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Paul Milton Pedersen
University of Nebraska Medical Center

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THE SYMPTOMATOLOGY OF ENDOMETRIOSIS WITH A SURVEY
OF 788 CASES COMPILED FROM LITERATURE

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PAUL MILTON PEDERSEN

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Introduction

The history of this disease is very similar to that of many others in that it has been developed as a clinical entity within the past twenty years. The present day knowledge of the subject is not as general as it might be considering the relatively numerous articles which have appeared upon this subject within the past five years. Endometriosis is a very intriguing subject; the unique features in the symptoms that it provokes are indeed classical, and the interest with which this is regarded has caused us to consider that phase in detail. In an effort to present a concrete and factual survey of the various symptoms, we have searched the available literature in an effort to gather as large a number of cases as possible. By combining the various methods used by those reporting series of cases, we have been able to present a more conclusive survey than would otherwise be possible. The branches of etiology, pathology and prognosis might each in themselves be considered in such detail as to make a very lengthy treatise. For

that reason we have endeavored to consider the most important points and present them as correlations with the symptomatology. Treatment was considered here only in a general way and in an effort to place the proper emphasis on prognosis. The writer has also included forty cases from the files of the University hospital in order to compare the symptoms and pathology encountered here with those as reported by the various writers selected from the literature.

The term Endometriosis became a member of the medical language in 1921. In that year John Sampson(1) disclosed his painstaking work in a lengthy article dealing with "Hemorrhagic Cysts of the Ovary." These hemorrhagic cysts of the ovary had been observed quite frequently but their real significance had been overlooked. Sampson disclosed that the lining of these hematomas in the ovary was endometrial "like tissue as far as histologic examination could disclose. The blood contained in these cysts was dark brown in color and had given rise to the term "chocolate cyst." Sampson, in his article, stressed the relationship of these cysts to misplaced endometrial tissue, which he had proven lined the cystic cavity. This work by Sampson, including the introduction of the term "Endometriosis" to bear out his theory as to the origin of the cystic hematomas of the ovary, aroused considerable interest in the field of gynecology.

Numerous articles appeared in literature substantiating the views of Sampson and a few refuting his views(2). The presence of endometrial "like" tissue in abnormal sites had long been observed, not frequently but often enough to be re-

ported and then forgotten. The necessity of confirmation when a discovery of a new disease entity or pathological condition has been made is very aptly shown in the history of Endometriosis.

A German worker, Von Rokitansky(3) by name, reported in a Vienna medical journal, in 1860, of his discovery of glandular elements of the uterus deep in the muscle wall. He ventured to classify this pathological condition as an "adenomyoma" and considered it as an entity in the field of pathological disease. Why a condition which has since shown such common occurrence should be discovered in 1860 and lack verification until it's "rediscovery" thirty-three years later is hard to explain.

In the year 1893, Von Recklinghausen(4) published an article dealing with the discovery of adenomyomatous conditions in the uterus and went so far as to venture an explanation of its occurrence. He believed it was a remnant of the Wolffian duct, thus, similar to the Cohnheim theory of embryological "rests."

There appeared in 1887, an article by C. Chiari(5) concerning a condition of the Fallopian tubes, then called "Salpingitis isthmica nodosa." This

remained under it's original title until 1900, when it was recognized that it was an adenomyoma of the Fallopian tube.

The failure of Chiari to recognize the pathology in this case prevented him from being the first to report a condition which, turned out later to be, an endometriosis of the Fallopian tube.

In 1895, Thomas Cullen(6) reported three cases of adenomyoma of the uterus, before the Johns Hopkins Hospital Society. He believed they were developments of the Wolffian body and considered them benign.

In 1897, Ries(7) reported a case of endometrial tissue in the regional lymph nodes of the uterus. This report did not bring forth a discussion as to the etiology of aberrant endometrial tissue and Ries did not attempt to explain it's occurrence.

A German worker, Pick(8), described several cases of adenomyoma in 1897, and ventured to remark on the similarity of the cell arrangement in these tumors to that of the mesonephros.

Robert Meyer(9), also, in 1897, reported several cases of adenomyomas of the uterus.

On April 4, 1898, Russel(10) reported a case of aberrant endometrial tissue found in the ovary, this being the first report of what turned out later to be the much discussed "chocolate cyst" of the ovary.

From 1899 on to 1921, when Sampson stirred up the gynecological world by his monumental treatise, various workers reported cases of adenomyomas, namely Norris, Cullen, Casler, Schwarz, Sampson, Pick and many others(11).

With the advent of Sampson's article, various terms were offered to cover the pathological conditions which were encountered. Sampson offered the term "Endometriosis" to explain the presence of endometrial "like" tissue found in other parts of the pelvis, including Fallopian tubes and ovaries, holding to his theory of implantation. Other writers preferred the term "adenomyoma," when the uterus was involved, "mullerianosis" or "endosalpingosis" when the Fallopian tube was the site of disease.

The use of multiple terminology has always been one of the prides of medicine, but in this case it retarded the furtherance of knowledge and a

successful effort was made to simplify the terminology. Various workers were not content to except the term "Endometriosis" until it was pointed out to them that such did not necessarily refute their point of view as regards the etiology.

So by 1930, adenomyoma, adenomyosis, endometrioma, mullerianoma, mullerianosis, and endosalpingosis had more or less given sway to the term endometriosis. However, synonyms are desirable to some extent and for that reason the term adenomyoma persists when only uterine involvement occurs and endometriosis more strictly when the site of pathology is in the ovaries, Fallopian tube, peritoneum, appendix and other "external" locations(13).

The etiology of endometriosis has been explained on no less than seven theories to date. Despite the varied and somewhat unique theories brought forth, the disease has risen to great heights for its interest and clinical importance. No attempt will be made in this treatise to bear out any contentions as to the etiology. The various theories and their supporters will be mentioned in an effort to do justice to all. Until a uniform and more generally accepted theory has replaced the numerous

ones in vogue today, no one will receive special emphasis.

Emil Novak, speaking before the American Gynecological Society, remarked that he believed in the near future Sampson and himself might present a joint paper on the subject of Endometriosis. Thus, Novak, an adherent of the coelomic theory, has made the first step in a concession to Sampson's theory of implantation.

The etiology of Endometriosis:

1. The mucosa lining the uterine cavity may directly invade the myometrium. This invasion results in an adenomyoma and is usually considered a benign occurrence. John Sampson(30) offered this explanation for the occurrence of "internal" endometriosis. This particular phase of endometriosis has been accepted by most writers including, Curtis, Crossen, Davis and others(14).

2. Iwanoff(15), in 1898, held that adenomyomas were transformations of epithelium into gland structure, most likely from the peritoneum. He was supported by Aschoff and Pick.

Robert Meyer was a most ardent supporter of the Iwanoff theory for many years. Emil Novak was the

perpetuator of this theory and until recently was its modern day supporter.

This theory, often called serosal or metaplasia theory, calls for the development of cylindrical epithelium simulating uterine mucosa, from germinal epithelium.

3. The embryonic rest theory found a great deal of support. Thomas Cullen(15), being it's staunchest supporter. John Sampson(17), in 1925, admitted the possibility of such an occurrence and stated that such a theory could not be ruled out.

4. It was suggested by Edward Allen(18), and more recently by J.T. Witherspoon(19), that endometriosis owed its origin to a "manifestation of cellular metaplasia caused by glandular dysfunction."

This is the most recent theory offered and has received a good share of support. The main support consisting of the view that endometrial tissue will not proliferate without active ovarian follicular hormones. Hobbauer(20), Oberling(21), Rulle(22), Graves(23) and Crossen are outspoken on this point but do not necessarily take the attitude that it is the sole force as regards etiology.

The remaining theories as to the etiology were

all advanced primarily by John Sampson.

5. Retrograde menstruation was first offered as an explanation of pelvic endometriosis by John Sampson(24) in 1922. To support this theory Jacobsen(25) showed that autotransplantation of endometrial tissue in the rabbit developed into typical endometrial lesions.

Schochet(26) showed, by experiments on guinea pigs, that endometrial tissue would grow in the anterior chamber of the eye, while ovarian and peritoneal tissue did not.

Cron and Gey(27) proved that cells of endometrium cast off at time of menstruation would grow on culture media.

Many workers substantiated Sampson's view of retrograde menstruation as witnessed at time of operation during the menstrual cycle. Novak(28) refuted this observation and quoted many leading surgeons as stating they had never seen this in innumerable pelvic operations during the menstrual period.

However, this theory has been well received and is now nearly universally accepted as a cause of pelvic lesions in some instances.

6. The acceptance of the retrograde theory gave Sampson(29) courage to offer a mechanical theory for many cases of endometriosis. In 1928, he published a report of thirty-six cases which had had previous salpingectomys. Thirty of the thirty-six cases showed endometriosis of the tubal stumps. Sampson also believed manipulation of the uterus as well as other surgical procedures such as laparotomies would provoke endometriosis. Numerous cases have been reported of late to bear out this contention, namely endometriosis in the abdominal scar following laparotomy and appendectomy.

7. In 1927, Sampson(31)(32) was ardently defending his retrograde menstruation theory. In doing so he attempted to show all other possible methods of the causation of endometriosis. In this year he published reports of endometriosis caused by bits of this tissue being carried into venous sinuses and veins of the uterus. He believed that this method of spread was the etiology of many cases of adenomyoma of the uterus. This work was verified by many workers and the lymphatics and veins were thus included as possible methods of metastatic endometriosis.

In reviewing these various theories of endometriosis it is evident that no one theory will explain every case of endometriosis.

By very exhausting study John Sampson has added three methods by which endometrial tissue may be spread to foreign soil. These methods have been confirmed in various instances and thus, receive more prominence in the literature today.

It has been due, largely, to the work of Sampson that this very interesting subject has progressed so rapidly in so short a time considering that it was discovered in 1860, and relatively forgotten until 1921.

No disease entity can be considered from any view point without a consideration of the pathology involved. Necessarily then, we will consider the various sites of pathology which have been reported exhibiting endometriosis.

Russel(10), in 1898, reported the first case of endometriosis of the ovary, but the real significance of his discovery was not ascertained at that time. Until 1921, when Sampson(1), wrote his masterpiece on "chocolate cysts" of the ovary and formulated his theories as to their importance, they had gone

entirely unexplained and relatively ignored. Sampson stated that these cysts were lined with typical endometrial tissue and usually contained dark brown fluid. It was his opinion these cysts ruptured when relatively small, 2-4cm., and their contents were spilled into the abdominal cavity. Furthermore, he believed the contents of these cysts to be highly "irritative" to the peritoneal surface and gave rise to adhesions. The presence of these cysts was limited, he believed, to women between the ages of puberty and menopause. When-ever a cyst ruptured it drained to the dependent part of the pelvis, namely the cul-de-sac or pouch of Douglas. These adhesions varied in extent and density, sometimes being so massive as to simulate a malignancy.

Previous to Sampson's report, adhesions in the cul-de-sac were considered entirely the result of earlier inflammation of the Fallopian tubes. Sampson discussed the occurrence of these adhesions following cystic rupture and stated that he believed they occurred very frequently on the rectal wall, broad ligament, cul-de-sac and Fallopian tubes.

In many cases histologic examination of the adhesions removed showed typical endometrial tissue in the mass. In patients on which surgery was performed during their menstrual period, these adhesions or small "new growths" were of a bluish to violaceous color and in some places frank blood was apparent.

Sampson(1) states that his first observation of such a condition occurred in 1913, but not knowing the full meaning of the lesion he did not correlate them with cystic hematomas of the ovary.

Sampson continued to remark that he had never seen a cyst of that nature on the mesial surface of the ovary and he believed it to be limited to the lateral surface of the ovary. The appearance of a newly ruptured cyst tended to show brownish hue, especially infiltrating the area of ovarian tissue surrounding the cyst. At the same time Sampson ventured to state that he believed these "new locations" of endometrial tissue in the pelvis were secondary to ovarian cysts and had a tendency to infiltrate and possibly show invasive power. The fact that these new sites of endometrial tissue were "small uterine bodies" and menstruated during the cycle, disclosed an important feature which is

of great aid in pre-operative diagnosis.

The pathology encountered in all cases of endometriosis must necessarily disclose "endometrial-like" tissue showing functional processes of normal endometrium in order to warrant a diagnosis as such. The presence then, of typical endometrium, whether originally from the Fallopian tube or uterus, surrounded by endometrial stroma and the tissue elements of the part to which it is attached, constitutes a pathological diagnosis of endometriosis. The former adenomyoma of the uterine musculature, is now classified pathologically in nomenclature as endometriosis.

The location of endometrial lesions is variable and interesting. In a series of one hundred and twelve cases, Allen(33) found the location of the lesions as follows:

Ovaries	60
Uterus	53
Peritoneal	16
Recto-Vaginal Septum	37
Abdominal Wall	3
Bowel	4

Bladder	3
Appendix	1

In Allen's series the location of the lesions was quite similar to that reported by Keene and Kimbrough(34) - the ovarian lesions being predominant. The presence of unique sites such as the appendix, bladder and abdominal musculature was explained as possibly due to previous operations and uterine manipulation.

In a series of forty cases reviewed by the writer at the University hospital, the location of the lesions was quite different from that shown in the larger series. In all cases the uterine musculature was involved and the accessory sites were few:

Uterine Diffuse	37
Uterine non-diffuse	3
Uterus, ovary and tube	1
Uterus and Ovary	2
Uterus and tube	3
Uterus and abdominal Wall	1

In this series at the University hospital, only three cases of ovarian lesions were discovered. Of the forty cases, the uterus was involved in

every case. These figures are unique in that the internal or uterine type of endometriosis is considered more rare than the external with lesions elsewhere in the pelvis.

The series of Allen, Keene and others showed a predominance of external lesions.

The University series did not disclose a truly rare site as the abdominal site has been discovered quite frequently.

The discovery of an endometriosis of the arm muscle was reported by Kramer(35) in 1936. In this instance the lesion was correctly diagnosed pre-operatively by the symptom relation to the menstrual cycle. A lutein hormone was given to delay the menstrual period in this case and the symptoms were correspondingly delayed.

Upon removal of the tumor, pathological diagnosis verified the clinical diagnosis. The etiology in this case being apparently a boost for the venous or lymphatic theory.

Frankel(36), in 1934, disclosed a case of ectopic pregnancy of the broad ligament of the uterus in which an endometriosis of some standing was furnishing the anchor for the placenta. Morse

and Perry(37) autopsied a case in 1928, in which the cause of death was an endometrioma of the ureters.

In association with the majority of cases of endometriosis there is accompanying pathology. The numerous occurrences of this deems it advisable to mention a few of these instances.

In 1925, Sampson(38) disclosed a case of ovarian carcinoma arising apparently in misplaced endometrial tissue in that organ. The most frequent associated pathology is that of retrodisplacement of the uterus and uterine fibroids. Lifendahl(66) reported a case of stricture of the cervix with regurgitation of the menstrual blood into the pelvis which subsequently showed multiple sites of endometriosis.

In the series of one hundred and fifty-nine cases reviewed by Smith(39) the associated pathology was revealed as follows:

Pelvic Adhesions	119
Fibroids	82
Chronic Salpingitis	75
Endometrial Polyp	50
Carcinoma of endometrium	4

Sarcoma of Ovary	4
Carcinoma of Ovary	4
Carcinoma of Uterus	1

The numerous sites of pathology in this series is accounted for by the presence of several lesions in one patient.

In the series of cases reviewed from the University hospital similar results were obtained, the lesions were as follows:

Simple cyst of ovary	6
Fibroids	18
Appendix	3
Teratoma	1
Carcinoma of cervix	1
Cervicitis	3
Leiomyoma	1
Chronic Salpingitis	2

The predominance of an associated fibroid condition of the uterus is quite generally known. The other pathological conditions found, varied similarly in Smith's(39), Allen's(33), and Keenes(34) series, with a predominance of appendices and chronic salpingitis lesions.

Summarizing we can say that all cases of sus-

pected endometriosis must be pathologically identified and the presence of aberrant endometrial tissue, as seen in histologic examination, is essential.

The high incidence of associated pathology of serious nature is enlightening and should remind us that the clinical picture of endometriosis may well vary with the nature of these accessory pathological conditions. Whether we say that they are primary to the endometriosis, or secondary, depends upon the individual case.

In diagnosing a disease of internal nature, much stress must be laid upon the symptomatology of that disease. The symptoms which have been assigned to endometriosis are numerous and are dependent upon the site of the lesion. Because of the relative importance of making a diagnosis without benefit of surgery, every phase concerned with the symptomatology of this interesting disease will be considered.

Necessarily, diagnosis and symptomatology are inseparable but the many extraneous conditions which must be ruled out by differential diagnosis cannot be considered in this thesis.

In the majority of cases misplaced endometrial tissue causes no symptoms because the implants are small and develop very slowly. When symptoms are present they usually appear in early mature life during the child-bearing period. This fact will impress the average clinician with the frequency of endometrial lesions when the number of cases reviewed in literature is consulted.

In making a comprehensive and inclusive study of the symptomatology, a large number of cases must be reviewed in order that a uniform and factual report can be obtained. The material covered for this phase of the subject represents the majority of available review which have appeared in the leading medical journals to date. A total of seven hundred and eighty-eight cases of endometriosis with the symptomatology involved have been gathered for this consideration.

In some of the series, the symptoms presented were not as inclusive as in others, therefore, the total number cannot be included under each specific symptom presented here.

The incidence of endometriosis as regards age and marital condition may not strictly come under the heading of symptomatology ~~but~~ it is considered here as an important phase in determining the most likely age period of the disease.

In the series of Shirer's(40) fifty cases it was determined that the average age was thirty-five. His oldest case was fifty, and the youngest twenty-four.

In the series of Keene and Kimbrough(34) the oldest case was sixty and the youngest twenty-two. Of the one hundred and eighteen cases considered in their series, fifty-one percent were thirty-five years of age.

Edward Allen(33) reported a series of one hundred and twelve cases, of which the youngest was seventeen years of age and the oldest sixty-seven.

In a series of forty cases reviewed from the University hospital the youngest was thirty-three and the oldest fifty-six years of age. Twenty-one cases were between the ages of thirty-six and forty-five.

Combining all the available data on age occurrence we present the following report:

Age Incidence	Number of Cases
20 - 30	81
30 - 40	359
40 - 50	192
50 - 60	44
60 - 70	4

From the above figures we can conservatively estimate that nearly sixty percent of all cases fall between the age limits of thirty and forty, with the next highest incidence between forty and fifty.

The percentage of cases which were married was wholly predominant. Nearly eighty percent being married or divorced. That figure is important in estimating the sterility factor in these cases.

In doing so an exact figure cannot be obtained because of obvious lack of data in regard to the practice of birth control.

In the series of one hundred and twelve cases reviewed by Edward Allen(33), he estimated the sterility incidence at sixty percent. In the series of one hundred and fifty-nine cases pre-

sented by Smith(39), sixty-six of whom had never been pregnant, forty were unmarried, thus leaving a sterility of only twenty percent.

Tyrone(41) found a sterility percentage of forty-six in a series of one hundred and three cases. Other workers, Dougal(42) reports forty percent in one hundred and thirty-seven cases, Keene, fifty-eight percent in one hundred and thirteen cases. In the University series the sterility percentage was estimated at sixty-five percent. This series, considering the social status of the patients, revealed only five who practiced birth control out of the total of forty cases.

The history of previous abdominal surgery or uterine manipulation has been stressed by Sampson and others as a point of importance. Remembering that manipulation of the uterus aids in dissemination of endometrial tissue if during the menstrual flow and surgical procedure in pelvis or abdomen may carry bits of tissue to abnormal sites. The statistics available on these points, in the series reviewed, is not entirely conclusive.

In the series reviewed by Smith(39), one hundred and twenty-eight, of one hundred and fifty-

nine cases had had previous operations or uterine manipulation. Tyrone(41) states that fifty-eight of one hundred and three cases in his series had had previous operations of the abdomen or pelvis. In the University series twenty-seven of the forty cases had either surgical operations or uterine manipulation prior to their hospital entrance. From these figures we may state that the incidence of previous operations or uterine manipulation is quite high and these figures tend to support Sampson in his contention.

In considering the most prevalent symptoms which have presented themselves in the series of seven hundred and eighty-eight cases, irregularities in the menstrual flow far outnumbered any one other complaint.

In order to present a conclusive survey this chief symptom has been divided into its main components. Each symptom presented will follow in order of occurrence as regards the numerical total of complaints in the series of seven hundred and eighty-eight cases.

Menorrhagia was encountered in three hundred and sixty of the entire total of seven hundred and eighty-eight cases. The history in most cases showed a developmental state of this complaint. The average duration of time which elapsed from the time of onset until hospitalization was nearly one year in most cases. The correlation of menorrhagia and metrorrhagia was noticeable in most instances. In some cases menorrhagia was present together with metrorrhagia or associated with dysmenorrhea.

Dysmenorrhea, according to Mussey(43), is the outstanding complaint which accompanies endometriosis. Sharples(44) reported a case of endometriosis of the lower sigmoid which caused severe dysmenorrhea and was accompanied by acute pain in both thighs. Shirer(40) states that in thirty cases he reviewed, dysmenorrhea was the major complaint. Other workers bare out this report and it has been estimated by Mussey(43) that seventy percent of all cases show some type of menstrual pain.

Dysmenorrhea was present in twenty-four cases of forty reviewed in the University series. The evaluation of dysmenorrhea as a symptom complaint in endometriosis depends wholly in its being of

the acquired type. No dysmenorrhea which existed from puberty was considered in the cases in this series. The presence of endometriosis of the uterus is believed to be the main factor in producing dysmenorrhea. However, since absence of lesions in the uterus when prostrating dysmenorrhea occurs, are frequent, the symptom may not be as indicative as some would believe.

Metrorrhagia very frequently accompanies menorrhagia. In Allen's(33) series, eighteen cases of one hundred and twelve complained of metrorrhagia. Keene and Kimbrough(34) found this complaint in about ten percent of their cases. The University series of forty cases revealed it to be present in twenty-three. In 1929, Shaw(45) pointed out that menorrhagia and metrorrhagia were the most significant symptoms which pointed toward endometriosis.

Since then however, the importance of dysmenorrhea and abnormal sites of pain together with menstruation have predominated in offering the most significant symptoms.

Shirer's(40) series of thirty cases revealed only one case of intermenstrual bleeding and that was of short duration. It was believed by some

that intermenstrual bleeding in most cases was due to the associated condition of fibroids as this complaint was not so prevalent among cases where fibroids were not present.

Backache will be considered here only as a general complaint and not as to specific site with reference to the menstrual cycle.

In a series of one hundred and fifty-nine cases presented by Smith(39) there were forty complaints of backache, of which the sacral type predominated.

In Allen's(33) series of one hundred and twelve cases, forty-eight cases of sacral backache were listed.

Mussey(43) pointed out that in his series of cases, sacral backache was present in nine and subsequent operation revealed endometriosis of the cul-de-sac. This fact has been substantiated by Allen, who reported a high incidence of sacral backache in endometrial lesions of the cul-de-sac.

Tyrone(41) reported backache as a general complaint in twenty-nine cases out of one hundred and three.

Considering the high number of complaints, the symptoms of backache would tend to suggest possible

endometrial lesions especially if this complaint prevailed at the menstrual period.

The frequency of this complaint in women when the only source of difficulty is a retroverted uterus, somewhat diminishes its value as a primary complaint. The proper evaluation of this symptom will nevertheless, give considerable information which will aid to the making of a diagnosis.

The prevalence of abdominal pain as a symptom was found to be quite frequent in most series. Shirer(4) states that all of his cases(30) gave a history of some type of abdominal distress.

General abdominal pain was listed as a symptom in fifty-one out of one hundred and fifty-nine cases by Smith(39). Allen(33) found it to be a complaint in twenty-five out of one hundred and twelve cases. Abdominal pain was present in twelve out of forty cases in the series reviewed from the University hospital.

Tyrone(41) listed abdominal pain as a complaint in fifty-eight cases in his series of one hundred and three.

The presence of abdominal pain without some tendency to localize to one area was found to be

quite prevalent. However, as a rule the location was usually identified with either of the lower quadrants and will be considered later from the aspect of site.

There were many cases which showed a constant dull pain intermenstrually with some exacerbation at the beginning of the menstrual cycle. This important phenomena of the disease will be considered separately.

There are, of course, innumerable causes of abdominal pain and the necessity of a very intensive and inquiring differential diagnosis is obvious. To ascertain the correct valuation of pain as a symptom is one of the difficult problems of all diseases. However, the major portion of cases which presented this general complaint, stated it to be a dull, rather vague pain during the intermenstrual phase.

Headache is a common and confusing symptom, which is included in the majority of disease complaints. That it could be of much value as a symptom of endometriosis might seem paradoxical. However, it is rather significant that it has been encountered quite frequently in the various series.

In the total series of seven hundred and eighty-eight cases reviewed from the literature, one hundred and eight cases listed headache as a complaint.

We are well aware of the worth of this symptom in evaluating pelvic pathology. But to assign some particular significance of it occurring in endometriosis is indeed, difficult. The various other lesions of the pelvis, beyond the scope of this treatise, list it as a common complaint. We therefore, can only repeat the admonishment of Sampson, Cullen, Novak and others who say that any complaint is not foreign to a disease when that disease is as bizarre as endometriosis.

Constipation has been said to be present in this disease relatively less frequent than in the normal woman. However, no less a personage than Schumann, speaking before the Omaha Mid-West Clinical Society, defined a woman as "a constipated biped".

In Tyrone's(41) series of one hundred and three cases, constipation was present in twenty-five cases. In nearly three hundred cases of endometriosis combined from the total series, constipation was listed as a complaint only twenty-two times.

Shirer(40) states that constipation varied in his series. One patient had diarrhea with menses and eight cases had constipation with menses. In all cases of constipation in his series, medication relieved the complaint.

Boyd(46) reported a case of endometriosis of the appendix which gave a typical constipation history and which led to a diagnosis of chronic appendicitis with subsequent removal.

A case reported by the Mayo(17) clinic staff, disclosed a history of intermittent diarrhea associated with dysmenorrhea which was treated for twelve years before a laparotomy disclosed a lesion in the left ovary. Removal of the ovary relieved the symptoms.

Weakness was nearly always associated with some weight loss as dual complaints. The incidence of these complaints were found to vary directly as to the blood loss from menorrhagia.

Therefore, these symptoms are secondary but important. When present they challenge the accuracy of the clinician. To exclude a malignancy without laparotomy in the face of these complaints considering the age limits and history of bleeding

is extremely difficult.

Unless a pain variation, coinciding with the menstrual cycle is present, a diagnosis is well nigh impossible.

Fibroids, carcinoma and associated diseases are prime favorites which must be excluded. In the series from the University hospital, sixteen cases presented this complaint. In the series of one hundred and thirty-seven cases by Dougal(42), eight percent of the total gave a history of either weight loss or weakness or both. Physiologically the presence of one with the other is quite fitting regardless of which is the major complaint.

Dyspareunia was found in only eight out of four hundred and twelve cases. Therefore, we might say that this symptom, when present, is not a criterion for making a diagnosis of endometriosis. In three of the eight cases, the endometrial lesions were in the cul-de-sac and bulged into the vaginal wall so that a mechanical irritation was the inciting factor.

The causes of this symptom are far more numerous than the number of cases which exhibited this complaint. It was not determined whether this

complaint was acquired in the cases where no involvement of the cul-de-sac occurred.

Leukorrhoea is a general complaint in many pelvic lesions. The relation of this complaint to possible internal endometriosis is disputable. We offer the prevalence of this symptom in the series in which it was included as an effort to ascertain its value. In a series of four hundred and thirty cases, in which leukorrhoea was mentioned, the complaint was encountered eighty-seven times.

The prevalence of cervicitis as an accessory pathological lesion was nearly sixty percent in these cases. Therefore, it would be difficult to evaluate the importance of this complaint as a strictly sole feature of endometriosis of the uterus.

In the University series leukorrhoea was complained of in seven cases while cervicitis was present in four cases. In nine cases previous history of Gonorrhoeal infection was obtained.

Curtis(14) states that leukorrhoea is complained of more frequently than any other disturbance in gynecology. The hypersecretion of the cervical glands has been shown to account for most

instances of this affliction.

The presence of associated pathology such as fibroids, cervicitis and a past history of Gonorrhoeal infection detracts from this complaint as a diagnostic feature in ascertaining the possibility of endometriosis.

The occurrence of rectal distress was found to be associated in nearly every instance with a lesion of the rectal wall or in the cul-de-sac. This important feature is necessarily diagnostic of some lesion of the rectum or pelvis excluding cases where mental aberration is found.

The high incidence of hemorrhoids tends to make light the presence of any other pathology in many cases. Sampson says that this fact often causes the complaint to be accepted as such without the formality of a rectal examination.

Smith(39) disclosed four cases of rectal symptoms, mainly "bearing down" sensation, which ultimately were shown to be endometriosis of the rectal wall.

Allen(33) revealed eight cases where the primary symptom was rectal discomfort, especially during the bowel movement. They were subsequently shown

to be lesions of the recto-vaginal septum or cul-de-sac.

Four cases in the series by Mussey(43) were shown to have lesions of the large bowel, ranging from the descending colon to the rectum. These cases all complained of distress upon attempting bowel movement. Tyrone(41) found that eight cases in one hundred and three had severe distress upon bowel movement or complained of a "weighty" sensation in the rectum. They presented lesions of the recto-vaginal septum and cul-de-sac.

In Dougal's(42) series of one hundred and thirty-seven cases, forty-four were found to have lesions in the recto-vaginal septum with accompanying complaints of rectal distress.

Douglas(48) reported a case where rectal tenesmus was the predominant symptom. Upon surgical exploration the endometrial lesion was found to be on the posterior surface of the uterus.

Morse and Perry(37) reported a fatal case of endometriosis of the ureters in which rectal discomfort was a symptom.

By digital examination a mass was felt superiorly to the rectal wall and a diagnosis of malignancy

of the uterus was made.

Keene(49) after reviewing his series of cases admitted that with the frequency of rectal distress, careful differential diagnosis was essential in determining the possibility of endometrial lesions.

Hasselhorst(50) believed that from the cases he encountered, involvement of the rectal wall was an extension from an earlier lesion in the cul-de-sac. In four cases reviewed by Stearns(51) in which "weighty" sensation in the rectum was a major complaint, the lesion was located on the recto-vaginal septum.

MacLean(52), in reporting six cases of endometriosis of the large bowel, stated that constipation and rectal distress were the significant complaints. He stated that accentuation of the distress during the menstrual period is almost pathognomonic of endometriosis.

The review of the incidence of rectal distress in these series indicates a predominance of lesions located in either the cul-de-sac, rectal wall or recto-vaginal septum. Careful physical examination usually revealed the presence of a mass at one of these sites.

When extraordinary sites are responsible for rectal symptoms, the making of a diagnosis will depend a great deal upon the presence of accentuation during the menstrual cycle.

There were some cases in the series by Mussey(43) which complained of rectal bleeding during the menstrual cycle.

The complaint of dysuria will probably arouse more justification for other diagnosis than endometriosis. However, to substantiate the presence of this complaint we present several instances of endometriosis of the bladder wall.

Tyrone(41) lists bladder complaints forty times in his series of one hundred and three cases but only two cases subsequently showed lesions of the bladder. Smith(39) included dysuria five times as a complaint and had two lesions of the bladder. Henrikson(53), in 1935, reported a case of primary endometriosis of the urinary bladder. The symptoms in this case were dysuria of a duration of some months with a hematuria during the menstrual period. The lesion was found to be on the floor of the bladder between the ureters.

Up to the time of Henrikson's report, only twenty-one cases of endometriosis of the bladder had been reported. The first case being reported by Starr-Judd, in 1921.

In two cases reported in 1925, by Keene and Norris(54), dysuria was the major complaint. Laparotomy disclosed "chocolate cysts" of the ovary with secondary lesions on the wall of the bladder. They did not attempt to resect the lesions on the bladder but removed the ovaries, the symptoms disappeared within one month.

Dysuria, although reported quite often as a symptom of endometriosis of the bladder, may be present with lesions elsewhere in the pelvis.

In the University series of forty cases there were four complaints of dysuria and no lesions of the urinary bladder. However, previous history of infection is important in evaluating this symptom, especially when cases give a positive history of Gonorrhoeal infection.

The relation of pain to menses in endometriosis has been regarded as pathognomonic of the disease. Early in the development of Sampson's work, he noticed that increase or presence of pain during

the menstrual cycle accompanied the major proportion of cases. The variations in time of occurrence will be described with special reference to the menstrual phase.

Sampson(12) showed that each new site of endometrial tissue behaved similarly to that in the uterus. In short, during the menses there is bleeding and the lesion swells, only to recede with the cessation of menses, it attempts, at times, to assume the structure and function of uterine mucosa.

Allen(33) has stated that the pain which accompanied menstruation, and which is endometriosis in type, is as follows: "pain before flow was established, reaching it's height during early hours of the period with gradual lessening as the period progresses."

This type is associated with dysmenorrhea of the acquired type. Mussey(43) believes the pain may continue throughout the period and even outlast the menstrual period by several days.

The phases of pain will be considered under:

- 1 Menstrual pain
2. Premenstrual pain
3. Post menstrual pain
4. Intermenstrual pain

MENSTRUAL PAIN:

The pain which accompanies menstruation may begin from a few hours to several days before the flow starts. The pain is usually quite severe and the patient is confined to bed.

The pain may be slightly relieved as the period progresses or it may continue unabated until the end of the period. In some cases it continued for several days after the menstrual period ceased.

PREMENSTRUAL PAIN:

Pain may, in some cases, begin three to seven days prior to the beginning of the menstrual flow and subside with the beginning of the menses. Mussey(43) quotes six cases which showed this type of pain.

One patient in his series had very severe pain prior to menses and likened it unto labor pains, they subsided with the beginning of the menses. This case was later found to be an adenomyoma of the uterus.

POSTMENSTRUAL PAIN:

In some cases the pain began with the end of the period and lasted from two to six days. Mussey(43) reported four cases exhibiting this feature.

This type of pain is the rarest as regards the pain relation to menses.

INTERMENSTRUAL PAIN:

Some cases showed a constant intermenstrual pain with no increase during menses. However, the majority of this class showed acute exacerbations with the menstrual flow, a typical feature of endometriosis of the external nature.

In some cases of inguinal endometriosis as presented by Christopher(55), the tumor was small, bluish and tender during the intermenstrual period. With the advent of menstruation it swelled, became dark bluish in color and was extremely painful.

In a case of endometriosis of the umbilicus, Douglas(48) stated that there were no symptoms of pain at any time.

In the series of Shirer(40), all cases complained of some pain or distress at the menstrual cycle. The locality varied with each case from back to lower abdomen and was described as crampy in nature.

In a case of endometriosis of the ureters reported by Perry and Morse(37), the patient experienced severe pain at the menses and had great

difficulty in urination.

Keene and Kimbrough(34) found that in their series of one hundred and eighteen cases that forty-five percent had symptoms of intermenstrual pain with exacerbation at the menstrual cycle.

Frankel(36), in 1934, reported a case of endometriosis of the Fallopian tubes which caused symptoms of ruptured ectopic pregnancy.

Seitz(56) states that periodic recurrence of pain with the menstrual cycle enabled him to diagnose several cases of endometriosis.

In making a diagnosis of endometriosis Datta(57) also injected sterile milk and noted that no rise in temperature occurred if it was endometriosis, while a two to three degree rise followed if it was pelvic inflammation.

In Tyrone's(41) series of one hundred and three cases, pelvic pain was a chief complaint in fifty-eight cases which he subdivided as follows.

Not associated with menses	30
Before and after menses	4
Aggravated by menses	4
During entire period	13
During first few days	4
At end of period	<u>3</u>
	58

It was mentioned under the discussion of the symptom "Dysuria" that cases of endometriosis of the bladder exhibited this symptom.

In considering the lesions which were at this location, typical recurrent dysuria occurred in many of the cases at the time of menses. This feature is the most suggestive of a possible endometrial lesion of the bladder in the face of the innumerable causes of dysuria.

Strangin(58) and also Galloway(59) reported cases of endometriosis of the umbilicus which were diagnosed preoperatively by the typical swelling, tenderness and bluish color during the menses.

Cabot(60) presented a case of endometriosis of the appendix which had attacks of pain in the right lower quadrant with every menstrual period. The diagnosis was appendicitis with possibilities of it being endometriosis.

Beck(61), in 1936, reported a case of endometriosis of the round ligament of the uterus. A typical history was presented in this case and a preoperative diagnosis of endometriosis was made.

Crossen(62), in 1932, stated that the disproportion between the pain and the size of the lesion

was a valuable adjunct in making a diagnosis of endometriosis.

From the number of cases reviewed it can be seen that pain as regards relation to menstruation is a primary symptom and when present warrants a consideration of possible endometriosis.

Of the entire group of symptoms reviewed this particular complaint received the endorsement of most writers and was stressed as the most reliable factor in basing a diagnosis of endometriosis.

The site of pain will be considered here as it was encountered in the different series. This symptom index was not included in every series as the presence of possible referred pain and other causes for pain at that site had not been excluded.

The differential diagnosis for the various sites will not be discussed as in each instance the pathology responsible was disclosed by surgery and histological examination.

Sacral	54
Right upper quadrant	6
Left upper quadrant	5
Right lower quadrant	146
Left lower quadrant	118

Umbilicus	12
Laparotomy scar	5
Rectum	78
Right thigh	18
Left thigh	10
Suprapubic	29
Right inguinal	3
Left inguinal	1

The site of pain in most cases was due to endometriosis in that region or to endometriosis of some organ in that region.

Sacral pain was most often associated with lesions of the cul-de-sac or ovaries.

Uterine and ovarian lesions were the most common and thereby account for the large number of cases with lower quadrant pain.

Pain in the umbilicus, laparotomy scars, inguinal canal and rectum were occasioned by lesions in or near those locations.

The prognosis of any case of endometriosis according to Sampson(12), Novak(63), Cullen, MacLean(52) and others is dependent upon the individual case. They are agreed however, that it is progressive and

Sampson(38) reported a case of ovarian carcinoma in endometriosis of the ovary.

The severe symptoms and often fatal outcome does not warrant a good prognosis if no treatment is instituted. The occurrence of endometriosis late in reproductive life might disappear spontaneously with the regression of the ovarian function.

However, the incidence is wholly predominant among mature and relatively young women and necessarily some treatment must be afforded. Because of the great success which it has attained, surgery, according to Novak(63) is the best treatment.

The reproductive desires of the patient must be respected and for that reason conservative surgery is recommended in the younger cases.

Novak(63) believes that X-ray therapy should only be used in those cases which refute surgery and in older women or any which might be inoperable.

Malcolm(64) states that surgery should be done in all cases and castration doses of X-ray in any cases which contraindicates surgery.

Graves(65) reported four cases of endometriosis in which oophorectomy was performed and complete recovery followed without removing the lesion.

Crossen(62) outlined his views as follows:

1. Surgery where at all possible
2. Preserve ovarian influence in young women if possible.
3. Eliminate malignancy

Irradiation when:

1. Poor operative risk
2. Postoperative activity

Summarizing this brief discussion it might suffice to say that the general recommendation for treating endometriosis seems to be surgical whenever possible.

In an effort to evaluate the importance of the symptoms which we have considered here, we have purposely introduced the comparative figures as they were encountered in the various series. By combining these figures we have, in some instances, been able to present a fairly inclusive index of the frequency which these symptoms occurred. Therefore, in conclusion we can say that the factors which are most indicative of possible endometrial lesions either in the uterus or elsewhere in the pelvis are:

1. Disturbances in Menstrual Cycle.
2. Acquired Dysmenorrhea.
3. Pain which shows a definite increase at the time of menses and decreases with the end of the period.

These, then, are the most singular features of the disease and are accompanied by many other symptoms in some instances. The importance of the symptoms which were considered but which occur much less frequently must be evaluated in the individual case.

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