her as long a rest as possible, with the advantage of care, attention to diet, and other essentials to complete recovery. A neurasthenic patient should always be kept in bed after the operation for ten days to a fortnight.

Dilatation, as I said, is the only form of operative treatment for dysmenorrhea which comes within the scope of this work. Removal of the ovaries in intractable cases, however, sometimes comes before the general practitioner, because his advice is sought as to its advisability by the patient or her relatives. I cannot leave the subject without speaking emphatically against such a practice. The removal of diseased ovaries is an entirely different matter; the removal of healthy ovaries for the relief of dysmenorrhea is almost never justifiable. The only occasions in which it can ever be so, are the rare instances in which long continuance of pelvic pain is wrecking the patient's health and disabling her to such an extent that she is incapacitated for self support or for the performance of imperative household duties. In an extensive gynecological practice I do not think I average one case a year of this kind. The patient's word or that of her relatives must never be taken as a gauge of the amount of suffering experienced, for, with

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every intention to be honest and avoid exaggeration, it is almost impossible for them to be accurate. If such a measure is in contemplation, the physician must convince himself of the intensity of the pain by his own observation of the patient through several periods. The effect upon her general health is also a reliable test. So long as the suffering is confined to the menstrual periods, and the interval is free from pain, the patient's health rarely suffers to any great degree; if, however, as sometimes happens, she is never wholly exempt from pain, some degree of neurasthenia is almost certain to ensue, with loss of appetite, sleep, and general impairment of physical condition. Under such circumstances as these the patient loses weight and strength, her face acquires a haggard, anxious expression, and there is every indication to the practiced eye that her general health is much impaired.

Another point upon which I should like to lay stress in this connection is that the fact of ovaries being cystic is no reason, *per se*, for their removal. It is not definitely decided whether any clinical symptoms arise from the cystic follicles from the size of a pea to that of a cherry, which are often observed. One thing is quite certain, however, namely, that small cystic follicles never of themselves justify the removal of an ovary, or a piece of an ovary. The removal of one ovary is sometimes suggested for the reason that it is "down," but this expression is just about as scientific as saying that the palate is "down and needs cutting."

How great may be the influence for good of the conscientious general practitioner in cases of this kind is shown by the following case which recently passed through my hands:

A young woman of two or three and twenty was brought to me with the following history: About two years before she had begun to suffer from dysmenorrhea after a fall from her horse. She lived in the country, on a farm, where no medical attendance was within reach except that of the general practitioner in the neighborhood. He attended her for some time without success, and then, finding that she was, if anything, worse and that her limited means prevented her coming to the city to consult a gynecologist, he suggested asking the advice of a well-known general surgeon who passed his summer holidays in the neighborhood. The surgeon made a pelvic examination and advised the removal of one ovary, on the ground that it was cystic. This he did and for a short time the patient improved, but within six months she was suffering as much as ever. The same surgeon was again consulted and insisted that the only possible remedy was the removal of the other ovary. The patient and her family consented, with reluctance, but fortunately for the issue, the country physician, who still had the case in charge, set before them earnestly that the removal of both ovaries in a girl not much over twenty, who was, moreover, engaged to be married, was too serious a step to contemplate without the opinion of a competent gynecologist as to its necessity, and that it was their duty to make an effort to obtain this, no matter what exertion or sacrifice it involved. Accordingly, the patient was brought to me, and I made an



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examination under ether, at which I found nothing whatever the matter. I dilated and curetted, however, thinking the case one where it was likely to be beneficial, and the patient has ever since (nearly five years) been free from anything more than a trifling amount of pain. Yet her whole future would have been sacrificed had it not been for the influence of her physician.

## MEMBRANOUS DYSMENORRHEA.*

There is one kind of painful menstruation so peculiar as to demand special consideration. This is the form known as "membranous dysmenorrhea," characterized by severe cramp-like pains, resembling those of labor, followed by the expulsion of the lining membrane of the uterus, either whole or in part. The cases vary in severity from the typical form in which a complete cast of the uterine cavity is discharged at each period with great suffering, to a mild type where only small fragments of the endometrium are discharged at intervals of several months, with a trivial amount of pain. When the membrane is passed entire, which, however, rarely happens, its nature can be readily recognized by floating it in water; a shaggy outer coat can then be distinguished, of narrow triangular form, with little openings at the base corresponding to the tubal orifices and a larger opening corresponding to the internal os. The affection is not a disease *sui generis*, but a condition which develops under varying conditions, complicates different pathological processes, and presents a variety of microscopic appearances. Some writers have, therefore, suggested that the term "membranous dysmenorrhea" should be abandoned in favor of "exfoliative endometritis" (Wyder, *Arch. f. Gyn.*, 1878, vol. 13, p. 39) or "exfoliation of the menstrual mucosa" (Löhlein, *Zeitschr. f. Geb. u. Gyn.*, 1886, vol. 12, p. 465).

**History.**—The condition was first recognized by Morgagni ("De Sedibus et Causis Morborum," 1779, Bk. III, Letter 48), who reported a case and gave an excellent description of its clinical course. The first microscopic study of the membrane was made by Ernst Heinrich Weber, and the term "membranous dysmenorrhea" was given in 1846 by Oldham (*London Med. Gaz.*, 1846) and Simpson (*Edin. Med. Jour.*, 1877). The resemblance to decidual tissue excited a prolonged discussion in Germany as to whether all cases of membranous dysmenorrhea were not really early abortions, and it is only within the last thirty years that the two conditions have been clearly differentiated. The first adequate histological study in modern literature is that by Wyder (*loc. cit.*). Von Franqué, in 1893, made an elaborate study of the pathological anatomy (*Zeitschr. f. Geb. u. Gyn.*, 1893, vol. 27, p. 1), and since then numerous isolated cases have been reported, but little new information has been added to the subject.

* A paper by Dr. Elizabeth Morse (*Johns Hopkins Hospital Bulletin*, 1907, vol. 18, p. 40), which is based upon an investigation of four cases of membranous dysmenorrhea in my clinic, is the foundation of this section.

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**Etiology.**—The etiology and pathogenesis of the condition are obscure, partly, no doubt, because the affection is really rare and specimens for study are not often available. The most important etiological factor is a preceding endometritis, arising after childbirth, abortion, or a gonorrheal infection. In some cases there is a retroflexion of the uterus or some abnormality of the appendages. A considerable number of cases, however, occur in young unmarried women, where there is no history of infection and the pelvic organs on examination are apparently normal. In these cases there is, of course, the possibility of an overlooked vaginitis in childhood or an endometritis accompanying one of the exanthemata.

**Clinical History.**—In the first class of cases, where there is a history of infection, menstruation is usually regular and normal until a labor or an abortion takes place, followed by fever; or, it may be, there is an attack of gonorrheal endometritis. After the occurrence of some such cause, dysmenorrhea appears and is accompanied, in the course of a few months, by extrusion of the menstrual membrane. In the second class of cases, where the pelvic organs are normal, the menstrual history shows no irregularities and the dysmenorrhea, followed by the expulsion of the membrane, appears without any perceptible exciting cause whatever. In both classes the pain is intermittent and cramp-like in character, closely resembling labor pains, and the membrane is usually passed on the second or third day of menstruation. After the membrane is discharged, the pains cease and there is often a copious flow.

**Macroscopic Appearance.**—The menstrual membrane, when it is discharged, forms a triangular sac, having the shape of the uterine cavity; sometimes it has rounded holes at the sides of the tubal openings. The outer surface is ragged; the inner smooth. The thickness of the membrane varies from that of tissue paper to two or three millimetres. A membrane of greater thickness suggests decidua. Complete casts of the uterine cavity are more rarely found in membranous dysmenorrhea than in pregnancy. In the majority of cases the membrane is passed in fragments.

**Microscopic Appearance.**—From a microscopic point of view, the membranes discharged from the uterus may be divided into two classes, namely, exfoliated mucosa and fibrinous casts. In the first class of cases, exfoliated mucosa, there are two different types. One of these is that of interstitial endometritis, in which the stroma cells are of normal size and appearance and there is an infiltration of leucocytes. Hemorrhage, exudate, and fibrin are usually present in addition. In the other type the stroma cells bear a strong resemblance to decidua. They are enlarged, oval or polygonal in form, and have large vascular nuclei with abundant protoplasm; all gradations may be traced between them and the normal stroma. In some cases the entire membrane is composed of these altered cells, while in others, glands exist; occasionally two layers, one compact and one spongy, can be distinguished. It often happens that the two types are found in the same membrane. The large stroma cells are usually supposed to be the result of hyperemia and

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irritation. They are not peculiar to this condition, but are found also in glandular hypertrophy and edema of the endometrium, where they are accounted for by circulatory changes.

In the second class of cases, the fibrinous casts are composed of a network of fibrin, containing in its meshes red corpuscles, leucocytes, and remnants of the cells of the mucosa. There is some difference of opinion as to whether this second group of cases should be considered as true cases of membranous dysmenorrhea. They develop, however, in connection with endometric processes and are passed with the same symptoms as organized membranes; in fact, cases have been reported where a patient passed a fibrinous cast at one time and a membrane of altered mucosa at another. Moreover, it is impossible to separate the two varieties anatomically, on account of the many transitional forms between the simple fibrinous casts and the well preserved endometrium.

**Mechanism of Separation.**—The mechanism of separation of the membrane is obscure. The theory most generally accepted is that the hyperplasia of the stroma cells causes an obstruction to the escape of blood into the superficial layers, and therefore it spreads out into the deeper portions of the uterus, which yields at the weakest point on account of the friability due to chronic hyperemia and the youth of the connective tissue cells. The membrane is, so to speak, dissected free by hemorrhage. The free bleeding which so frequently follows the expulsion of the cast is in favor of this view; while, on the other hand, the fact that blood is often found distributed through all parts of the membrane is supposed to be against it. The degenerative changes which are taking place in the membrane must also be an important factor in causing separation.

**Diagnosis.**—The clinical history of membranous dysmenorrhea is, of course, extremely suggestive of the diagnosis, nevertheless, it can never be positively made without a microscopic examination, for there are two other kinds of casts discharged from the vagina which may simulate the menstrual membrane to the naked eye. These are vaginal casts and decidual casts. Vaginal casts are thrown off, either as the result of an exfoliative vaginitis or of treatment of the vagina with strong chemicals, such as silver nitrate. In the case of exfoliative vaginitis the tissue may be passed during menstruation or independently of it, but if the discharge occurs with menstruation and is accompanied by suffering of a cramp-like character, the case may readily be mistaken for one of membranous dysmenorrhea. How easily a mistake may be made in the absence of a microscopic examination is shown by the fact that out of eleven specimens sent to my laboratory at the Johns Hopkins Hospital with the diagnosis of "membranous dysmenorrhea," only four proved to be genuine. The others showed decidua in three instances and vaginal epithelium in two; while of the remaining two specimens, one was uterine polyp and the other blood clot. It must always be remembered that an exfoliative vaginitis may accompany membranous dysmenorrhea, and Leo-

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pold, who reports a case of this kind (*Arch. f. Gyn.*, 1876, vol. 10, p. 293), considers the cause of the two processes the same, namely, a superficial hemorrhage arising from extreme hyperemia and extending through the cervix into the vagina. Hoggan (*Arch. f. Gyn.*, 1876, vol. 10, p. 301) describes a case in which the upper part of the membrane was composed of uterine mucosa and the lower of vaginal epithelium. As a rule, vaginal casts and pieces of vaginal tissue are thinner, rougher, and more like parchment than membranes from the uterus, and no glandular openings are seen upon the surface. In differentiating from decidual casts the history must first be considered, since this form of cast is larger and more vascular than those of the dysmenorrheic membrane, and if chorion-like villi be found on microscopic examination, the diagnosis of extra-uterine pregnancy is, of course, clear. If decidua alone are present, it is a case of normal pregnancy. In an interesting case of my own the patient brought me two casts, one of which had been passed with menstruation, while the other, which appeared after the interval of a month, was an extra-uterine pregnancy. The greatest difficulty arises in cases where it is necessary to make a differential diagnosis between an early abortion and a menstrual membrane containing the decidua-like cells. This question occurs usually in cases of early abortion, before the decidua has reached its full development and typical form. The diagnosis must rest upon the fact that the cells in the menstrual membrane do not show the enlarged epithelioid appearance so often found in the mature decidual cell, and also that they have a more abundant protoplasm with more sharply defined outlines. Moreover, the protoplasm of the decidual cell loses its fibrillated appearance and takes a deeper eosin stain. The diagnosis can usually be made upon the microscopic evidence alone, but cases sometimes occur in which the final decision must include the clinical history.

**Treatment.**—The treatment in membranous dysmenorrhea is discouraging, and the prognosis as to recovery, either with or without it, is not good. When the underlying condition is obscure, the treatment most often adopted is curettage a few days before menstruation, followed by the classical application of iodine or carbolic acid and glycerin to the uterine cavity. This procedure may give temporary relief, but the patient generally relapses within a few months. Any associated lesions or abnormalities of the uterus or appendages should, of course, receive appropriate treatment. Sterility is the rule in membranous dysmenorrhea, although a few patients recover and become pregnant.

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