MEDICAL TREATMENT IN DYSMENORRHOEA.

"A thesis suggesting certain lines as to treatment, based on a consideration of some of the factors concerned in the production of pain associated with menstruation."

By

ROBERT ARMSTRONG, M.B., D.P.H., F.R.C.S.E.

ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 – 1346

The problem of dysmenorrhoea and its treatment is one of interest alike to the gynaecological specialist and to the general practitioner of medicine. When one considers the great advances that have been made in the study of certain pathological problems related to gynaecology, one is forced to reflect that the pathology of dysmenorrhoea has not so progressed. It follows, then, as a natural corollary, that the treatment of pain during menstruation remains still on an unscientific basis.

At the outset, let me say that in my opinion surgery has little place in the treatment of simple dysmenorrhoea. In order to justify this statement it is necessary to consider the surgical procedures advocated for the relief of this particular type of pain. Either of two operations may be performed, viz:-

(1) Dilatation - with or without curettage, or

(2) Dudley's operation.

The former is the one usually practised in the first instance and it is true that the patient frequently obtains temporary relief from pain during the first two or three succeeding periods. Sooner or later, however, as a general rule the pain returns and, provided the patient submits, the alternative operative procedure, Dudley's operation, may be performed. This operation is designed to straighten out the cervical canal hence its reputed value in the treatment of dysmenorrhoea associated with acute anteflexion/

anteflexion of the uterus. One has only to watch the operation being carried out to feel assured that it does not subserve this useful purpose and, in most cases, the result is quite as unsatisfactory as that of dilatation, while, not infrequently, a troublesome and persistent leucorrhoea supervenes.

Whatever benefit results from operation I believe to be due, in many cases, to the general care taken of the patient prior to and following operation. During the stay of the patient in hospital or nursing home her diet is supervised, her meals are taken at regular intervals, constipation is overcome and lastly, a factor of great importance, she gets a rest. Then, for a month or so after going home, she is careful or is taken care of, but, sooner or later, she lapses in the respects mentioned and the pain returns with its earlier intensity. A point of some interest in this connection lies in the fact that, in women admitted to hospital with a complaint of dysmenorrhoea, it is the rarest possible event to hear them complain of this pain should a monthly illness supervene prior to operative treatment being carried out in the institution.

If then surgery has failed, is the treatment of dysmenorrhoea a medical problem? This thesis is an attempt to answer that question, and in attempting to do so it is convenient at the outset to ask if the true nature of dysmenorrhoea has been discovered, or if the pathology of this condition has been established.

Pathological anatomy, in so far as it applies to the problems of the menstrual function, may be studied in the following ways:-

"(a) by making a comparison with the sexual phenomena noted in other species in the mammalian tree,

(b) by a study of material obtained at operation, at different periods in the sexual cycle, and especially during the actual menstrual function,

(c) by the investigation of the actual function, especially of the menstrual discharge, both in health and disease,

(d) by noting the effect, both immediate and remote, of excision of parts of the sexual apparatus at different periods of the sexual cycle, and

(e) by the observation in animals and 'home' of the effect of injecting various tissue extracts."[1].

To this somewhat exhaustive list I would add,

(f) by making a comparison with the nervous phenomena observed and established in other hollow viscera.

For the sake of convenience the following classification of dysmenorrhoea can be adopted:-

A. Dysmenorrhoea, due to, or aggravated by some general or constitutional factor,

B. Dysmenorrhoea, resulting from some local demonstrable factor in the pelvis, and

C. Dysmenorrhoea, having no apparent cause general or local.

A. <u>Dysmenorrhoea, due to, or aggravated by some general or constitutional factor</u>.

This/

This group does not appear to be sufficiently well recognised; yet cases falling within it are relatively common in general practice.

The diseases likely to be encountered in this group include diseases of the heart; diseases of the gastro-intestinal apparatus; and certain endocrine disturbances. The three groups are illustrated by the following cases from my practice.

(1) HEART DISEASE as a cause of dysmenorrhoea:- Patient, who was thirty years of age, complained of pain just before, and during the earlier part of menstruation. In childhood she had suffered from rheumatic fever for which she was treated in hospital. At the age of thirteen years she had scarlet fever.

Her menstruation commenced at age of fifteen years, the periods lasting for three to four days, and recurring every four weeks. The loss was normal. Patient frequently noticed some slight swelling of feet and ankles about the time of the monthly illnesses, but this was never so marked as to suggest the necessity for treatment.

Two years prior to her coming under my care patient was delivered of a female child at term. During the later months of her pregnancy she had developed oedema of the feet ankles and legs, while breathlessness had been pronounced. As a result, for some six weeks prior to delivery she was confined to bed. Labour was of comparatively short duration but on account of the general/

general condition of the patient forceps were applied to complete delivery. The puerperium was uncomplicated. Thereafter the Doctor warned patient's husband that her heart was "none too good." During the two years elapsing between the confinement and the time when I saw her patient developed occasional attacks of breathlessness accompanied by swelling of the feet and ankles and occasional sore throats. When her menstrual periods returned eight months after the birth, her dysmenorrhoea was as severe as ever.

Briefly, general medical examination revealed the following:-

Circulatory system:- Pulse 90, regular in force, rate and rhythm. Apex beat 4/5 interspace, 4" from mid-sternal line. Right border of cardiac dullness - 1" right of mid-sternal line. Heart sounds - a rough presystolic murmur was audible at the apex; it was not conducted.

Respiratory system:- No abnormality was detected.

Gastro-intestinal system:- No abnormality was detected.

Pelvic examination:- The multiparous uterus was in normal position, the cervix slightly lacerated; otherwise no abnormality was detected.

On account of the cardiac involvement it was decided for a period to restrict treatment to the cardio-vascular system. As the heart was but slightly enlarged to the right and as the pulse rate was not abnormally/

abnormally high the patient was put on the following mixture.

℞ Ferri et Quin Citrat. gr. x.
Liquor Strychnine m. v.
Glycerini q.s.

This was given thrice daily in water.

Within a few weeks the cardiac condition had greatly improved and the right border of the heart had returned to a more normal position. Breathlessness became less pronounced and the swelling of the ankles diminished.

With only this general treatment, the pain associated with the monthly illnesses disappeared and in the three years since, there has been no recurrence of the dysmenorrhoea.

The following points appear to emerge from a study of this case:-

1. A previous history to account for heart disease.
2. Manifestations of heart disease before, during and after pregnancy.
3. Dysmenorrhoea not cured by pregnancy.
4. Dysmenorrhoea cured rapidly and apparently completely as a result of the improvement in the cardio-vascular system.

DISEASE OF THE GASTRO-INTESTINAL TRACT AS A CAUSE OF DYSMENORRHOEA.

Patient, who was twenty three years of age complained of a feeling of weakness in the pit of her/

her stomach. This frequently amounted to pain, and was attended by nausea and fainting. Her complaint was of a year's duration. In infancy she had suffered from scarlet fever, mumps, chicken pox, measles and whooping cough. At the age of fifteen years, about the time her "illnesses" began, she had an attack of jaundice which lasted three weeks, and shortly thereafter she suffered from a probable ptomaine poisoning of three to four days' duration, during which time she had a generalised skin eruption.

Her menses commenced when she was fifteen years of age, lasting three days and recurring every four weeks. Slight in flow they were attended just prior to and during the first three hours of this activity by severe pain which responded to rest.

The feeling of weakness in the pit of the stomach had been fairly constant for the year prior to my seeing her. It was never present in the early morning but came on any time thereafter. Patient frequently experienced actual pain just below and to the right of the xiphy-sternum. On occasions this pain was referred to the back. The pain bore no relation to the taking of food. The severity of the pain varied. At times it was quite sharp, never sufficient to cause her to double up, and lasting an hour or two; at other

times/

times it was more a heavy feeling of indefinite duration. There was no constipation. The pain at the time of the monthly illnesses was experienced in the right iliac fossa, it came on a few hours before the flow, was spasmodic in character, and lasted about three hours. It then gradually passed off. Relief from this pain could usually be obtained by lying down. I epitomise the general findings.

Circulatory system:- No abnormality detected.

Abdomen:- There was tenderness on deep pressure over the epigastrium.

Blood:- Red blood corpuscles - 6,000,000 per c.m.

Haemoglobin - 90%.

Colour Index - 0·9 +

Recto-abdominal examination:- A nulliparous uterus in satisfactory position, was found. No adnexal abnormality was noted. It was decided to treat the gastric condition in the first instance. This was done by suitable diet supplemented by drugs. The patient was supplied with the following list of instructions:-

INSTRUCTIONS AS TO DIET.

The following are allowed:-

Beverages ... ... (1) Tea - preferably China tea.
(2) Cocoa - except Van Houten's cocoa.
(3) Milk - (a) taken raw or
(b) a saltspoonful of sodium citrate may be added to each tumblerful.

Eggs/

Eggs		Switched, boiled or poached.
Farinaceous Foods	e.g.	Arrowroot.
Fish		Steamed or boiled.
Game	(1)	Pheasant.
	(2)	Rabbit - fore leg.
Poultry		Chicken.
Meat	(1)	Roast Beef.
	(2)	Roast Mutton.
	(3)	Chop - underdone - raw central portion.
	(4)	Fillet Steak.
	(5)	Sweetbreads.
	(6)	Tripe.
Pudding, etc. ...	(1)	Steamed Pudding without fruit.
	(2)	Prunes - without sugar.
	(3)	Preserved Pear.
	(4)	Custard.
	(5)	Milk Curd.
Biscuits	(1)	Cream cracker.
	(2)	Breakfast Biscuit (Huntly & Palmer).

The following are forbidden:-

Coffee	Fruits especially	Soups	Milk pudding
Bovril	Rhubarb	Vegetables	is doubtful.
Leibig	Strawberries	Stews	
Alcohol	Gooseberries	Anything with gravy.	

In addition the following powder was prescribed.

℞ Magnesium Oxide Levis gr x.

Sodi. Bicarb. gr. xx.

This powder was taken thrice daily before food.

Within a few weeks the gastro-intestinal tract responded to this line of treatment and in from two to three months the patient was completely cured. This cure resulted in an immediate relief from/

from the pain accompanying menstruation and in the eighteen months that have elapsed since the patient was first seen there has been no recurrence of the dysmenorrhoea.

The following points appear to emerge in this instance.

1. The association of gastric trouble, a catarrhal jaundice followed by a probable ptomaine poisoning, with the onset of the menses.
2. The complete relief from the menstrual pain as a result of thorough gastric treatment.

ENDOCRINE DISTURBANCE AS A CAUSE OF DYSMENORRHOEA.

Patient, who was thirty one years of age was a married nullipara. Her complaint was dysmenorrhoea.

The periods which commenced when she was sixteen years of age were fairly profuse, lasted four or five days and recurred every thirty two days.

On the day preceding and during the first day of the period she experienced pain in the hypogastrium and in both iliac fossae. This pain was severe in degree and colicky in type. Patient had to lie in bed during the first day and for part of the second day of each period. She could never remember having had a monthly illness free from pain.

The patient suggested hypothyroidism in that she was abnormally stout and somewhat apathetic. A general medical examination revealed nothing of note.

Bimanual examination revealed an uterus normal in size but situated in retroposition, the cervix being conical, the os pin point.

Since the appearance of the patient was not the complete picture of hypothyroidism it was decided to put her on a combination of tonic hormones from thyroid, pituitary and supra-renal glands. Three weeks after commencing this treatment the patient's monthly illness came on and on this occasion was entirely free from pain. To discover if this relief was due to the glandular compound I advised the patient to stop all treatment for the next four weeks. This was accordingly done and the next period was ushered in by pain of the type already experienced by the patient for so many years. Since that experience the patient has been taking the tablets with regularity and during the past year she has been entirely free from dysmenorrhoea.

The features of note in this case are,

1. That the glands of internal secretion (or at least some of them) are closely related in certain cases to these factors which influence painful menstruation.

2. That the disturbance in function of the endocrine system may be overcome promptly by the correct application of organotherapy.
3. That while the effects of administration of the appropriate remedy may be almost immediately apparent so also are the effects of the sudden complete withdrawal of that remedy.

These cases I have cited show the importance of thorough medical examination and treatment in cases of dysmenorrhoea. I would like to emphasise the following points in a general medical examination in all cases of painful menstruation.

I. The determining by physical examination of the position of the right border of the heart. If it lies too far to the right all possible steps should be taken to restore it to its normal position.

II. The correction of any gastro-intestinal disturbance.

III. The treatment, in so far as is possible in our present state of knowledge, of endocrine disfunction.

B. <u>Dysmenorrhoea resulting from some local demonstrable factor in the pelvis</u>.

In this group may be included those cases where dysmenorrhoea is a symptom of such conditions/

conditions as pelvic inflammatory lesions, uterine and adnexal neoplasms and uterine displacements and maldevelopments. These causes are recognised and as their treatment is largely surgical they do not call for further consideration in this paper.

C. Dysmenorrhoea - having no apparent cause, general or local.

In this group, described as true or intrinsic dysmenorrhoea, the essential and only symptom is pain during menstruation.

Normally, slight discomfort is experienced during menstruation by the majority of women, but in true dysmenorrhoea the patient complains of severe pain at that time. The characters of the pain are variously described, as cramp-like, burning, boring, or bearing down. It may become unbearable.

The pain is felt in the hypogastric region or in the pelvis and is often accompanied by sacralgia. Others, again complain of pain radiating to the sides or down the thighs. Sometimes the pain shifts its situation and on one occasion a patient described how she "chased the pain with a hot water bag." Many patients have a distaste for food and some suffer from nausea or even vomiting during the distress.

At the time of the monthly illness the patient may be constipated, or if usually constipated she may at this time have diarrhoea. Again she/

she may have an increased desire to urinate.

The time of onset and the duration of the pain vary very much. In some cases the pain may begin a day or two before the flow appears, gradually increasing in severity until the flow is established. More frequently the pain begins a few hours before or coincident with the onset of the flow.

The pain may only last several hours and is then relieved with the onset of the flow. In other cases the pain lasts a day or two so that during that time the patient is incapacitated for work. Less usually does it last throughout the whole period. As a rule, the scantier the flow the greater the pain. Some months the pain is easier and other months it is worse.

The pain may begin with the first menstrual period being at first bearable and going on steadily getting more intense till it becomes intolerable. In other cases the patient may pass through several years of married life before beginning to suffer.

One may find that the onset of dysmenorrhoea dates from some psychical disturbance, a standard example being that of a girl who, bathing during menstruation, suddenly stops in the middle of the flow. Dysmenorrhoea may ensue at her following periods and this may be attributed to the mental shock.

The effect of married life on dysmenorrhoea is variable. Sometimes it is favourable; occasionally it aggravates the condition.

Pregnancy nearly always cures dysmenorrhoea of this type.

Aetiology.

Most authorities hold that there is generally a neurotic element in the aetiology of true or intrinsic dysmenorrhoea and state emphatically that the majority of cases occur in highly strung, nervous girls. It is also a generally accepted fact that dysmenorrhoea may run in a family of neurotics.

Certain aetiological types of dysmenorrhoea are recognised.

I. There is a type due to hypersensitive nerve endings. In these cases uterine contractions produce cramp-like or colicky pain.

II. There is a type spoken of as the mechanical or obstructive type. The cervix is rigid and the region of the os internum narrowed so that it becomes obstructed more or less by premenstrual congestion occurring just above it. This type is said to be benefitted by passing dilators just before menstruation. The obstruction occasions violent uterine contractions, hence the pain. As soon as the flow becomes free the pain lessens, because the os internum is no longer/

longer obstructed. It is in this type of case that if a sound be passed pain is experienced as the instrument reaches and passes the region of the os internum: further, the instrument appears to hitch over a bar or stricture in this region.

III. This variety is described as the hypoplastic type. It is seen in such conditions as infantile uterus and in congenital underdevelopment of the uterus. Some cases result from shortness of the utero-sacral ligaments with the attendant acute anteflexion of uterus.

IV. Lastly there is described a "nasal type." It is supposed that there is a centre in the region of the lower turbinates, stimulation of which is aetiological in a reflex dysmenorrhoea, and the exponents of this theory direct their treatment to the correction of abnormalities of the nasal mucosa. This type, according to its advocates, is recognised by means of a simple test. A piece of cotton wool dipped in cocaine is placed in contact with the nasal mucosa over the lower turbinates and is left there for ten minutes. If the dysmenorrhoea disappears following this test the case should be handed over to the rhinologist for cauterisation or other nasal treatment. Reluctant though I am to accept this nasal theory of dysmenorrhoea the fact that certain/

certain aromas are accepted as being sexual stimulants deserves recognition and may to an extent support this view.

The above mentioned types and the views expressed thereon represent the present aetiology of dysmenorrhoea. In my opinion all are unsatisfactory and I feel that until the aetiology and pathology of dysmenorrhoea is on a more solid foundation, little advance will be made in the treatment of the condition. Some kind of clinical pathology is required to explain the true nature of the pain in dysmenorrhoea. It is agreed that it is a type of a nervous phenomenon, and I believe its true nature can be arrived at by making a comparison between it and the nervous phenomena observed in the urinary and gastro-intestinal tracts.

The view which I submit is that <u>dysmenorrhoea is the result of incoordination of the neuro-muscular mechanism of the uterus</u>.

I would ascribe intrinsic dysmenorrhoea to defective action of the involuntary nervous system of the uterus.

It is necessary to enter into some detail concerning the involuntary nervous system, and one could not improve on the following extracts from Fraser's "clinical notes."

A. <u>Arrangements of the involuntary nervous system spinal reflex in contrast with the disposition of/</u>

of the voluntary nervous system reflex.

"The points which distinguish the spinal arrangements of the involuntary nervous system from those of the voluntary are that the effector cell is extracordal in position, that its fibres are non-medullated, that the connector fibre extending from a nerve cell of the lateral horn to synapse with the effector unit of the ganglion is partly intracordal and partly extracordal, and is accordingly a medullated structure. Hence the entire sympathetic pathway from the spinal cord to the periphery is composed of two sets of neurones, preganglionic and postganglionic."[2].

B. Divisions of the involuntary nervous system.

Sympathetic: Parasympathetic.

It is convenient to consider these under the headings of - (a) position; (b) function; (c) distribution; (d) relation to adrenals; and (e) psychological and metabolic distinctions.

(a) The distinction of position.

Sympathetic.	Parasympathetic.
Originates in the spinal cord from the level of the 8th cervical to the 3rd lumbar segment. The axones emerge with the anterior roots and run via the white rami communicantes/	Originates from the poles of the cerebro spinal axis, the impulses being transmitted (a) from mid-brain and medulla through the occulo-moter, the vagus and the chorda tympani nerves, and

communicantes to the ganglionated cord.	(b) from the sacral segments through the pelvic nerves.

To apply this to the uterus:-

Sympathetic.	Parasympathetic.
Originates from the first, second and third lumbar segments of the spinal cord.	Originates from the second, third and fourth sacral segments of the spinal cord.

(b) The distinction of function.

"The two portions of the involuntary nervous system are to some extent antagonistic the one to the other. If the stimulus of one division results in contraction it follows almost as a matter of course that the activation of the other will induce an inhibition which is virtually a relaxation. While the exercise of antagonistic function is general, it is exercised particularly in those regions in which special arrangements of muscular fibres exist - as, for example, in the region of the sphincters of the alimentary canal."[3].

To apply this to the uterus:-

Sympathetic.	Parasympathetic.
Stimulation results in contraction,	Stimulation results in inhibition,

or conversely.

From the foregoing it is reasonable to expect that these antagonistic functions will be well developed in the uterus, an organ with a complex arrangement/

arrangement of muscle fibres, and probably specially well developed in the region of the internal os uteri, that region in which one so frequently encounters a muscle-bar in cases of dysmenorrhoea.

In this view I am supported by the fact that "dysmenorrhoea is now believed to be due to a spasm of the uterine muscle, except in those cases in which it is caused by definite pathological conditions of the generative organs."[4].

(c) The distinction of distribution.

Sympathetic.	Parasympathetic.
Possesses a short preganglionic medullated fibre and a long postganglionic segment.	Possess a long preganglionic fibre and a short postganglionic fibre.
Stimulation, therefore, produces a wide and diffuse response.	Stimulation, therefore, produces a localised function response.

To apply this to the uterus:-

Sympathetic.	Parasympathetic.
Short preganglionic fibres pass from the first three lumbar segments of the spinal cord to the sympathetic ganglia. Thereafter long postganglionic fibres pass via the inferior/	Long preganglionic fibres pass from the first three sacral segments of the spinal cord via the nervi erigentes pelvicus to the hypogastric plexus. Thereafter short postganglionic fibres pass to the uterus.

inferior mesenteric ganglion to the uterus.	

(d) The distinction of relation to adrenals.

Sympathetic.	Parasympathetic.
Closely related. The effect of adrenaline on a tissue is similar to a stimulation of its sympathetic nerves.	Not related.

(e) Psychological and metabolic disturbance.

Sympathetic.	Parasympathetic.
1. Stimulates the defence mechanism of the body.	1. Has an opposite action.
2. Katabolic.	2. Anabolic.

In the evolution of the involuntary nervous system, it is established that motor activity precedes the acquisition of the function of inhibition.

DISTURBANCES OF THE INVOLUNTARY NERVOUS SYSTEM AS THEY AFFECT VARIOUS SYSTEMS.

A. Gastro-intestinal system.

1. Congenital pyloric stenosis.

In this condition there is a very marked hypertrophy of the pyloric sphincter and the pyloric canal and a degree of hypertrophy of the stomach. Microscopically there is a tremendous hypertrophy of the circular muscular coat. It is a condition of/

of "achalasia" or, in this instance, a spasmodic contraction of the pyloric end of the stomach, leading to a work hypertrophy. The condition may prove fatal. By way of treatment Prof. D.P.D. Wilkie of Edinburgh has suggested section of the sympathetic nerves in the right gastro-hepatic omentum.[5].

2. Hypertrophic ileal obstruction.

"This is a rare condition, although three cases of it have been described."[6]. Its aetiology is also centred in involuntary nervous system.

3. Hirschsprung's disease.

This condition is now believed to be due to a nerve incoordination of O'Beirne's sphincter manifesting itself in the colon. It is worthy of note that O'Beirne's sphincter has a sympathetic and a parasympathetic distribution exactly similar to that of the uterus.

4. Intussusception.

In this disease the involuntary nerve error manifests itself not as a localised hypertrophy but as an exaggeration of the normal function of the peristalsis.

5. Disorders of adult life.

"With the passing of puberty or later, it may be, in certain individuals there is another breakdown in the neuro-muscular alimentary arrangements./

ments. In view of the time period of their manifestation and the response which many cases show to glandular therapy it may well be that a derangement of the glands of internal secretion is the origin of the nervous disturbance."[7].

These disorders of adult life express themselves in the form of spasms, achalasias and atonies. Treatment is a very difficult matter and we know comparatively little about efficient therapeutic measures. Atropin and belladonna, which naturally one would anticipate to prove beneficial, have no evident effect. Adrenalin, on the other hand, is usually beneficial when given intra-muscularly, and is often as efficient in the abdominal type of error as it is in the spasmodic asthmatic disturbance.

There have been described then five different types of abdominal disease due to disturbances of the involuntary nervous system, but perhaps the disorders of adult life concern us more in this thesis. From the above we know that disturbances of the involuntary nervous system need not manifest themselves as congenital errors, as in hypertrophic pyloric stenosis of infants, but may, in point of fact, become obvious after puberty and during early adult life. The fact, then, that dysmenorrhoea does not cause trouble till a girl is eighteen or twenty years of age, does not exclude the involuntary nervous system from responsibility.

B. Urinary system.

Perhaps the involuntary nervous disturbances as they affect this system are of still greater interest to the gynaecologist on account of the close relationship developmentally between the genital and urinary systems.

In the developing embryo we have the Wolffian Duct running along behind the developing body cavity. Certain tubules connect with it. The permanent kidney is the third attempt at the formation of a kidney. The earliest or first attempt takes the form of a few little tubules situated in the fore part of the Wolffian Duct. In the second attempt, which is made further back, in a more caudal position, we have a large number of tubules (Wolffian Tubules) connected with the Wolffian Duct. These Wolffian Tubules plus the Wolffian Duct make up the Wolffian Body and in certain amphibians and fishes that persists as the excretory organ. Not so in woman. In her, the Wolffian Body forms the par-oophoron and the Duct of Gartner.[8].

The following disturbances of the urinary system are now recognised to be due to errors of the involuntary nervous system:-

1. Congenital stenosis of the ureter.

Lecturing on this condition Henry Wade[9]. said: "So called congenital stenoses are described at the upper and lower end of the ureter. Definite fibrous/

fibrous strictures have been described in association with unilateral hydronephrosis with or without hydroureter but the majority of these cases are cases of congenital stenosis of a neuro-muscular nature exactly comparable to congenital pyloric stenosis."

2. Prostatic valves - Congenital vesical sphincteric stenosis.

This again is a fault in the neuro-muscular mechanism due to an incoordination of the external vesical sphincter which remains contracted when it should dilate, thereby causing pronounced back pressure.[10] It is of interest to note that the correct treatment of this condition consists in forcible dilatation of the channel.

To come now to the Reproductive System. What evidence have we of the possible occurrence of disturbances of the involuntary nervous system?

1. The uterus has a sympathetic nervous supply and a parasympathetic nervous supply from the first three lumbar and the second, third and fourth sacral segments of the cord respectively.
2. We know that disturbances of these particular sets of nerves can in point of fact produce alimentary and urinary disturbances as shown above.
3. The urinary tract is liable to suffer from neuro-muscular incoordination, and developmentally the urinary system and the genital system are very closely related.

4./

4. We know that persons suffering from involuntary nervous system disturbances do not tolerate atropin well, and despite the fact that atropin is suggested by many gynaecologists as a drug suitable in the treatment of dysmenorrhoea,[11] my own experience is that not only does atropin fail entirely to alleviate the pain but, in addition, the patient frequently shows a complete intolerance to it.

I have tried the effect of atropin in the following cases of dysmenorrhoea with results as shown:-

	Age.	Para.	Duration of dysmenorrhoea.	Total amt. of atropin taken.	Result.
Mrs. E.	35.	Nulli.	15 years.	$\frac{3}{100}$ grs.	Sickness, vomiting, mild collapse.
Mrs. B.	31.	Nulli.	13 "	$\frac{2}{100}$ grs.	Sickness, faintness, dysmenorrhoea intensified.
Miss R.	25.	Nulli.	8 "	$\frac{5}{100}$ grs.	Heartburn, acidity, flatulence.

From the foregoing then I think we have ample proof that dysmenorrhoea, for which no apparent cause general or local can be found, may be due to a neuro-muscular incoordination.

THE/

THE TREATMENT OF DYSMENORRHOEA.

Bearing in mind the classification of dysmenorrhoea into the three types already mentioned, the greatest possible care should be taken to find out to which of the groups the patient belongs. If some general or constitutional factor is suspected to be at the root of the trouble then a very thorough medical examination is required. This will at least necessitate the examiner investigating the following problems.

(1) Circulatory System.

(a) What is the Blood Pressure?

(b) Where is the right border of the heart?

(c) Is there any evidence of heart disease?

(d) Is the patient anaemic, if so what is the nature of the anaemia?

(2) Gastro-intestinal System.

(a) Is constipation a feature?

(b) Is there any failure on the part of the stomach to digest its food properly?

(c) Does the patient show any evidence of alimentary toxaemia?

(3) Endocrine System.

Is there any loss of endocrine balance?

If dysmenorrhoea is not caused by any such factor we turn to the second group and by bimanual pelvic examination we exclude the possibility of a local pelvic condition as the cause of the pain. If

no/

no such cause is found I think it justifiable to consider the case as belonging to the category of disturbances of the involuntary nervous system and proceed to treat it accordingly.

TREATMENT OF DISTURBANCES OF THE INVOLUNTARY NERVOUS SYSTEM CAUSING DYSMENORRHOEA.

A. General Treatment.

Realising that many organs and systems may come under the influence of a deranged involuntary nervous system it is well worth while paying them some attention although at the moment they may not appear to manifest any abnormality. The first organ to come under review is the bowel. Unless one can be completely satisfied that the patient is entirely free from constipation it is advisable to apply some measures towards promoting regular bowel action. Constipation may be relieved in various ways but certain remedies appear to be peculiarly well suited to our particular needs. Of these the following may be mentioned:-

1. Liquid Paraffin. This should be given in teaspoonful doses thrice daily after food. Certain patients do not appear to gain the desired relief with this drug and although in the relief of constipation from various causes liquid paraffin is pre-eminently satisfactory, it does not appear to be of so much value in the treatment of constipation associated with dysmenorrhoea./

dysmenorrhoea.

2. Aloes and iron. An excellent pill can be composed of Ferri Sulphatis grain ½: Extract of Aloes grain 1. This pill is taken night and morning. If this combination is sufficient to produce a daily evacuation of the bowels then perhaps of all the means at our disposal for this purpose, it is the best, as it is usually quite unnecessary to increase the dose. The patient does not acquire a "habit." In many cases, however, the patient reports unsatisfactory results. In this event it is my practice to add to each pill - Extract Nucis Vomic gr. ½. This addition usually serves to render the pill very efficient in its action.

3. A pill not dissimilar to the above in its mode of action and general efficiency is one composed of,

℞ Extract. Caseara gr. 2.
Extract. Belladonna
Ext. Nucis Vomic
Aloini aa gr. $\frac{1}{6}$.

When given in doses of one, two or three pills at night it usually serves completely to evacuate the bowels, but in many cases of dysmenorrhoea it would appear to disagree with the patient. It was not until I learned of the intolerance which these patients show to atropin and belladonna that I began to understand why this pill cannot be used for our purpose with any measure/

measure of assurance.

4. Cellulose. Although the employment of cellulose is of inestimable value in the treatment of most forms of constipation I think it cannot usually be relied on solely in cases of dysmenorrhoea. "Cellulose normally forms the greater portion of the non-absorbable food residue, and its quantity can be easily increased by the addition to the diet of vegetables, fruit, or whole meal or brown bread. Since 75 per cent. of the total weight of the faeces consists of water, the addition of a few grams of cellulose to the diet results in a considerable increase in the volume of the faeces."[12]. Now in many cases of disturbances of the involuntary nervous system vegetables and sometimes fruits appear to upset the stomach and what is true in this respect of these disturbances generally, seems to apply with particular force to dysmenorrhoea. Consequently the use of cellulose is very restricted in our treatment.

Recently then, to ensure a daily evacuation of the bowels I have come to rely more and more on the combination of iron, aloes and nux vomica.

Our attention is now directed to the stomach and even in cases where very little is complained of beyond perhaps a heaviness after the evening meal, it has been my practice to diet the patient to some extent and to give her some guidance regarding the management of/

of digestion. The following list of food stuffs - allowed and forbidden - is supplied to the patient:-

INSTRUCTIONS AS TO DIET.

The following are allowed:-

Beverages	(1)	Tea - preferably China tea.
	(2)	Cocoa - except Van Houten's cocoa.
	(3)	Milk - (a) taken raw or (b) a saltspoonful of sodium citrate may be added to each tumblerful.
Eggs		Switched, boiled or poached.
Farinaceous Foods	e.g.	Arrowroot.
Fish		Steamed or boiled.
Game	(1)	Pheasant.
	(2)	Rabbit - fore leg.
Poultry		Chicken.
Meat	(1)	Roast Beef.
	(2)	Roast Mutton.
	(3)	Chop - underdone - raw central portion.
	(4)	Fillet Steak.
	(5)	Sweetbreads.
	(6)	Tripe.
Pudding, etc. ...	(1)	Steamed Pudding without fruit.
	(2)	Prunes - without sugar.
	(3)	Preserved Pear.
	(4)	Custard.
	(5)	Milk Curd.
Biscuits	(1)	Cream Cracker.
	(2)	Breakfast Biscuit (Huntly & Palmer).

The following are forbidden:-

Coffee	Fruits especially	Soups	Milk pudding
Bovril	Rhubarb	Vegetables	is doubtful.
Leibig	Strawberries	Stews	
Alcohol	Gooseberries	Anything with gravy.	

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The following general advice is also given:-

1. Smoking after meals is inadvisable as it causes a drying up of saliva.
2. Exertion in a stooping position should be avoided.
3. Mental worry is far more fatiguing than physical worry and should be prevented as far as possible.
4. A moderate amount of open air exercise should be taken.
5. Late hours must be avoided.
6. An adequate amount of sleep should be obtained.

Apart from dietetic measures it is occasionally useful to prescribe some form of intestinal antiseptic. One particular type of case calling for this special treatment is the young woman with a muddy complexion, with here and there some type of skin eruption. This eruption frequently takes the form of blotches over the nose, flush parts of the cheeks, chin and forehead - a condition well known to dermatologists under the name of "Rosacea." Of the various intestinal antiseptics I have come to regard Kaolin as the most important. This drug should be taken in teaspoonful doses several times per diem. Another drug which is of use in purifying the gastro-intestinal tract is Salicin. To be of use this drug must be given in big doses, a useful mixture being:-

℞ Salicin grs. xv.
Tinct. Nux. Vom. m.v.
Tragacanth q.s.
Aq. Menth. Pip. aa ℥ ii.

From/

From the foregoing it will be seen that very great stress is laid on the general medical treatment of dysmenorrhoea.

We now come to the special methods of treatment.

B. Special Treatment.

The drugs known to produce a beneficial effect in disturbances of the involuntary nervous system are:-

1. Adrenalin.
2. Ephedrine.

Intra-muscular injections of adrenalin are useful, but as this method of exhibiting the drug cannot be carried out by the patient herself it is better to prescribe the drug in tablet form. A very efficient preparation is the Adrenalin-ovarian compound prepared by Harrower, taken in doses of one or two tablets at a time. This preparation is of very definite value in the treatment of dysmenorrhoea.

Ephedrine - a preparation from the old Chinese pharmacopoea - is reputed to be of value in the treatment of dysmenorrhoea, but though I personally cannot express an opinion on its value in this respect, I have found it a satisfactory substitute for adrenalin in the treatment of spasmodic asthma.

Now, treatment such as has been outlined takes time and patience but if the various points are attended to, it will be rewarded by a large measure of success.

If medical treatment fails, then and not till then should the question of some surgical procedure come under review. Now we know of at least one disturbance

of/

of the involuntary nervous system that requires a dilatation - I refer, of course, to congenital vesical sphincteric stenosis - so that I hold that successful treatment of dysmenorrhoea by dilatation is quite compatible with the involuntary nervous disturbance theory. Why dilatation so frequently fails is, I believe, due to the fact that the lines of general treatment have been supplanted by it. The correct attitude I hold to be that general and special treatment should be directed towards correcting any involuntary nervous disturbance, and that dilatation should be employed to enhance not to replace the action of the other simpler measures.

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