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Primary dysmenorrhea

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PRIMARY DYSMENORRHEA

BY

ELMER B. JOHNSON

SENIOR THESIS PRESENTED TO
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TABLE OF CONTENTS

INTRODUCTION	1
INTERESTING HISTORICAL FACTS	5
NORMAL MENSTRUATION	7
Definition	7
Chief Hormonal Control	7
Stages of Menstrual Cycle	8
Theory of Menstrual Rhythm	8
Duration of Cycle	9
ETIOLOGICAL SURVEY	10
Mechanical Obstruction	10
Hypoplasia	13
Psychogenic Factors	14
Posture and Muscle Tone	16
Endocrine Imbalance	19
Neurogenic Factors	22
Allergic Factors	24
Constitutional Factors	25
CLINICAL PICTURE	27
Incidence	27
Symptoms and Findings	28
Diagnosis	31
TREATMENT	35
DRUGS	35
Atropine	36
Benzyl Compounds	36
Opiates	37
Sedatives and Analgesics	37
Calcium	37
HORMONAL	
Estrogenic Substances	38
X-Ray	40
Corpus Luteum	40
Prolan-like Substances	41
Thyroid Substance	42
Insulin	42
High Carbohydrate Diet	42

SURGICAL	
Cervical Dilatation	43
Cervical Incision	44
Pessaries	44
Ovariectomy and Hysterectomy	45
Sympathectomy	45
Ganglia Injection	47
MISCELLANEOUS TREATMENT	
General Hygienic	47
Marriage and Childbirth	48
Exercise	49
Proper Instruction	49
CONCLUSIONS	51
REFERENCES	52

INTRODUCTION

The author first became interested in the problem of dysmenorrhea during the Junior year at the University of Nebraska College of Medicine. The majority of female patients encountered in the clinical clerk services complained of painful menstruation in varying degrees of severity.

The scope of the literature pertaining to this problem can be correctly termed infinite. It is mentioned in the oldest medical writings known to man (16), and has been widely discussed ever since. By way of illustration we can mention the intranasal treatment of dysmenorrhea which was introduced by Fleiss in 1897 (86). This alone is a very minute portion of the subject matter on dysmenorrhea, and it is significant that Fleiss after his original article never published anything further concerning it (23). Yet Seifert (124), writing in 1912, gave reference to 296 articles written on the relationship between the sexual organs and the nose. To further illustrate the tremendous scope of this subject, Ehrenfest (48), in reviewing the literature on dysmenorrhea from 1933 to 1936, had a bibliography of 394 references.

One finds considerable disagreement concerning the interpretation of the word dysmenorrhea, and when

it should be applied. Some writers consider dysmenorrhea a disease and not a symptom (64,118,147, et al), while others regard it as a symptom and not a disease (8,15, 35,59, et al). Bercovitch (15) and Young (150) believe that normal menstruation should not be painful nor accompanied by physical or mental disturbance. Clow (25) is also of this opinion. However, there are many other writers who speak of the menstrual molimina -- heaviness in the pelvis, headache, and general lassitude -- as being normally present during menstruation (25,72,102,147, et al).

Dorland (44) defines dysmenorrhea as "painful and difficult menstruation." Novak (102) applies the term dysmenorrhea to all instances of pelvic pain associated with menstruation, and then subdivides into primary and secondary divisions. The primary type being that group in which the pelvic pain occurs in the absence of any gross pathology in the pelvis, and the secondary type being that group in which the pain is associated and apparently due to definite pelvic pathology. The author favors the simple definition of Dorland, the subdivision of Novak, and the idea that normal menstruation should be painless. Thus menstrual molimina in the absence of any severe pain would be considered as a mild degree of dysmenorrhea.

The limitations of this paper are necessarily great because of the vast amount of material that has been written on the subject of painful menstruation. In the section on history, only a few interesting facts will be presented. Normal menstruation will not be discussed in detail; the present-day concept will be given briefly with no reference made to the experimental work that led to its establishment. No attempt will be made to mention all of the ideas that have been advanced as etiological factors. However, those which have appeared most frequently in the literature the author has read will be presented in some detail, giving the arguments pro and con whenever possible. In reading on the treatment of dysmenorrhea, the author has encountered more confusion than in any other phase of the subject. This, however, is to be expected since there is so much disagreement concerning the etiology. Here again the frequency of appearance in the literature will largely determine that which is to appear in this paper.

INTERESTING HISTORICAL FACTS

In studying the history of gynecology, one finds many fantastic ideas regarding the menstrual process. Even before the time of Hippocrates, it was looked upon as a cleansing process -- an idea still held by many of the laity today (102).

Pliny (111) regarded menstrual blood as a poison potent enough to kill insects and cause a mare with foal to miscarry. Aristotle (16) did not hold with this idea; he believed that it was as pure as blood which flowed from any wound. Pliny (17) also spoke highly of the medicinal virtues of menstrual blood. Ploss (18) was also of this opinion, believing that many conditions could be cured, among them, gout, headaches, goitre and furuncles. Crawford (33) mentions that the first napkin used by a healthy virgin was preserved as a remedy for plague.

Galen (56) believed that the menstrual blood was retained during pregnancy for the nourishment of the embryo, and evacuated when conception did not occur. The rhythmicity of the menses, according to Aristotle (5), was attributed to the action of the moon. This idea was held even up to the first quarter of the 19th century (102).

The first mention of dysmenorrhea is in the Brugsch papyrus and in the Ebers papyrus, both of which

were compiled in Egypt about 1500 B.C. (16). The Egyptians taught that if a disease was found on one side of the womb, the patient was to be told that she had an obstruction to her menstruation -- a remedy was then applied to the womb (89). It was not stated just what the remedy might be.

The Hindus listed 24 diseases of the female organs. One was when the menses were frothy and discharged with great pain. Another was difficult menstruation due to accumulation of unhealthy humours. The treatment advocated was distention of the vagina by a roller of cloth and the application of oil and ghee to the pubes (89).

Pliny (113) advised the use of *Leycanthemum*, a plant, for menstrual derangement. Pedacius (109) thought that menstrual disorders should be treated by emmenagogues. Oribasius (108) mentions the sitz baths in the treatment of dysmenorrhea.

Soranus (131) was one of the most scientific men among all the ancient authors. He did not merely mention a disease and then rattle off some treatment; he made careful studies of the symptoms, and tried to ascertain the cause of the various diseases with which he came in contact. He wrote of the menstrual flow coming drop by drop, and advised enlargement of the uterine orifice if

it were too small (89).

Following the death of Galen, which occurred about 200 A. D., there was an abrupt cessation of medical advancement, which persisted through the dark ages for a period of over 1000 years. Practically everything written during this time was largely copied from Galen and his predecessors (89). In fact it is only during the past 100 years that our knowledge of dysmenorrhea has advanced at all (16).

The ideas of some of the eminent gynecologists of the past century will be discussed in the chapter on etiology.

NORMAL MENSTRUATION

DEFINITION

Kurzrok (78) has defined normal menstruation as being the bleeding from a premenstrual endometrium which recurs regularly. It is to be differentiated from cyclical bleeding, which also may recur regularly, but which is from a postmenstrual endometrium. In true menstruation a corpus luteum is formed so nidation of a fertilized ovum could have occurred, hence the menstrual flow terminates a fertile cycle. Whereas, in cyclical bleeding there is an absence of ovulation and of corpus luteum formation; nidation could not have occurred, so this type of menstrual flow terminates a sterile cycle. The same individual may vary the type of bleeding on different occasions.

CHIEF HORMONAL CONTROL

It is the consensus of opinion (65,84,136,149, et al) that there are four hormones primarily concerned in the regulation and control of normal menstruation -- two from the anterior pituitary and two from the ovary.

- 1 - Prolan A, from the anterior pituitary, stimulates the formation of follicles in the ovary.
- 2 - Prolan B, from the anterior pituitary, stimulates the formation of a corpus luteum in the follicle after ovulation has occurred.

- 3 - Estrin, from the ovary, is the follicular hormone that promotes growth in the genital tract, and induces the endometrial proliferation in the uterus.
- 4 - Progestin, from the ovary, is the corpus luteum hormone which sensitizes the congested endometrium of the uterus for the reception of a fertilized ovum.

STAGES OF MENSTRUAL CYCLE

It is the usual procedure to date the beginning of the menstrual cycle with the onset of bleeding. Actually this is not correct, because the bleeding terminates the previous cycle (78).

Schroder (119) and Miller (96) mention four main stages in the normal cycle;

- 1 - Desquamative, which is the period of actual flow, and which usually lasts about 5 days.
- 2 - Regenerative, which is the period of endometrial rebuilding, and which usually lasts about 4 days.
- 3 - Resting, during which ovulation occurs (about 13 day), lasts ten to fourteen days.
- 4 - Premenstrual, which is the congestive stage, and which lasts seven to ten days.

THEORY OF MENSTRUAL RHYTHM

Kurzrok (78) favors the theory that the regulatory mechanism is within the cycle, accomplished by the four chief hormones acting against one another. It functions thus:

- 1 - At the onset of the postmenstrual phase the estrin concentration is low, so the

inhibition on the anterior pituitary is removed and prolan A is produced.

- 2 - The follicle produces increasing amounts of estrin, a peak being reached at time of ovulation. This inhibits prolan A and stimulates prolan B.
- 3 - Prolan B stimulates formation of the corpus luteum, which in turn produces increasing amounts of progestin, which eventually act on the anterior pituitary to inhibit prolan B and allow prolan A to renew its activity.
- 4 - At this time the premenstrual endometrium breaks down due to some unknown "bleeding factor."

DURATION OF CYCLE

Many patients state that their periods are regular, but when a definite check is made, the only regularity is the irregularity (78). Fluhmann (54) studied 747 cycles in 76 healthy women. He found:

Cycle varied	18 - 100 days
Majority between	18 - 42 days
Mean	30.4 days
Standard deviation	11.55
Average duration of hemorrhage	4.6 days

ETIOLOGICAL SURVEY

Kurzrok (78) began the discussion of dysmenorrhea by saying that when he was writing his book, he left that chapter until last with the hope that some new material would be published which would clarify the subject.

Zweifel (151) has called eclampsia the "Disease of the Theories", but in the opinion of the author, dysmenorrhea has a better claim to that title, as will be seen in the following discussion.

MECHANICAL OBSTRUCTION

This theory includes several different conditions, all of which may come under the heading of obstruction; strictures, stenoses, and kinking from malposition. Thickening of the cervical mucosa from endocrine hyperactivity, and spasm of the circular muscle in this region may also be associated factors (36). The author accepts this view, although some writers classify the spasmodic type separately (64,66,73, et al).

Many authors (7,103,118, et al) writing today give Mackintosh credit for having first advanced this idea, but Simpson (128) states that Hippocrates spoke of it and knew the appropriate treatment.

Mackintosh (83) did not believe that obstruction was responsible for all cases, but he thought that it accounted for the majority of them. His enthusiasm was

due to the good results he obtained from cervical dilation, and to his laboratory specimens of uteri with the os "so small as scarcely to admit a hog bristle."

Churchill (22) challenged the views of Mackintosh because he had not presented any evidence of accumulation of the menses.

Sims (129) was firmly convinced that obstruction was the answer. In fact, he stated that there could be no dysmenorrhea if the canal permitted free passage of blood.

Moench (98) cannot understand why so many men will agree that a moderately constricted ureter will give rise to severe pain, and yet deny that a narrowed cervix can cause dysmenorrhea, especially since the substance passing through the ureter is practically water, while the substance passing through the cervix is blood and small bits of tissue.

Kennedy (73) does not feel that actual obstruction is as common as has been thought, but he does hold that the spasmodic factor is important. In his opinion, dilation relieves these cases, not by making the canal more patulous, but by relieving the muscle spasm.

Many writers have felt that malposition with resultant kinking of the cervical canal was an important factor (7,16, et al), but Herman (64) and others (73,90,

102, et al) think that this finding when associated with dysmenorrhea is merely one of coincidence. Bennet (14), in 1865, taught that menstruation could be painful without any impediment existing. Sims (129) wrote that there was a time when he believed this, simply because Dr. Bennet and others said so, but experience taught him otherwise.

That many doctors have not abandoned the obstructive idea was shown in 1932 by Sellers (125). He sent out a questionnaire to 1000 gynecologists and received 319 replies. 63.6% answered in the affirmative to the question concerning stenosis as a cause of dysmenorrhea, and 60.5% also agreed that malposition of the uterus was an etiological factor. Crossen (34) writes that anteflexion, with narrowing of the cervical canal and hyperesthesia of the endometrium is by far the most frequent cause of primary dysmenorrhea in young women.

However, the majority of the recent writers do not think that this explanation is tenable (7,53,88, et al). Novak (103) argues against it because he has seen anteflexion without dysmenorrhea, and he has passed a probe with ease at the height of a pain. Furthermore, he states that the rate of menstrual flow is 2/3 drop per minute, and he cannot conceive of an obstruction interfering with this small amount. Mathieu (85) discounts Novak's assertion that passing a probe during

a dysmenorrhea pain is a point against obstruction. He thinks that the insertion of the speculum may straighten out the kink so that the sound only appears to pass easily. However, at present many men agree with Novak (36,148, et al), while none that I have read take sides with Mathieu (85).

HYPOPLASIA

Incomplete or defective formation of the uterus has been one of the prominent etiological factors advanced. Schultz (121) thought that in these cases the primitive connective tissue was not yet replaced by normal muscle. Therefore, he reasoned that the physiologic hyperemia of menstruation which engorged the vessels, would, in view of the deficient muscle, result in venous stasis with associated dysmenorrheic pain. Schroeder's (120) idea was very similar. He thought that there was a deficient uterine elasticity which resulted in a deficient adaptability to the recurring monthly congestion.

There are some men who still agree with this theory, or with a combination of hypoplasia and malposition. Findley (53) writes that it is commonly associated with dysmenorrhea, and Schochet (118) states that malposition of the uterus together with local hypoplasia of the genital organs is the anatomical characteristic of essential dysmenorrhea. Kennedy (75) is of the opinion that

dysmenorrhea results from a disturbance of the neuromuscular mechanism: (a) central or cerebral, which is chiefly a psychiatric problem, (b) the ganglia of Frankenhauser -- (this will be discussed further under the neurogenic theory), (c) uterine muscle hypoplasia, wherein the contractile power of the uterus is insufficient to rid the uterus of the menstrual discharge.

There are many, however, who disagree. The chief argument against it is that patients date the onset of their dysmenorrhea several periods or even years after the beginning of menstruation (7,103,148, et al). Kennedy (73) states that the internal os of the infantile uterus is usually more patulous than in the normal uterus. Fekete (52) states that even in a uterus of the infantile type mechanical stenosis of the cervix is not the cause of the menstrual pain. It is more likely due to compression of the engorged endometrium within the rigid walls of the small uterus. Novak (103) has noted that a uterus may be markedly hypoplastic and not be associated with dysmenorrhea while often a normal uterus is so associated.

PSYCHOGENIC FACTOR

Many German writers believe that this alone is responsible for primary dysmenorrhea (50). J. Novak and M. Harnik (106) are of this opinion but E. Novak (103) writes that they are not justified in this belief.

Thea Goldschmidt (58) concluded from a psychological study that the disagreeable symptoms of menstruation are largely mental and traditional rather than biologic. She further states that women are still under a spell of "primitive taboo". A. Mayer (87) mentions that dysmenorrhea often develops on a neurotic basis sometimes being a fear reaction or "an escape into disease."

Bercovitch (15) points out the interesting fact that most crimes for which women have been tried have been committed during the menstrual period. Doederlein (43) in 1914 thought it was significant that girls who had sexual relations rarely had dysmenorrhea. He mentioned a psychoneurotic type who were healthy and robust, but in whom the sexual instinct had been repressed. This type he thought was more prone to suffer from dysmenorrhea.

Gabrieliantz (55) is of the opinion that dysmenorrhea may be caused by frequently repeated masturbation which results in contraction of the uterus and internal os.

Curtis (36) agrees with this. In regard to masturbation, Davis (39) studied a large group of college girls, 272 of which admitted feeling 1 or more periods of sexual desire during each month. Of this group 84% reported masturbation. Of the group who did not recognize any periods of desire 58% reported self-pollution.

The majority of the American writers, that the

author has read, do not deny that the psychogenic factor plays a part, but they do not grant that it alone is responsible.

Mathieu (85) believes it may augment painful contractions, but not originate them. He mentions the erroneous information that many young girls receive from their mothers concerning the process of menstruation -- information that causes them to fear the menstrual process. In his opinion, there may be a psychic shock from the "apparent horribleness" of the first period that is carried throughout the balance of the active sexual life. According to Miller (94), dysmenorrhea cannot be entirely on the basis of psychoneurosis because it occurs too often in well balanced patients who are not at all nervous. Whitehouse (147) agrees with this by stating that dysmenorrhea is found just as often in the stolid apathetic persons as in those who are highly strung. He thinks that any neurotic tendency associated with dysmenorrhea is a result rather than a cause.

POSTURE AND MUSCLE TONE

The idea behind this theory is on the basis of abnormal congestion of the pelvic organs, which are abundantly supplied by an extensive inter-lacing network pampiniform, vaginal, cervical, uterine, hemorrhoidal, and bladder plexuses. These vessels are very thin walled

and their chief support is the intra-abdominal pressure, Thus congestion may occur and distressing symptoms arise if there is loss of tone (7). Miller (96) estimates that of the total blood circulating in the body:-

$\frac{1}{4}$ is in the peripheral circulation
 $\frac{1}{4}$ is in the heart and lungs
 $\frac{1}{2}$ is in portal circulation and other abdominal organs.

This becomes much more of a factor in an erect human being than in a dog for example.

Adams (2) studied a small series of cases among the nurses in a hospital. 79 (54%) of 137 had dysmenorrhoea but only 26 carried out the corrective postural exercises faithfully enough to give it a fair trial. Of these:-

15 (58%) completely cured
 7 (27%) markedly improved
 4 (15%) no benefit.

Miller (96) has conducted a large survey of 785 college girls over a 4 year period from 1927 to 1931. In this study the posture was classified by means of silhouette pictures, and the muscle tone was graded. The latter was quite difficult to do accurately. By 1929 the cases had dwindled to 495; at this time a preliminary report was made. It was found that among the 495, 237 had dysmenorrhoea in some form in 1927. By 1929, 127 of the latter group were completely relieved. It was concluded that it was not justifiable to attribute

dysmenorrhea to faulty posture and poor muscle tone, but the figures indicated that a reduction of menstrual pain occurred as a result of directed physical exercise which improved the posture and poor muscle tone. Miller (96) thought it was significant that this improvement occurred during a period that could scarcely be considered quieting or conducive to restfulness, because of the strain of hard study and school examinations. Kamperman (69), in discussing this work, did not agree with the latter assumption. He doubted if the girls were under much of a strain. His idea was that many of them from poor homes were probably leading a normal healthy life for the first time. He went further to mention that many young girls suffering from dysmenorrhea improve at the end of their teens for some unknown reason without any treatment at all.

In 1934, Miller (97) published the final report of his survey which was completed in 1931. By this time the number of complete cases had dwindled to 302. The final tabulations were a source of disillusionment. The preliminary report forecast a definite relationship between posture improvement and relief of dysmenorrhea, but subsequent studies did not verify this. Of the 302 patients studied completely for 4 years:

145 (48%) had dysmenorrhea in 1927

145 (48%) had dysmenorrhea in 1931
111 (76%) had poor posture in 1927
110 (76%) had good posture in 1931

An increase in desirable posture was also noted in the women without dysmenorrhea at the end of the four year period. A hard factor to determine was whether or not the posture improvement was real or assumed -- the students having learned that good posture was desirable. If the improvement was real, the following conclusions were thought to be justified:-

1. There is no cause and effect relationship between dysmenorrhea and poor posture.
2. The presence of desirable posture is not an indication that the individual is less likely to have dysmenorrhea.
3. The attainment of good posture in women with dysmenorrhea carries no assurance of relief.
4. The average woman without dysmenorrhea is slightly taller and appears to have greater breast development than the average woman with dysmenorrhea.

Miller (97) states that he and his co-workers have felt all along that muscle tone was a more important factor than posture. Results were disappointing because no satisfactory method of grading by visual or impressionistic means was found. They still feel, however, that this particular point is worthy of further study.

ENDOCRINE IMBALANCE

In recent years there has been a vast amount

of material written on endocrinology and its application in various phases of medicine -- material which Heaney (63) advises should be read with a skeptical and analytical mind. At present there are many diverse opinions concerning the relationship of hormonal imbalance and primary dysmenorrhea -- enough of them, in fact, to cause no small amount of confusion.

Novak and Reynolds (103) have made kymographic studies of uterine motility in the rabbit. They found that a rhythmic contractility was normally present, but which became quiescent following castration. Further studies revealed that the uterine motility could be restored by administration of the follicular hormone, and inhibited by prolan B or corpus luteum substance. Hart (61), in 1883, had conjectured that there was uterine motility normally present in the human uterus, and Knaus and Wittleberk (70) demonstrated it, by kymographic record, to be present up to the 16th day of the menstrual cycle, after which the uterus was sluggish and flacid.

It was concluded that the immediate cause of pain in primary dysmenorrhea was due to an exaggerated and painful contractility of the uterus resulting, either from a heightened pain sensibility in some patients attributed to constitutional, psychogenic, or other

predisposing factors, or from an endocrine imbalance. The imbalance being a follicular hyperactivity or a corpus luteum hypo-activity (103). Cannon (19) in a critical review on "Modern Theories of Dysmenorrhea", believes this idea to be plausible. Moir (99) advanced experimental data showing that the pressure of normal uterine motility was about 100 mm. of mercury, but in dysmenorrhea it was as high as 160. There is some disagreement concerning the portion of the uterus that is spasmodically responsible for the pain. Theilhaber (138) believes the pain to be due to a spasm of the internal os, but Davis (38) claims to have demonstrated that such a sphincter is anatomically non-existent. Moir (100) believes the pain to be more than just a spasm of the uterus, he thinks there is a factor involving an ischemia of the muscle.

With the findings just outlined on endocrine imbalance, the obvious treatment would seem to be some preparation of the corpus luteum hormone. Many writers do advocate this (21,49,77, et al). However, there are also reports on treating dysmenorrhea with estrogenic substances (7,8,88, et al), and this caused the author to be quite confused for some time.

Lackner, Krohn, and Soskin (79), evidently realizing that these two forms of therapy appeared to be

contradictory, wrote a paper attempting to clarify the rationale of each. It seems that estrogenic substances are indicated in the small undeveloped uterus having little or no motility, while the corpus luteum preparations are deemed useful in the large well developed uterus having moderate or increased motility. This subject will be further discussed in the chapter on treatment.

NEUROGENIC THEORY

Some investigators believe that disturbance or imbalance of the pelvic sympathetic nervous plexus, resulting in dysfunction of the uterus and ovaries as well, is the answer to the etiology of primary dysmenorrhea (31).

Rumann (117) showed that rhythmic uterine contractions were present after transection of the cord, but Davis (38) states that this does not mean that the normal uterus is not influenced by nervous impulses. The sympathetics are chiefly sensory and inhibitory, while the parasympathetics are motor to the myometrium. The important point is that they are antagonistic. Consequently, hyper-excitability or hypo-inhibition may be responsible for dysmenorrhea.

In a detailed histological study of uterine nerves from dysmenorrhoeic patients several different

forms of pathology were encountered. The varied changes in 70% of the cases had in common a manifestation which could be labeled some stage of a subacute or chronic neuritis (38). Cotte (29) reported the same findings in 75% of his cases.

The significance of sympathetic neuritis is doubtful, but the connection is too obvious to be anything but a cause and effect relationship. There is a suggestion that the abnormal impulses which cause dysmenorrhea are initiated or at least exaggerated in their passage through the sympathetic nerves which are rendered abnormally sensitive by previous inflammation. This idea does not eliminate the hormonal factor (65).

Kennedy (75), whose ideas were previously expressed in this chapter under hypoplasia, states that the ganglia of Frankenhauser are under the influence of ovarian antacoids, shown by the fact that oophorectomy produces degenerative changes in the ganglia before any histological change is apparent in the uterus. It is therefore reasonable to suppose that, if the ganglia are pathological, the uterus will show the effect by non-rhythmical contractions, or, if trophic impulses are interfered with sufficiently, by becoming hypoplastic. Kennedy (74) has demonstrated that these pathological changes in the ganglia are reversible if oestrin is

administered.

ALLERGIC FACTORS

Within recent years there has appeared several articles attempting to establish a relationship between allergy and dysmenorrhea. Cook (26), in 1922, mentioned having observed two cases of dysmenorrhea that occurred as part of an immediate reaction with asthma, urticaria, and coryza.

Duke (45), in 1926, cited a food sensitive case which menstruated painfully twice a month. After eliminating the foods to which she was sensitive, her cycle became regular and free of pain. This report was confirmed in 1928 (115).

In 1931, Smith (130) reported a series of 12 cases. The chief symptoms were: irregular menstruation, dysmenorrhea and mucous vaginal discharge. A series of skin tests were performed, and the offending substances removed. Following this 8 were completely cured, and 4 were partially relieved. In a later report, Schwartz, and Smith (123) presented 35 cases which were handled similarly. Eggs, wheat, milk, chocolate, fish, beef, pork, nuts, pepper etc., were found among the most frequent offenders. Response to allergic management:

Complete relief	20
Partial relief	9
No relief	6

The writers concluded that their work had shown allergy to be a definite causative factor. They felt that allergic studies should be included in the management of all severe cases before any radical surgery was considered. Dutta (46) is in accord with their views, and adds that adrenalin therapy is valuable during an attack.

Tuft (141), in his recent book, Clinical Allergy, states that one should consider abnormal sensitivity in all intractable cases. He is not overly enthusiastic; he thinks it will be found an exception rather than the rule, and to bear this out, he mentions the large number of women with food allergy but no dysmenorrhea.

CONSTITUTIONAL FACTORS

Many writers express the idea, and the author has read no denials, that the general constitutional condition of the patient may be an etiological factor in primary dysmenorrhea.

Novak (103) states that a nervous depravity or condition of the constitution entailing a lowered threshold of pain sensibility is probably a factor in many cases. He mentions that numerous patients have been cured by treating the general health, with no local treatment whatsoever. Bauer (9) believes that primary dysmenorrhea is usually nothing more than a symptom of some

underlying constitutional disease.

Heaney (63) advises one to always check on the general condition of the patient, paying particular attention to fatigue, anemia, undernourishment, and discontent. Sellers (126) is in accord with this idea, and in addition mentions constipation as a factor.

Kurzrok (78) mentions that the constitutional type of patient is one of the important controlling factors. In his opinion the asthenic individual is more prone to dysmenorrhea.

Beckman (10) pointedly states that it can be granted; that dysmenorrhea is only a symptom and not a disease; that the alleged causative factors can be classified; but the fact remains that there is an underlying "constitutional something" in all cases. In other words the dysmenorrheic woman differs in some essential way from the non-dysmenorrheic. Those who attempt to classify the various causes of course do not agree with this opinion. However, a pertinent fact is that these very same causes are present in many individuals who do not have dysmenorrhea. The author believes that these words provide an extremely appropriate thought with which to close the chapter on etiology.

CLINICAL PICTURE

The writer has noted in this partial review of the literature that comparatively little space has been devoted to symptomatology and diagnosis. Perhaps this is because so many doctors consider dysmenorrhea a symptom and not a disease (see page 2).

INCIDENCE

Pain varies according to the constitutional and psychologic endurance of the patient. Evaluation of this pain by a second party is very difficult, and statistics based on this are merely personal impressions. This alone is enough to explain the great variance in the incidence reported by different authors (50).

- 1 - Jacobi (68), in 1877, reported the incidence of dysmenorrhea to be 47%.
- 2 - Sims (129), in 1886, over 50%.
- 3 - Meaker (91), in 1922, labeled dysmenorrhea the commonest of all female ailments. In an industrial plant he calculated 25 working days per 100 girls per month was lost. This did not take into consideration the decrease in efficiency of those who remained at work.
- 4 - Sturgis (135), in 1923, studied 2,077 girls in a large department store. She recorded:

No menstrual handicap	65%
Slight menstrual handicap	30.6
Serious menstrual handicap	4.4
- 5 - Van Duyne (143), in 1925, using the same method of classification as Sturgis (135), studied 1023 students at Goucher. The results were:

No menstrual handicap	86.6
Slight menstrual handicap	13.1
Serious menstrual handicap	.3

- 6 - Clow (24), in 1924, reported on 2050 students ranging in age from 12 to 22. She recorded only 22% as having pain, either slight, subacute, or disturbing.
- 7 - Lakemen (80), in 1933, recorded 89.6% of 365 working girls as having pain in some degree. These statistics were compared with those of Clow (24), and the following reasons were advanced as possibilities to account for the difference:
- a) Better hygienic living conditions for the students.
 - b) Industrial girls do not get as much exercise.
 - c) Industrial girls seize the opportunity for relief from labor.
- 8 - Bell and Parsons (12), in 1931, reported 12% of 840 Michigan college girls as having dysmenorrhea severe enough to be incapacitating.
- 9 - Adams (2), in 1934, gave the incidence in 137 nurses as being 54%.

SYMPTOMS AND FINDINGS

Primary dysmenorrhea is definitely periodic.

The type which occurs only occasionally may be attributed to such intercurrent causes as illness, exposure, or exertion (95). The patient usually feels perfectly well between her periods as far as any local condition is concerned (59). However, in severe cases she may be left so physically and nervously upset that it may take half

of the following month before she regains her normal balance (13).

The severity of the pain varies in intensity, ranging from mild discomfort to excruciating pain which necessitates bed rest. The severity also varies with the type of individual, the highly sensitive person suffering more than the phlegmatic one (78). Ashwell (6), in 1844, made the same observation.

The type of pain has been described as being similar to that of gallstones or ureteral stone colic -- a typical smooth muscle pain (8). Cleland (23) describes it as a dull ache in the beginning, later becoming paroxysmal, and resembling colic. He states that in some instances it is severe enough to make the patient writhe and perspire. Kotz (77) compares these sharp cramping pains to labor pains.

The position of the pain is in the lower abdomen, the back, the thigh, the leg, and occasionally the hypogastrium (13,23,95, et al). The time of the pain varies. Schochet (118) states that it practically always commences with the onset of the flow and becomes progressively worse. Meyer (93) reports that it may begin 1 to 2 days before the onset, and is usually relieved by the end of the first 24 hours. The answer to this problem was sought in the questionnaire Sellers (125) sent to 1000

gynecologists (see page 12). The answers he received, however, were so complicated and confusing that no conclusions could be made.

The amount of blood lost has no relation to the severity of the pain, but in general, a scanty flow is more likely to be accompanied by severe pain than is a profuse flow (95). Whitehouse (147) agrees by stating that the menstrual lochia is small in amount during the acute stage, but increased as the symptoms abate. Clots are often present (93), and the severity of the symptoms vary directly with the size and amount of the fragments (147). Davis (38) reports that normally the menstrual blood seeps through the cervix, but in dysmenorrhea it gushes.

Certain associated symptoms are often present, and are usually included, along with the actual pain, under the term dysmenorrhea. These include headaches; nausea and vomiting; bone and joint pains; general body pains and hyperesthesia; nervous phenomena; and lassitude and weakness (95). Bercovitch (15) adds that constipation or diarrhea is common too. If masturbation is a factor, hypertrophy of the labia is frequent and often leads to a diagnosis (36,55). Malpositions may be encountered, but their significance is debatable (see page 12).

It has been noted for many years that sterility is often associated with dysmenorrhea. Ashwell (6), in 1844, made this observation, and it has been mentioned several times in the recent literature (50,78, et al).

DIAGNOSIS

The diagnosis of primary dysmenorrhea is often difficult and requires careful clinical study. Often it must include physical, endocrinologic, biochemic, and psychologic examinations (48). The recognition of secondary dysmenorrhea, arising from gross pathology, is usually not difficult, thus the diagnosis of primary dysmenorrhea becomes first of all a matter of elimination. It should be stressed that a careful pelvic examination is necessary in every patient, and in the absence of pathology, this examination should include instrumentation to determine the patency of the cervical canal (36). Heaney (63) goes further and states that if the ordinary pelvic examination is not satisfactory, the patient should be re-examined under ethylene gas.

The type of pain will often aid in diagnosis. In the primary group the pain usually begins with the flow or just preceding it, is aching in character, often with griping or colicky exacerbations. In the secondary or congestive group it is more likely to begin some hours or days before the onset of the flow, is more continuous

and aching, and in typical cases is relieved by the flow. Sometimes the pain will resemble both types; this usually means that the patient who originally had a primary dysmenorrhea has acquired a secondary lesion which results in the congestive type of pain (133).

Crossen and Crossen (35) have adapted the following investigation program for their dysmenorrhea patients:

History items of special importance.

- a) Menses -- age of onset, regularity, duration, amount.
- b) Weight -- loss or gain, with time involved.
- c) Hair -- texture, distribution, premature graying, or undue falling out.
- d) Headaches -- location, type, duration.
- e) Vision -- glasses necessary, or other disturbance.
- f) Gastrointestinal symptoms.
- g) Nervous symptoms -- irritability, depression crying spells.
- h) General symptoms -- Does patient tire easily? Is she sleepy most of the time? What are her habits of sleep, exercise, work about the home, study, recreation at home, vacation activities?

Examination items of special importance.

- a) Type of build -- measurements symphysis to floor, symphysis to crown, span from finger tips to finger tips.
- b) Secondary sex characteristics -- hair distribution and texture, breast development, vulvar hair growth and development of parts (labia, clitoris).

- c) Lean or fat. If fat, note distribution.
- d) Blood pressure and pulse.
- e) Findings in the abdominal, rectal and recto-abdominal palpation.

Mathieu (85) follows a similar procedure but also includes certain laboratory tests: blood counts, smears, sedimentation rate, and a Wassermann. In addition he is in favor of hysterosalpingography, whereby he can visualize the size and shape of the uterine cavity, and search for any new growths, distortions, kinks, etc.

Stephens (133) mentions the following conditions which may conceivably be mistaken for dysmenorrhea:

- 1 - Appendicitis.
- 2 - Colic: intestinal, renal, or hepatic.
- 3 - Perforated gastric ulcer.
- 4 - Ruptured tubal gestation.
- 5 - Torsion of an ovarian cyst pedicle.
- 6 - Hemorrhage from or into a Graafian follicle.
- 7 - Rupture of an ovarian cyst or pyosalpinx.
- 8 - Dyspepsia with flatulent distension.

Harbin (60) calls particular attention to nausea and vomiting which is occasionally associated with dysmenorrhea. Whenever present it should warrant a thorough investigation to rule out appendicitis. Heaney (63) writes of the importance of considering endometriosis. If the pain begins 2-3 days before the menstrual onset, is more marked as menstruation commences, and persists during the flow, it is likely endometriosis. A puckering or lump in the culdesac if present will further substantiate the diagnosis.

An appropriate closing statement to the diagnostic considerations of this subject was written by Bedford (11) in 1860. He stressed that a thorough investigation was imperative before any remedy was suggested.

TREATMENT

Almost everything in the armamentarium of the gynecologist has been tried for the relief of primary dysmenorrhea (66). At present the pharmacopeia lists more than 100 drugs, but if one goes back in history the number becomes almost countless, and most of them are worthless (9). In this chapter the majority of therapeutic measures discussed are those aimed at the various causative factors mentioned in the etiological survey. However, there are a few methods of treatment, such as calcium for example, which are included even though the condition which their advocates aim to correct was not mentioned as an etiological factor.

DRUGS

There are two schools of thought in regard to the relief of pain in dysmenorrhea, examples of which are expressed by Diasio (41) and Meyer (93). The former writes that the doctor's first consideration should be the relief of the pain, that determination of the cause can wait. The latter emphatically states that the habitual use of drugs to relieve pain, without an attempt at diagnosis, may mask a symptom of serious underlying pathology. In the opinion of the author, no dogmatic rule can be advanced in this regard. The management of each individual case should follow the judgment of the

doctor, and will necessarily vary from time to time.

The drugs most frequently encountered in the author's survey of the literature on the treatment of dysmenorrhea were as follows:

ATROPINE:- This method of treatment was instituted by the Germans. The rationale for this medicament is its antispasmodic action by diminishing the irritability of the autonomic nerve endings in the uterus (101). Drenkhahn (47) injected it directly into the cervical canal. J. Novak (105) saw no advantage in this and gave it orally. E. Novak (101) was among the first to use it in this country. In 1914 he published a preliminary report stating that results in 30 cases had been most favorable. Since that time many writers have reported its use with varying degrees of success (88,118,145, et al). Beckman (10) advises 1/100 gr. t.i.d. for 2 days before the expected onset of menstruation, continuing until the second or third day of the flow. Kurzrok (78) uses the official tincture of belladonna, 5-10 drops t.i.d. In view of the sensitivity, he advises writing down for the patient the toxic symptoms: dry mouth, dilated pupils, flushed face, or rapid pulse. In his opinion 10% relief is the best that can be expected from atropine.

BENZYL COMPOUNDS:- Litzenburg (82) was the first to advocate the use of benzyl benzoate for primary

dysmenorrhea. In a series of 43 cases he reported relief in 81.3%. His conclusions were that its action was anti-spasmodic, and less toxic than atropine. Stacy (132) reports over 50% relief with it. Schochet (118) also recommends it in doses of 5 grains t.i.d.

The report of Kurzrok (78) was not so enthusiastic. He gave benzyl fumarate as follows: (a) 5 grain tablet t.i.d.p.c. for 2 weeks preceding the flow, (b) when pain expected, 5 grains every $\frac{1}{2}$ hour for 10 doses, (c) original dosage for remainder of period. He stated that no toxic symptoms were observed, but the relief afforded was only 10%.

OPIATES:- These habit forming drugs were mentioned only to be condemned (25,73,76, et al).

SEDATIVES AND ANALGESICS:- Beckman (10) mentions several that may be used: (a) sodium bromide, 10 to 20 gr. t.i.d., (b) luminal, $\frac{1}{2}$ gr. after meals or $1\frac{1}{2}$ gr. upon retiring, (c) 2 to 3 whiskey toddys per day for the first 2 days of menstruation. Clow (25) and Cleland (23) do not uphold the use of alcohol. However, Timme (139) and Cleland (23) report favorably on the use of sedatives for palliative measures.

CALCIUM:- Boynton and Hartley (17) report 33 of 49 cases of primary dysmenorrhea as being greatly benefited by the administration of 60 gr. of calcium

gluconate daily for 10-14 days before the onset of menstruation. In some of the cases 30 drops of viosterol were also given during the same period. Hartley (62) believes that women in their first pregnancy, who give a history of menstrual cramps, are very likely to develop what he calls a "tetanoid syndrome". This includes: irritable disposition, insomnia, cramp-like pains in legs and thighs, parasthesias of extremities, and often edema, which is apparently not associated with the heart or the kidneys. In his opinion, calcium should be used prophylactically in these patients.

Numerous other remedies could be mentioned. Many men have thought they have found a specific drug, such as: gualcum, resin, sodium citrate, nitro-glycerine, etc. Before long someone will probably advocate the use of vitamins (23).

HORMONAL THERAPY

ESTROGENIC:- Kennedy (75) believes that estrin is indicated because of its growth promoting power on the genital tract, its demonstrated effect on the cells of the uterine cervical ganglia, and its influence in counteracting excessive hemorrhage. In a series of 50 cases he reported:

Completely cured	10
Improved	30
No improvement	10

Kurzrok (78) in one series of cases with genital hypoplasia gave moderate doses of estrone -- 1000 R. U. injected twice a week except during the period of actual flow. This dosage did not upset the rhythm of the cycle. The beneficial results were 15-20%. In another series larger doses were used -- 10,000 R. U. of progynon-B were given during the follicular phase on the 7 and 11 day. The rhythm of the cycle was often upset, the flow coming sometimes early and sometimes late. Disturbances of luteinization were expected, but the records showed that they were infrequent. It was noted that the relief of pain was independent of the character of the endometrium just before menstruation. From this it was concluded that the corpus luteum played no part in the relief of symptoms. It was felt that this method of large dosage was only applicable in 15-20% of the cases, and as yet there is no good criterion for choosing them.

Many other writers report good results (7,55,88, et al). Tunis (142) treated 75 dysmenorrhea patients with folliculin, giving each 6 injections of 1000 M. U. starting 14 days after the beginning of the last flow. He states that 65 were cured and 8 improved.

There are also those who do not sanction the use of estrin. Novak (104) mentions that scientific research has seemingly proved that estrin increases the

contractility of the uterus, so he feels that this form of therapy might aggravate the pain. Kotz (77) emphatically states that theelin is definitely not indicated in dysmenorrhea treatment except maybe in the infantile type of uterus, and even in the latter he believes stimulation of the pituitary by x-ray to be superior to any endocrine preparation now available. Trostler (140), also reports favorably on roentgen treatment of the pituitary. He believes that dysmenorrhea results from an endocrine imbalance, which is caused by an over-activity of one of the pituitary hormones. The roentgen rays, which always depress and never stimulate, thus aid in bringing the hormonal mechanism back into balance.

CORPUS LUTEUM PREPARATIONS:- Elden and Wilson (49) treated 17 cases with progesterone. The dose varied 2/25 - 1 R. U. given in single or divided doses 3-6 days before the menstrual onset. Their records showed:

Complete relief	8
Partial relief	2
No relief	7

They explained the good results on the basis of Schroder's theory: The abnormally increased congestion was overcome by the adequate circulation which followed the relaxation of the uterine musculature.

Campbell and Hisaw (21) think some workers obtain poor results because the hormones they use are not pure

products. In this series corporin was utilized. It was prepared in the laboratory of Hisaw and biologically tested in the vagina of animals to make sure it was free from the estrogenic principle. The cases treated were confined to patients with normal genital development and no pathology. The dosage was placed at a therapeutic level found to give relief. Daily subcutaneous injections of 5-8 R. U. were given 5 days prior to the menstrual onset. They were convinced that corporin was of value, but they did not feel that they could make any statements concerning permanent relief following the discontinuation of the therapy.

Other workers have reported good results, apparently obtained from the suppressing of the painful contractions by the corpus luteum substance (18,80, et al).

However, there are some who do not have much to say in favor of this treatment. Kurzrok (78) states that his results were poor. He reports that the kymographic records of uterine contractility were accentuated in some instances, rather than inhibited. From this he concluded that any relief which did arise from corpus luteum therapy was due to some other factor -- perhaps an action on the blood supply or autonomic nervous system.

PROLAN-LIKE SUBSTANCES:- These, because of their luteinizing effect on the ovary, are supposed to attain

the same end result as corpus luteum substance, and have been used largely because of a commercial absence of progestin (66). Kotz (77), Witherspoon (148), Barry (8), and others have reported good results, but Kurzrok (78), Israel (66), and others report just the opposite.

THYROID SUBSTANCE:- Garretson (57) is of the opinion that a deficiency of thyroid is an associated factor in dysmenorrhea in some cases -- especially if the patient has just passed the age of puberty. He advises thyroid to be administered alone or in connection with ovarian substances. Kotz (77) and O'Brien (107) also write favorably of this therapy.

INSULIN:- Altschul (4) writes of giving insulin for its metabolic stimulating effect, to a patient with malnutrition, and noting the relief of a chronic dysmenorrhea. He subsequently treated 12 primary dysmenorrheic patients, and obtained practically total relief in ten of them. The results varied with the different brands of insulin used. He made no attempt to explain the mechanism.

One finds it difficult to associate the insulin therapy with the work of Tedstrom and Wilson (137), who observed that many cases of dysmenorrhea had a fasting blood sugar below 80 mg. per cent. They treated these patients with high carbohydrate diets for about a week before the expected flow, and obtained good results in

about 80% of their cases. Later they found that the same food regime would give relief to dysmenorrhic patients with normal blood sugars.

SURGICAL

Emge (50) warns against useless operative procedures. In his series of 130 primary dysmenorrhic cases 45 had previously been subjected to some form of surgical therapy. The majority had obtained no lasting relief. In his opinion, radical measures should only be considered after all other methods of treatment have failed.

CERVICAL DILATATION:- Although Soranus (131) in the first century mentioned that the uterine orifice should be enlarged in dysmenorrhea, Mackintosh (83) is responsible for its popularity during the past 100 years. He first tried it in 1826. Following that he reported 18 permanent cures in 20 cases.

Since that time and including the present day, this method of treatment has been advocated by many writers (20,73,94,98,146, et al). 243 of the 319 replies to Sellers' (125) questionnaire reported that it would give relief. Those who do not hold with the obstructive theory try to account for its beneficial results by other explanations. Novak (103) thinks that perhaps it aids because of a psychic factor. Cotte's (30) explanation is that a stretching of the sympathetic

fibers in the cervix and uterosacral ligaments is responsible for the reported cures. Some men are against the procedure and have discarded it (79,103,et al) -- 70 men replying to Sellers (125) labeled it ineffective.

CERVICAL INCISION:- Simpson (128) and Sims (129) agreed that mechanical obstruction was the etiological factor, but they sponsored incision rather than dilatation as a method of treatment. This idea was carried on by other men, Dudley and Pozzi for example, and used chiefly after cervical dilatation had failed (118). In our present day, Cleland (23) has reached the conclusion that, no matter what the cause of primary dysmenorrhea may be, the site of the trouble is at the internal os. Thus, he too advocates severing the fibromuscular ring in the cervix. His records of 175 cases show 167 as being cured or partially relieved.

PESSARIES:- Miller (55), who believes that anteflexion is associated with dysmenorrhea in the majority of cases advises dilatation and curettage combined with the use of a stem pessary for 2 to 3 months. While many advocate the use of the pessary (93,144, et al), there are many who are not so enthusiastic (118). Cragin (32), in 1893, thought that they should not be used unless the patient was in bed. Findley (53) writes that endocervicitis and more widespread infection may follow.

Barry (8) is also of this opinion. Adair (1) reported a case in which a stem pessary had been embedded in the uterus for 15 years without giving rise to infection. Weir (144) recently wrote a paper attempting to refute the opinion that the stem pessary is a dangerous contrivance. He reports using it in 318 cases, and only observing infection in 2 of them. Pendleton (110) in discussing Weir's (144) paper remarked that 100 Wassermann tests were performed to pick of 1 case of syphilis. A stem may cause infection, so "why protect a woman to an extreme degree in one way if you do not expect to carry the same degree of care in all other ways". The author could not quite follow this line of reasoning; to be consistent, all forms of treatment would have to be forsaken because an occasional complication might arise.

OVARIECTOMY AND HYSTERECTOMY:- The author found very little mention of this in the literature. Herman (64) stated that every case of dysmenorrhea could be cured by stopping the menses; he thought it was permissible if the patient had no prospect of marriage. Cleland (23) wrote that removal of the ovaries would cure dysmenorrhea, but he did not think it was indicated under any circumstances.

SYMPATHECTOMY:- The majority of the recent literature pertaining to surgical methods of treatment

is on some phase of sympathectomy. Jaboulay (67), in 1898, introduced this procedure by cutting the sympathetic chains. Ruggi (16), 1 year later, advised severing the utero-ovarian plexus. These procedures were not well received and interest lagged until 1921, when Leriche (81) advanced the idea of periarterial sympathectomy of the hypogastric artery. This, however, was time consuming. In 1925, Cotte (28), who is the founder of the modern method, reported a simpler procedure of presacral sympathectomy. His original report was abstracted in The Practical Medicine Series, Obstetrics and Gynecology, in 1927, and the editor remarked that while it offered wide possibilities it could not be recommended in the human (27).

Since its introduction many men have reported good results (3,40,71,127,145, et al). Most writers, however, caution that it is only to be used as a last resort (38,78,123,132, et al). Apparently there are no bad effects on libido or pregnancy, although sometimes it is necessary to catheterize the urine for the first few days. However, no permanent loss of control of either the bladder or rectum occurs (127,145, et al). In experiments on rats, Schwartz and Buxton (122) have recently shown that ovulation continues after severance of the ovary from the sympathetic nervous system.

Cotte (30), after 12 years of experience, wrote a recent report in which he states that he feels more enthusiastic about his procedure now than he did when it was first introduced. During this period he has operated nearly 300 patients, failing to get relief in only 2. He cannot explain the reason for these successful results, but states that it may be due to the interruption of abnormal sensory-motor reflexes, or to a modification of the pelvic circulatory system.

This procedure is not suitable in all cases of dysmenorrhea, such as those caused by: malformations or adenomas of the cornu; endometriosis of ovaries, tubes, or recto-vaginal septum. It is valueless for pain of ovarian origin or pain associated with ovulation, however, the latter is sometimes relieved by complimentary resection of the ovarian nerves. The mortality for this procedure is that of any simple aseptic abdominal operations -- 1% (30).

GANGLIA INJECTION:- Some men believe that the results of sympathectomy can be obtained by the alcohol injection of the ganglia with 70% alcohol containing 5% novocaine (37,50,152, et al).

MISCELLANEOUS TREATMENT

GENERAL HYGIENIC:- Miller (94) is of the opinion that a daily bath, regulation of the bowels, and plenty

of exercise is the most important treatment for dysmenorrhea -- especially in young unmarried girls. Heat is man's most ancient remedy (42); in patients whose general condition is too poor to permit exercise, a hot bath for 15 minutes at the onset of the flow, followed by bed rest for at least an hour, is a good prophylaxis against pain (25). Cleland (23) stresses careful attention to the general health, especially at the time of puberty. Novak (104) writes that correction of the constitutional, environmental, and psychogenic factors is far more important than the administration of any organo-therapy available today. Many others call attention to the importance of these general measures (7,92,103, et al).

MARRIAGE AND CHILDBIRTH:- Bailey (7) writes "all are agreed" that a full time pregnancy is the most effective cure for primary dysmenorrhea. The author is not sure that everyone agrees with this, but it is certain that this statement is encountered very frequently in the literature (64,118,150, et al). Cleland (23) is very emphatic; he states that primary dysmenorrhea is always cured by childbirth. In his opinion, dysmenorrhea in a woman who has borne children is the result of infection or some other pathological lesions. The relief following childbirth is due to the development of the myometrium -- dilatation of the cervix is only a secondary result (150).

EXERCISE:- Many reports are available attesting to the benefits which dysmenorrhoeic patients may derive from exercise (10,51,126, et al). Clow (25) orders the following routine:

- 1 - Floor polishing, on all fours, ten times with each arm, reaching out as far as possible.
- 2 - Feet apart, bend and touch the floor with finger tips eight times.
- 3 - Feet apart and stationary, arms horizontal, twist body, eight times in each direction.
- 4 - Feet apart, arms above head, sway body and arms to right, then left, ten times.
- 5 - Rowing, sit on floor, feet against wall, lean forward and touch wall with knuckles, allowing knees to bend slightly, do rhythmically 20 times.
- 6 - Floor patting. Kneel sitting back on heels, twist body and tap floor with both hands on left side. Kneel upright, twist body and repeat tapping on right side. Repeat 8 times each side.
- 7 - Place 20 small objects on floor, pick up separately, alternating hands, and place on shelf above head, do as rapidly as possible.

These exercises should be performed vigorously enough to cause the patient to perspire freely. They should be done a few days before the onset of menstruation, and especially on the first and second day of the flow. In a group of 2,300 girls, only 6 said the exercise did not suit them.

PROPER INSTRUCTION:- The phenomena of menstruation

should be explained to young girls before the time of puberty. They should be told that it is a perfectly normal process which should in no way upset the daily routine of living -- the diet, daily bath, and bowels should be as usual (25). Novak (103) writes that this instruction is necessary to guard against the psychogenic factor. Sellers and Sanders (126) are also of the opinion that adequate explanations are necessary; they stress the fact that the word pain should not even be mentioned. A person already suffering with dysmenorrhea should have the condition thoroughly explained to her. Written instructions should replace oral advice. This will promote better understanding, closer cooperation, and in many cases, improved results (129).

The author has purposely left this phase of the treatment until last, because in his opinion it is the most important part of any dysmenorrheic prophylaxis or therapy.

CONCLUSIONS

- 1 - The etiology of primary dysmenorrhea is multiple, and to date, unsolved.
- 2 - Statistics of incidence are of no value because they must be based on a story of subjective symptoms.
- 3 - Conservative methods of treatment should always be used before any radical procedures are considered.
- 4 - Proper instruction of young girls will do much to decrease the incidence of primary dysmenorrhea.
- 5 - Proper instruction of dysmenorrheic patients will do much to improve the results of any form of therapy.

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