impetus to the consideration of methods for dealing with the spread of these diseases. Some of the objects of the Association are hardly within the sphere of action of this Association as a purely medical body; but it would seem to be most fitting that this Branch of the Association should express its sympathy with, and take an active part in promoting the welfare of the National Association, and in the formation of a local branch. The details of action to be taken by the Branch, either independently as medical practitioners, or with the co-operation of the public health authority, and the best methods of furthering the objects of the National Association, will require such detailed consideration that it will, I think, be necessary to depute their consideration to a special committee.

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HYSTERECTOMY AS A CONSERVATIVE OPERATION.

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THE title of this paper is sufficient to excite anxiety in the minds of physicians practising midwifery. There need be no alarm; its object is not to advocate hysterectomy, but to demonstrate the effect which a reliable observation often exercises on the theory and practice of surgery. It is very remarkable that the health of a woman during the sexual period of life suffers less from the loss of her uterus (when it becomes necessary to carry out such a dreadful measure) than after the complete removal of the ovaries. This fact is producing extraordinary modifications in the treatment of diseases of the uterus, Fallopian tubes, and ovaries.

THE UTERUS A HOLLOW MUSCLE.

The uterus is structurally a muscle of the unstriped variety, containing, as is usual with this kind of muscle, a central space lined with mucous membrane; in this instance, it has peculiar characters, and is known as the endometrium. The hollow muscles are distinguished from the solid voluntary species by the fact that they act independently of the will, and undergo more or less rhythmic changes commonly known as dilatation and contraction, but in physiologic terms are expressed as diastole and systole. These movements are concurrent with the presence of fluids or solids within the cavities of these muscles. Thus in the œsophagus it is food or drink; in the heart and spleen, blood; in the ureter or bladder, urine, and so on. The duration of the cycle differs in all; in the heart the beat happens many times (70) each minute; in the ureter a few (5) times to the minute, whereas the bladder requires three or more hours; in the rectum as a rule the cycle lasts a day, whilst in the uterus it occupies three-fourths of a year with a long interval for rest.

In nearly all cases the contraction (systole) may be abnormally excited, and when accentuated produces pain of a peculiar character called colic. In the case of the heart, such intensification of the systole usually terminates in death. The uterus is singular among hollow muscles not only in the excessive length of its cycle or beat, but also in the fact that its epithelium is shed with great regularity once a month (menstruation) save when it is occupied by its long diastole, that is during pregnancy.

THE UTERUS THE ORGAN OF MENSTRUATION.

We have positive knowledge that the menstrual organ is the

endometrium, and that menstruation is governed in some obscure way by the ovary. The total weight of two healthy ovaries is about 12 grams, but so completely is menstruation under the domination of this tissue that a piece of ovary weighing 1 gram will, if it contain ovarian follicles and ova, maintain menstruation regularly.

The ovarian influence is not confined to the control of menstruation, but has some effect on what is known as the vasomotor functions. Certainly when the ovarian control is suddenly removed during the sexual period of life, those singular disturbances, "the flushes," annoy the patient. That this flushing is not due simply to arrest of menstruation is absolutely demonstrated by the fact that complete extirpation of the uterus arrests menstruation as thoroughly as complete removal of both ovaries, yet "conservative" hysterectomy—that is, removal of the uterus with preservation of at least one ovary—is not, so far as my observations go, followed by this disagreeable vasomotor disturbance.

It is of great importance to realise that, in order to abolish the ovarian influence over menstruation, complete removal of the ovaries is imperative. Any casual observer studying the periodical medical literature of the last ten years would imagine that quite a crowd of cases could be assembled to prove that menstruation continued after double oöphorectomy. A critical examination decides that they cannot be accepted as evidence. In the first place, the reporters offer no indication that they satisfied themselves that the patients really menstruated. In 1891 I performed double oöphorectomy in a woman aged 31, for what proved to be a gravid Fallopian tube. Six months later she assured me that she regularly menstruated. After I carefully re-examined the ovaries and satisfied myself they were completely removed, I readmitted her into the hospital. She had some internal piles, which occasionally bled; these I removed, and five years later the patient reported that she had not menstruated since.

A close examination and analysis of clinical reports also shows that continued menstruation after oöphorectomy occurs under two distinct conditions: (1) where oöphorectomy has been performed for inflammatory lesions of the tubes and ovaries; (2) where the operation has been carried out to anticipate the menopause in patients with uterine myomata.

It is instructive to find that where double ovariectomy has been performed for ovarian tumours above the size of a turkey's egg, and where the mesometrium has been well stretched, complete removal is certain. In this class post-operative amenorrhœa is complete, whereas in individuals with big, swollen, adherent uterine appendages, it is by no means easy to be quite sure that fragments of ovary are not overlooked.

A case which well illustrates this occurred in a single woman, 25 years of age, who submitted to oöphorectomy by a surgeon in 1894. During convalescence she was annoyed to find menstruation still regular, profuse, and painful. She applied to me for relief, but I refused to interfere; at last her importunity was such that I admitted her into the hospital, and satisfied myself that she really menstruated, then after consultation with my colleagues I operated upon her, and found the stump of one of the ovarian pedicles surmounted by a rounded body full of small cysts, and presenting a well-formed corpus luteum and a ligature (Fig. 1).

Fig. 1.—Stump of Fallopian tube and fragment of ovary with corpus luteum, left after a supposed complete double oöphorectomy.

A study of such cases makes it clear that gynaecologists have often been more conservative in regard to the ovaries than they imagined. Persistent menstruation after attempted double oöphorectomy is rarely of serious importance when it is carried out for the relief of chronic infective lesions; but even in these conditions I have on a few occasions been obliged subsequently to remove the uterus. When oöphorectomy is performed with the intention of producing amenorrhoea in women with uterine myomata, persistence of the periodic bleeding makes the proceeding abortive. Persistent monthly bleeding after oöphorectomy for uterine myoma is often due to incomplete removal of the ovaries. These glands are sometimes sessile on the tumour, or they may be so elongated as to resemble cords, and it is then by no means easy to distinguish between the true tissue of the ovary and its ligament. Inability to completely remove both ovaries in many examples of uterine myomata is recognised by all surgeons with experience of this operation. A more frequent cause of recurrent bleeding in these cases is due to a submucous myoma. Many records have been published in which, after complete double oöphorectomy for very large uterine myomata, great and dangerous losses of blood have continued. The uterine cavity has been artificially dilated and a submucous myoma extracted with immediate and permanent arrest of the bleeding. This is so well established that there is no necessity to adduce cases as testimony to its truth.

It is an axiom in experimental physiology that if a function persists after extirpation of an organ, it is certain that the function is independent of that particular organ. Menstruation is uninfluenced by complete removal of both Fallopian tubes. Of this I have satisfied myself on five occasions, and it persists after removal of the neck of the uterus.

When a function is abolished by extirpation of a particular organ, it is by no means certain that the function is governed by the organ extirpated. Thus the surest method of completely arresting menstruation is to thoroughly extirpate the body and fundus of the uterus, yet we know definitely that the controlling organ is the ovary. The channel by which the ovary influences menstruation is by no means obvious. Thus on three occasions in which I have found it necessary to remove a very large myoma of the fundus uteri, a portion of the uterine cavity has been left in the stump; one ovary has also been retained. Thus the fragments of the genital organs left consisted of a portion of the uterine cavity adjacent to the cervix and one ovary. The tissue connection between the uterine stump and the ovary have been completely divided, yet the patients have menstruated regularly, but not profusely.

CONSERVATIVE HYSTERECTOMY IN HÆMATOMETRA.

When it is necessary to abolish menstruation the most certain way of affecting it is to extirpate the uterus. The occasional necessity of such a severe proceeding occurs in the condition of hæmatometra due to congenital atresia of some part of the cervical canal. This defect causes no inconvenience until the advent of puberty, then cryptomenorrhoea results, and the retained blood leads to great distension of the uterus. This is treated usually by incision through the vagina and evacuation of the retained and altered blood; such proceedings have in the past been followed by unsatisfactory results. In many instances death has been caused by sepsis; in the majority of those that recovered convalescence has been slow, and a fair proportion of patients have been obliged to report themselves periodically, in order that the patency of the artificial aperture may be maintained. Even then the condition becomes so uncomfortable that double oöphorectomy has been carried out to meet the difficulty. This answered for a time, but eventually supravaginal hysterectomy became a necessity (Fenton).

In 1898 a woman, 38 years of age, came under my care with a pelvic swelling, which furnished the clinical signs of a uterine tumour; she had never menstruated, but periodically suffered great pain in the pelvis, and was often kept in bed with frequently-recurring attacks of peritonitis. The history and signs indicated that the swelling was a hæmatometra with atresia near the middle of the cervical canal. The patient wished to marry, but was very desirous to be made well. After a very deliberate consultation I decided

to remove the uterus. This was carried out, and at the operation the intestines, omentum, uterus, and tubes were found to be blended by adhesions, the distended blood-containing tubes and uterus, with the upper half of its cervix and left ovary, were removed through an abdominal incision, and the patient made an excellent recovery. On examining the uterus, the cervical canal was completely obliterated for the space of 1 cm.

There is no good reason for preserving the uterus in such a case, because there is no instance on record in which a woman unfortunate enough to have hæmatometra due to atresia of her cervix, and having run the gauntlet of casualties attendant on surgical attempts to establish and maintain a free escape for the menstrual fluid, has ever successfully conceived. Such a uterus is not only useless for procreation, but it is a source of anxiety, much suffering, and grave danger. Its extirpation at the outset is a conservative act.

The great success of this case induced me to repeat it in a woman, aged 22, who had severe and increasing dysmenorrhoea associated with a malformation in the upper segment of the vagina. The vagina ended in a pouch 3 cm. deep, and in its summit there was a narrow circular aperture which would admit a slender probe; from this opening mucus oozed. Rectal examination revealed a body of the size and shape of the uterus. The great pain the woman suffered and the interference repeated periodical rests entailed in regard to her work, induced her doctor to ask me to remove the uterus. After very careful consideration I removed the uterus by cœliotomy, and preserved the ovaries. The cervix and upper parts of the vagina formed a common reservoir containing blood-stained tenacious mucus. Recovery was uneventful; and it will be with deep interest that the future course of the case will be watched. Here one operation has restored the girl to health, whereas repeated minor gynaecological meddling would have done her no bodily good, but would have had a depressing moral effect.

FIBROSIS OF THE UTERUS.

The uterus, apart from its liability to myomata, sarcomata, carcinomata, and infective granulomata, like other hollow muscles, is prone to certain derangements in consequence of its peculiar function of housing the embryo, and the extraordinary changes dependent on menstruation; moreover the last-mentioned phenomenon may be, and often is, largely influenced by abnormal condition of the uterus.

Among these there is one to which sufficient attention has not been given; its leading features are these: The subjects are usually mothers between 35 and 45 years, complaining of menorrhagia, which in some cases lasts from fourteen to eighteen days, and at times is so profuse as to nearly bleed them to death. When the uterine canal is dilated artificially the cervix tears rather than stretches, and the endometrium is quite smooth, but the walls of the uterus are hard and resisting, and the curette makes a harsh grating sound in passing over it.

Curetting arrests the bleeding for a few months. In the first case of this kind which seriously attracted my attention, the patient had been curetted by obstetric physicians seven times. After very careful consideration, I proposed removal of the uterus, but at a consultation with very competent advisers, complete oöphorectomy was recommended and carried out. The menorrhagia continued unabated, and two years later it became absolutely necessary to perform vaginal hysterectomy. Convalescence was slow, but in the end a complete return to permanent good health and vigour was the consequence. Two other examples have come under my care in which long-continued drug treatment, varied with annual and bi-annual curettings, had failed in the hands of physicians; in each I removed the uterus by the vaginal route with success and permanent good consequences.

In these three cases the uterus was larger than normal, with thick tough walls; on section the arteries stand out, prominently exposing their thickened coats; microscopically it is seen that the muscle tissue is replaced by an abnormal growth of fibrous tissue. Judging from the history of these cases, I take the view that these fibrotic changes are secondary to infective chronic metritis, and are analogous to that curious fibroid change (syphilitic) which occurs in the muscle

tissue of the heart, and which entails consequences so serious as sudden death.

CONSERVATIVE HYSTERECTOMY AND UTERINE MYOMATA.

The history of attempts to relieve women of troublesome and dangerous myomata has an interest even surpassing that of ovariectomy; indeed the removal of a myomatous uterus ranks in some circumstances among the greatest enterprises of modern surgery.

A review of the records of such efforts is sufficient to show that with the crude and clumsy instruments and the dirty methods which surrounded surgical operations in preanæsthetic and preantiseptic periods, it was often necessary to attempt the removal of "fibroids," as they were then called, from the womb, notwithstanding the appalling consequences which such interference frequently entailed.

The page in the history of surgery which displays the results of vaginal enucleation of "fibroids" is dark indeed. The introduction of anæsthetics mended matters in so far as the patients were spared operation agony, but the results were almost as dismal. When the value of antiseptics and asepsis was recognised the improvement was wonderful, and the extraction of myomata stalked and sessile became very successful; and now that rapid dilatation with aseptic metal dilators has superseded the dangerous sponge tents, it has come about that the removal of submucous myomata with a diameter not exceeding 5 to 6 cm. is one of the safest and commonest operations performed on the uterus. When myomata greatly exceed these dimensions, though they are often sources of great danger, they do not admit of summary treatment by the vagina, and with the hope of dealing successfully with such tumours much ingenuity has been exercised in prescribing drugs, rest, warm spring, mud baths, and the employment of faith and electricity, sometimes separately, occasionally combined.

The success which followed the intraperitoneal (ligature) method of treating the pedicle of ovarian tumours had very woeful consequences when applied to the uterus; three methods of operating were the outcome of this sad failure: (1) Abdominal enucleation, (2) the clamp, *serre-nœud*, and elastic ligature; (3) oöphorectomy with the hope of anticipating the menopause.

The *serre-nœud* and oöphorectomy have, in the absence of better methods, been extensively and often satisfactorily employed. *Serre-nœud* and clamp, on account of their inconvenience and clumsiness, but more especially from their inapplicability in those cases where hysterectomy is most necessary, have been abandoned by the best and most experienced operators in favour of the intraperitoneal method, in which, as Baer satisfactorily demonstrated, it is not necessary to ligature the tissues of the neck of the uterus, but simply to secure the ovarian and the uterine vessels. This simple fact has revolutionised hysterectomy, and reduced the operation mortality to an incredulous point. In my own practice I soon found that I could perform hysterectomy with almost as few risks as attend ovariectomy, and as I had long been dissatisfied with the remote results of oöphorectomy, I was delighted to find infinitely greater good follow hysterectomy than oöphorectomy in the treatment of those uterine myomata which demanded surgery, therefore I began to abandon the removal of ovaries in these cases, and the reasons are fully set forth in my small monograph on *The Treatment of Uterine Myomata*, published just a year ago.

This is by no means all. Some years ago I began to appreciate the fact that ovaries exercised other functions than supplying eggs, and I began deliberately in selected cases to reverse the method, and removed the myomatous uterus instead of the ovaries.

I am well aware that many operators have removed the uterus and left the ovaries many times from operative convenience, but in my series of cases communicated to the Obstetrical Society, London, November, 1897, the method was deliberately carried out whenever practicable on purely conservative grounds, and with the object of abolishing oöphorectomy in the treatment of myomata, and clearly in the view that the loss of the uterus is less material to a woman's well-being than the sacrifice of her ovaries, and it matters not whether the uterus be removed through the vagina or by

celiotomy. The results of this method are good, and it is being rapidly adopted.

It appears to many, and it certainly appears to me, that the ideal method of treating myomata is enucleation with preservation, not only of the ovaries, but also of the uterus. This is worth consideration, and favourable as I am to enucleation whenever it can be safely carried out, I must point out that preservation of the uterus cannot always be regarded with favour.

The operative disadvantages of abdominal enucleation of myomata compared with hysterectomy are many. It is usually a long operation, and is accompanied by greater loss of blood, and entails a deeper degree and a longer duration of shock. When the edges of the capsule are carefully sutured and the wound closed, the risk to life from immediate bleeding is very great, and this fact alone has brought enucleation into disfavour. Although I have performed the operation many times without a death, yet the risks of enucleation are so much greater than hysterectomy that I reserve the method for exceptional cases.

In the method whereby the edges of the capsule are secured to the parietal incision the danger of hæmorrhage is lessened, but the period of convalescence is doubled, and a sinus often persists in the abdominal wall. The mortality of this mode of operating is high.

It is also important to remember that one, two, or many myomata may be successfully enucleated and one or more smaller tumours remain undetected, which may subsequently grow and necessitate hysterectomy. The number of nodules in a uterus is sometimes astonishing; for example, the uterus shown in section in Fig. 2 contained 102 myomata, varying in diameter from 1 to 20 cm.

Fig. 2.—A uterus in sagittal section. It contained 102 tumours, varying in diameter from 1 to 20 cm.

The one great advantage claimed for enucleation is that it spares the uterus. Before this is proved to be an advantage we really need some clearly-proved cases in which women who have had submucous myomata enucleated have subsequently conceived. At present I have been unable to find such a record.

Abdominal myomectomy is a very good operation. I have performed it successfully many times without a death. It has on several occasions been performed on the gravid uterus without disturbing pregnancy. I have had the satisfaction of removing such a tumour during the puerperium, and two years later the patient reconceived and became the happy mother of a girl.

Looking at the matter broadly, it is the rule that when the uterus of a parous woman begins to grow myomata she usually

ceases to conceive. It is too true that myomatous uteri do become gravid, but in many cases it places the life of the woman in the gravest peril.

It is clearly established that myomata arise in the uterus during the sexual period of life. The subjoined table of 100 consecutive cases, in which I operated and the nature of the tumours was clearly established, shows the age-distribution:

Under 30 ...	...	...	5
30 to 39 ...	...	...	42
40 to 49 ...	...	...	44
50 to 60 ...	...	...	9
Total ..	...	...	100

Of this number, 36 were single women and 64 married; of the latter, 17 were mothers; one of the women had a family of eight children. It is also important to remember that in 96 of the patients menstruation was unabated at the date of operation, indicating that the ovaries were functional and therefore worth preserving.

In all cases in which I have performed conservative hysterectomy, that is, removal of the uterus with preservation of one or both ovaries, these glands are always very carefully examined to ensure that they are, as far as can be determined in the course of the operation, free from disease. Tubal distension is at once a bar to the method. Often an ovary is occupied by a cyst, and not infrequently is converted into a dermoid; this at once determines which ovary should be preserved. All who have performed oöphorectomy know well that one ovary usually has a longer pedicle than its fellow; this allows it to be more easily manipulated, and renders more convenient for removal. Hence, if both ovaries are healthy, and the operation is facilitated by its removal, I do not hesitate to take it away; thus the patient does not incur any additional risks by indiscreet attempts to save both glands.

It is no part of my plan to-night to discuss the treatment of uterine myomata. On this subject the most diverse opinions may be and are entertained, but what I do wish to emphasise is the great importance of bearing in mind when advising operative interference, in those cases which demand the skill and care of the surgeon, the great influence of the ovaries. A woman suffers no remote inconvenience from the loss of her womb, and the principles of conservative surgery are more truly observed by sacrificing it in preference to removing both ovaries.

CONCLUSIONS.

A careful consideration of all the facts makes it clear that the uterus can only be considered as a receptacle or reservoir wherein oöperms may develop. It is secondary, and certainly subservient, to the ovaries. It is not a vital organ, and its removal entails two physiologic sequelæ in women during the sexual period of life, namely, amenorrhœa and sterility.

It is necessary to discuss the uterus in this way because of the notion or superstition that there is something which distinguishes the uterus from other viscera, and that its removal is followed by mental aberration and other serious nervous disturbances. All this is now known to be mythical, but a careful consideration of the physiology of the ovary in the light of increased knowledge, mainly the outcome of surgical enterprise, leads us to a better appreciation of ovarian dominance, and its tyrannical influence over the life and well-being of women.

REMARKS UPON THE OPERATIVE TREATMENT OF DISTENDED SMALL INTESTINE IN ACUTE OBSTRUCTION AND IN ACUTE PERITONITIS,

WITH ILLUSTRATIVE CASES.

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MANY as are the points which have to be considered in the operative treatment of acute intestinal obstruction, those connected with the distended gut are, in importance, secondary only to the removal of the exciting cause. To remove the cause, and yet to neglect the over-distended and

loaded intestine, is frequently to lose a life that might have been saved.

What the circumstances are that finally cause paralysis of the bowel, or what the degree of this paralysis beyond which recovery is not possible, one cannot say. A primary factor in the production of bowel distension, not dependent upon peritonitis, is the damming back of the contents. This, however, if an early factor, can hardly be considered the most important, because, sooner or later, relief of the engorgement may be brought about by vomiting.

It is more than likely that muscular exhaustion and faecal poisoning so derange the function of the intestinal walls that they eventually are unable to resist the distending influences of gas and intestinal secretion. The higher up the bowel the seat of obstruction, the sooner the proximal segment distends and loses its power to retract. This is what might reasonably be expected, because the efforts on the part of the muscular parietes to overcome the obstruction and drive on the contents are practically continuous, and lose that intermittency and opportunity of rest to some extent afforded when the obstruction is nearer or actually in the large bowel. That there is probably some toxic influence paralysing possibly both the muscle of the bowel wall and its local nerve supply is supported by the unquestionable evidence of general toxæmia met with in some cases. It has occurred in my own practice to lose a patient in whom operation had relieved all obstructive symptoms, and whose general conditions suggested nothing but that of faecal toxæmia. What the poison produced within the intestinal canal may be is not known, but from the quantity of gas generated in many cases as well as the excessive secretion, it seems in the highest degree probable that certain abnormal fermentative and chemical changes do take place.

It is probable, moreover, that the blood vessels and the elastic tissue in the intestinal walls also suffer. The former dilate and produce the familiar livid appearance of the bowel wall, while the latter loses its power of recoil after it has been stretched beyond a certain limit.

It is evident from these considerations that if any value is to be attached to them, all operative measures for the relief of obstruction involving distension of the small gut must have in view:

1. The prevention of any increase in the distension of the bowel.
2. The removal, as completely as possible, of the intestinal contents.

There is no doubt that the bowel when within the abdomen is to a considerable extent supported by the abdominal parietes, and its distension thereby limited; and that its limits are the sooner reached the lower the seat of the obstruction. For example, if the obstruction be at the caecal end of the ileum, there is a long extent of the bowel to be dilated and the coils as they distend support each other and limit the dilatation. When, on the other hand, the obstruction is nearest the upper end of the jejunum there is less limiting resistance offered by the lower collapsed coils, and so more room is afforded for the distension of the proximal segment. The marked effect produced by this intra-abdominal pressure I observed in some of my earlier cases, when it was my custom immediately on opening the abdominal cavity to extraventrate the distended coils and allow them to lie in a specially shaped hot-water receiver while I sought for the cause of obstruction. I was impressed with the increased size which the exposed and unsupported coils rapidly assumed. The question then arose, in view of the evils connected with additional distension, whether it would not be wiser to reverse the order of procedure and empty the bowels before attempting to find the cause of the obstruction. This course I now always pursue, as, I believe, with the best results. After opening the abdominal cavity, the distended coil that presents is at once withdrawn sufficiently to admit of an incision being made in its long axis, so as to allow the contents to escape without risk of contaminating the peritoneal cavity. As they flow out and the bowel wall collapses a greater extent of gut is withdrawn. This part of the operation is taken charge of by assistants, while the operator is left free to seek for the obstruction.

If, as has been stated, there is truth in the assumption that the bowel contains products capable of producing a condition of toxæmia, then we may reasonably suppose that the risks of