Original Articles.

ULTIMATE RESULTS OF SOME GYNECOLOGICAL OPERATIONS AT THE MASSACHUSETTS GENERAL HOSPITAL.

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DURING my service as surgical house officer at the Massachusetts General Hospital I had occasion to hear several adverse criticisms from some members of the medical staff in regard to the results of gynecological operations which had been performed there. These criticisms were inspired by the patients who returned to the outpatient department for treatment after operation. With the idea of reaching some definite conclusion on the subject, I have, during the past year and a half, obtained the after-history of many of the cases who had undergone operations of this class during the past five years and have had an opportunity of examining a limited number of them. Each member of the surgical staff gave me permission to use his cases, so that I have had all the cases in the three surgical services at my disposal.

The conditions included in this investigation are limited to lacerations of the cervix and vaginal outlet, displacements of the uterus, endometritis and uterine fibroids. A few cases of cancer of the uterus were also traced, but only those on whom radical operation was performed, those not having been followed which were in too advanced a stage to allow of anything but palliative treatment. Under the other heads, every case was written to which had been discharged from the hospital in good condition. In all, about 450 letters have been sent out, the patients being asked to briefly describe any trouble they may have had since the operation. About 250 responded, but in several cases the answer was too vague to give any idea as to the real condition. All the patients previously written to were asked to come to the hospital on some day during a period of ten days last summer. Ninety-five patients came and most of them were examined. The examination was unsatisfactory and valueless in many of the cases who had had lacerations repaired, owing to their having been confined since operation, but in most of the other cases a very satisfactory idea of the anatomical as well as the symptomatic result was obtained.

Thus altogether there are 58 cases in whom both the anatomical and symptomatic results have been recorded and 159 in whom only the symptomatic result has been obtained. In these cases the data have been obtained from the patient's written statement and although a more accurate and perhaps a more favorable idea of the result would have been obtained from a personal interview, it must be granted that an operation has failed in its purpose if it has not, in the opinion of the patient, relieved the symptoms for the relief of which it was performed, even if the anatomical result be perfect.

There are 53 cases in whom lacerations of the perineum or cervix or both were repaired. Twenty-three of these have been examined, but in 10, confinement had occurred since operation, so that the examination could not give an accurate idea of the result of the operation. These 10 cases will be spoken of among the others in whom only the symptomatic result was obtained.

Of the 13 cases in whom confinement has not occurred since operation, 6 have had satisfactory anatomical results, 5 have had only partially satisfactory results and 2 have had bad results.

Of the 6 cases who have had good anatomical results, 5 have been relieved of symptoms, while 1, in whom the perineum only was repaired but in whom there was also retroversion, has been somewhat helped but still has very annoying backache.

Of the 5 cases in whom I have classed the anatomical result as being only partially satisfactory, the cervix only was repaired in one and the cervix and perineum in the other 4. Of these 4 cases, 1 has been entirely relieved of symptoms, 1 has been partially relieved, while 2 have had no relief whatever. In one of these 2 last-mentioned cases there was endometritis and retroversion and the uterus was curetted a week before the lacerations were repaired. The uterus is now retroverted and there is a very incomplete perineum. The patient complains of dysmenorrhea and constipation and says the uterus comes down every evening. She considers herself no better than before operation. In the other case, the uterus was also curetted. There is a good cervix, but the perineum is poor. The uterus is in normal position. The patient complains of pain in the back and right side of the pelvis, which she says is just as bad as before operation.

The case in whom the cervix only was repaired says that before operation she never had any trouble with her catamenia. Since then, however, she has had a feeling of pressure in the head, often accompanied by nausea and palpitation for three or four days before the period. These symptoms pass off with the appearance of the flow. The uterus is enlarged and tender and there is much erosion of the cervix, which, however, is intact. I have classified this case as partially satisfactory anatomically, because although the laceration of the cervix has been successfully repaired it seems probable from the symptoms that the cervical canal was too tightly closed.

In the 2 cases of bad result, both cervix and perineum were repaired. One of these was seen two years after operation. The perineum was torn to the sphincter and the cervix was occupied by a hard nodular growth, the size of an English walnut, suggesting fibroid. In the other the operation was entirely unsuccessful and the lacerations were again repaired last April, at the City Hospital, five years after the first operation. Neither patient received any relief of symptoms.

Thus in the 6 cases of good anatomical result, 5 have been cured of symptoms, while 1 has been partially relieved. Of the 5 cases of partial anatomical success, 1 has been cured, 1 has been partially relieved and 3 have had no relief. Of the 2 cases of anatomical failure, neither have received any relief of symptoms.

Beside these 13 cases, there are 40 cases in whom the cervix or perineum or both were repaired, and who have been heard from by letter. Combining these two groups, there are 53 cases

in whom the symptomatic result is known. Fourteen or 26.4% have been entirely relieved, 25 or 47.2% have been partially relieved and 14 or 26.4% have had no relief.

Of these last 14 cases, 5 have been examined and have already been spoken of. Of the remaining 9 cases, in 1 a recto-vaginal fistula resulted from the operation and the discomfort from this has overshadowed any benefit which might otherwise have been felt. In another case there was superficial sepsis in the perineum during convalescence. This patient says she has been under a doctor's care ever since and is not at all satisfied with the result of the operation. The other 7 cases simply state that they have been no better since operation and a few say they are not so well as before.

There are 5 cases in whom cystocele was operated on besides other lacerations. Four of these have been heard from by letter. Two have had entire relief of symptoms and 2 have received no benefit. The fifth case, in whom a rectocele was also repaired, was seen three years after operation. There was a well-marked cystocele but the rectocele had been entirely cured. The patient had been perfectly well for a year and a half after operation, but had then caught a severe cold, immediately following which the symptoms which were present before operation, bearing-down pain and discomfort in walking, returned and have continued ever since, so that she now considers herself no better than before operation. In spite of the temporary relief in this case, the ultimate result cannot be said to be satisfactory, so that in these 5 cases of cystocele, the result has been satisfactory in only 2 or 40%.

There are 22 cases in whom endometritis was present and in whom only dilatation and curettage was done. In 17 of these endometritis was the only abnormality, while in the 5 remaining cases other lesions were also present.

Of the 17 cases of uncomplicated endometritis, 9 (53%) have had complete relief of symptoms. In 4 (23.5%) there has been partial or temporary relief, while the remaining 4 (23.5%) have received no relief.

Of the 4 cases which I have placed under the head of partial relief, the first, on whom the operation was performed for the relief of leucorrhea, menorrhagia and dysmenorrhea, the dysmenorrhea has not been relieved, but the leucorrhea is very much better and the periods are now normal in quantity. The second case, who was fifty-three years old at the time of operation, complained of menorrhagia. There was, besides endometritis, prolapse of the uterus, cystocele and lacerated perineum. She has had no catamenia since the operation but has occasional "unpleasant discharges." She wears a pessary and considers herself no better than before operation. The third case, forty-four years old, had hyperplastic endometritis. She says she was helped for a few months but that since then she has been only slightly better than before operation. The fourth case, twenty years old and unmarried, had endometritis. She says she was helped for a short time after operation but is poorly now, suffering from light-headedness and fainting sensation and constant leucorrhea.

Of the 4 cases who have had no relief, in 1 the

pathological report on the uterine mucosa was glandular hyperplasia. She says she had a severe hemorrhage on the way home and has had a slight but constant bloody flow ever since. She now considers herself worse than before operation. The second case was operated upon for backache, irregular catamenia and constant leucorrhea. Over a year after the operation she was in the same condition as before. The third case, who had uncomplicated endometritis, wrote nearly two years after operation that she had been no better. The fourth case complained of backache, headache and painful micturition. A caruncle of the urethra was cauterized after the uterus had been curetted. Three and a half years later she reported by letter that there was no relief of symptoms, and five years after operation she was seen personally by the writer. She still complained of the symptoms for which she had been operated on. Examination revealed nothing, owing to the patient's extreme nervousness and sensitiveness. No trace of a caruncle, however, could be found.

Of the 5 cases in whom endometritis was not the only abnormality, retroversion was present in all and in 1 there was also a lacerated cervix. One of these says she has had perfect health since operation, 3 have been helped but not entirely relieved and 1 says she is no better than before operation.

Of the 4 cases who have not had entire relief 1 was interviewed four years after operation. She says she has had 4 miscarriages since the operation, but in spite of that feels better than before she came to the hospital. The uterus is in retroversion but there is no endometritis. The second case, thirty-six years old, was thought to be in very early pregnancy at the time of operation. She says she did not regain her strength after leaving the hospital and was curetted again at Lynn one and a half years later on account of a miscarriage. Since then her health has been very good. When seen last summer, she had been having leucorrhea for three months. The uterus was retroverted and there was marked endometritis. The third case was operated on when forty years old. Five years later, when seen, she said she had been fairly well since the operation but not very strong. One week before I saw her she had had an abortion performed. The uterus was large and soft but in good position and there were extensive lacerations. The fourth case, who was operated on three years ago and who had had no relief of symptoms, presented when seen last summer a well-marked splanchnoptosis. The uterus, which was retroverted at the time of operation, is now in good position, but the kidneys and liver descend abnormally on inspiration and in the upright position, both kidneys descend to the crests of the ilia and the lower border of the liver is just below the umbilicus, the stomach also descending to well below the umbilicus. No mention of this condition was made in the records but it is probable that it was present at the time of operation and is amply sufficient to account for the lack of relief obtained by curetting the uterus. She has been fitted with an abdominal supporter, but I have not been able to find out whether or not it has given any relief.

Thus of these 22 cases in whom curettage for endometritis was done, 10 have been cured, 7 have been partially relieved and 5 have received no benefit.

There are 62 cases of retroversion. Forty-six of these were treated by ventral fixation alone,

6 were treated by ventral fixation and repair of lacerations, 4 were treated by curettage only and 6 by Alexander's operation.

Twenty-two of the 46 cases treated by ventral fixation alone have been examined. Of these 22 cases, 17 have had excellent anatomical results, 1 has had a partially successful result and in 4 the retroversion has recurred. Of the 17 cases who have had excellent anatomical results, only 4 have been entirely relieved of symptoms, while 10 have been partially relieved and 3 have had no relief. The one case in whom the anatomical result has been partially successful has had partial relief of symptoms. Of the 4 cases in whom the operation was anatomically unsuccessful, 3 have had no relief of symptoms, while 1 says she has been perfectly well since operation. Thus of 17 cases in whom retroversion has been successfully corrected, only 23.5% have been cured.

Of the 10 cases of excellent anatomical result who have been placed under the head of partial symptomatic relief, the first case, thirty-seven years old, in whom the uterus was in retroversion and adherent to the rectum and the omentum adherent to the left ovary, was seen one year after operation. She complained of weakness after the day's work, with some backache and severe headache during the catamenia. She thought she had had a miscarriage at three months six months after operation. The uterus was in good position though perhaps rather far forward, and the cicatrix was firm. The second case, thirty-four years old, was seen three and a half years after operation. She still had a dragging backache which, however, was less than before operation. She also complained of pain in the right side after standing, which was relieved on lying down. She said she could do very little. Examination showed the uterus in good position but there was well-marked rectocele and cystocele. The third case, fifty-three years old, says her general health is improved but she still has more or less backache and occasional twinges of pain in the left side. Local treatment at the Massachusetts General Hospital a year ago gave her no relief. The catamenia had ceased six months before operation. The uterus is in good position and nothing was found to account for the symptoms. The fourth case, twenty years old and unmarried, says she is better than before operation but still complains of backache and a steady pain in the front of the abdomen. Dysmenorrhea is less severe than before operation but she has leucorrhea for a few days before the periods. The uterus is in normal position but there is a slight thickening of the left tube, which may account for the symptoms. The fifth case, twenty-eight years old and married, had had the left ovary removed six years before the uterus was suspended. She is much better than before operation but still has more or less pain in the right side. The uterus is in normal position. She is reported by her physician to be moderately hysterical and introspective, a type of patient in whom complete cure is hardly to be hoped for. The sixth case says she was well for six months, when after hard work she had steady abdominal pain for one week and since then has had the same pain occasionally. She now complains of getting tired very easily. The uterus is in good position but there is a slight cystocele. In the seventh case, thirty-nine and married, tucks had previously been taken in the round ligament without correcting the retroversion. One year later the uterus was suspended and a ventral hernia resulting from the former operation repaired. The hernia recurred in six weeks and

nine months later it was again repaired, the uterus being found suspended by a fibrous cord about three inches long. The hernia had not recurred when I saw her two and a half years after the last operation and the uterus was in good position. She said she was perfectly well except for a burning sensation in the wound after working. In the eighth case, twenty-seven years old and married, a cystic ovary was removed at the time the uterus was suspended. She has been much better since operation but still has some backache. The uterus is in good position but there is a hard insensitive mass the size of an egg low down on the right side of the uterus which seems like a fibroid and which is presumably the cause of the persistence of the backache. The ninth case, thirty-three years old, complained chiefly of dysmenorrhea before operation. This has not been at all relieved but she says she has less backache between the periods than before. The uterus is in good position but there is a fibroid the size of an English walnut on the posterior surface of the uterus and slight thickening and tenderness of the left tube. The tenth case, fifty-five years old, wrote three years after operation that she felt much better for the operation but still had to wear a support. Examination one year later showed the uterus to be in excellent position.

Of the 3 cases who have had successful anatomical results but who have received no relief of symptoms, the first, thirty-four years old and unmarried, was operated on three and a half years ago. She says she has never been as strong since, as before, the operation. The catamenia is regular but scant and as painful as before, and she feels that she has not been helped. The second case, thirty years old and married, says that the backache, leucorrhea, painful micturition and frequent headaches, of which she complained before operation, have not been relieved at all. The third case, thirty-three years old and married, complained of constant pain in the left side and leucorrhea. The uterus was retroflexed and adherent. The pain has been just as bad since operation. Five months ago she bore twins, and she is now very nervous and tired. There is a deep stellate laceration of the cervix and the perineum is badly torn but the uterus is in good position.

The one case who has been classed as showing a partially successful anatomical result was sixty-two years old and married. She is much better than before operation but still complains of backache, frequent micturition and of feeling something come down after hard work. There is a well-developed cystocele and some prolapse of the uterus, which is, however, suspended to the anterior abdominal wall.

Of the 4 cases in whom the retroversion has returned, the first, forty-one years old, says she has been perfectly well except for occasional attacks of pain and swelling in the left leg in which there was phlebitis during convalescence. The uterus is retroverted and slightly enlarged but freely movable. The second case received no relief of symptoms and was told at the hospital, six months after the operation, that she ought to have the operation repeated. The uterus is retroverted. The third case, twenty-two years old and unmarried, had an anteverted and retroverted uterus. The uterus was straightened with a probe and curetted, and a week later was suspended to the anterior abdominal wall. She had had no relief either of dysmenorrhea or of backache. The uterus is now in the same condition as before operation. The fourth case, twenty-seven years old and unmarried, complained chiefly of dysmenorrhea before operation. There has been no relief of symptoms and she now finds partial relief by wearing a pessary.

There remain 24 cases of retroversion in whom ventral fixation only was done and in whom only the symptomatic result has been obtained. Thirteen or 54.16% of these have been entirely relieved of symptoms, 2 or 8.33% have been partially relieved and 9 or 37.5% have received no benefit.

This result is in striking contrast to that among the cases who returned to the hospital for examination, for of the 21 cases in this latter category, only 23.8% have been cured of symptoms, while in the 24 cases whose subsequent history has been obtained by letter, 54.16% say they have been entirely relieved of symptoms. This discrepancy can probably be accounted for by the assumption that, as a rule, those cases who have been cured did not care to take the trouble to come to the hospital, while those who have not been entirely relieved came in the hope of receiving some further benefit.

If the statements of those who were seen and questioned and the written statements of those who replied by letter be given equal weight, it is found that in this series of 46 cases of ventral fixation for retroversion, 18 or 39.14% have been cured, 13 or 28.26% have been partially relieved and 15 or 32.6% have received no benefit.

Of the 6 cases in whom lacerations were repaired and the uterus suspended, 3 have been entirely relieved of symptoms, 2 have been partially relieved and 1 says she has had very little relief.

Only one of these cases was examined. She is forty-eight years old. The uterus was suspended and the perineum repaired. She still has some backache but feels much better than before operation. The uterus is in good position but somewhat enlarged and there is a deep bilateral laceration of the cervix. There is a good perineum. The laceration of the cervix in this case is probably the cause of her symptoms.

Four cases were treated by curettage. One of these has been perfectly well, 2 have been partially relieved and 1 has received no relief.

Of the 3 cases who have not been cured, in the first, twenty-three years old and unmarried, adhesions of the uterus were stretched while under ether. She has been partially relieved of the dysmenorrhea for which the operation was performed. In the second case, a fistula in ano was curetted at the same time. She writes that the fistula has been cured but that she has had more or less womb trouble ever since. A second letter asking for more details has not been answered. The third case died of pneumonia six months after operation. The husband writes that she did not seem to have been helped by the operation.

Of the 6 cases who were treated by Alexander's operation, only one was examined. In this case the chief symptom before operation was menorrhagia. This became worse after operation and the uterus was curetted at the hospital six months later, the uterus then being recorded as in retroversion. Since then she has grown stronger, but when I saw her four years later she said the pain was just as bad as before and that she had had pain in the left side ever

since the operation. The uterus was anterior but enlarged and pulled to the right side of the pelvis and there was some tenderness on the left side.

Two cases returned to the hospital, sixteen months and two and a half years later, respectively, with return of the retroversion. Both had ventral fixation performed with an excellent result in both. The third case writes that she felt a little better for a year after operation but that since then she has had more pain than before.

The fourth case says the operation was successful except that she cannot carry a child more than five months, she having had two miscarriages since operation. The fifth case says she has been troubled with soreness in the right side since operation, and has severe pain unless she wears a support. She probably has a hernia.

Thus symptomatic results in these 6 cases have been good in only 1 and very unsatisfactory in 5. In the one case which was examined, the original malposition of the uterus has only been changed to another form.

Seven cases of prolapse of the uterus have been traced.

Three of these were treated by ventral fixation and repair of lacerations. Of these 3 cases, 2 have been examined. One of these had a perfect anatomical result and had been perfectly well for over two years since the operation. The other was seen three years after operation, at which a cystocele and rectocele were repaired and the uterus suspended. There is a fairly firm perineum, but the cystocele has recurred and the cervix protrudes from the vagina, so that the patient has to wear a napkin. In spite of this, however, she considers herself very well except for some dragging pain on micturition. The other case in whom the perineum was repaired and the uterus suspended was heard from two years after operation by letter, in which she stated that she was very little better than before operation.

In the other 4 cases, lacerations were repaired, the uterus not being suspended. Three have been examined and in all of them the prolapse had recurred, 1 has felt somewhat better since the operation, while the other 2 have received no relief. The other case, who was heard from by letter, says she is in very good health and has trouble with the uterus only when lifting heavy weights. Thus in 3 cases of prolapse of the uterus, repair of lacerations and suspension of the uterus has been entirely successful in 1, and has given only slight relief in 2, while in 4 cases repair of laceration without suspension has given nearly complete relief in 1, slight relief in 1 and has entirely failed in 2.

There are 18 cases of procidentia. Nine of these were treated by ventral fixation and repair of lacerations. Of these 9 cases, 4 were examined and in all but one the procidentia had returned soon after operation. In this one case the uterus was suspended and the perineum and a cystocele were repaired. The uterus is now

adherent to the abdominal wall, but the cervix is just within the vaginal outlet and there is a large cystocele. The patient has not been relieved of symptoms, still complaining of pain and a dragging sensation in the pelvis.

The other 5 cases have been heard from by letter. One says she has "got along wonderfully well," which probably means that the uterus has been restored to its normal position; 3 say that they are better than before operation, but still feel as though the uterus might descend if they are not very careful; and in the fifth case the trouble became as bad as ever a few weeks after operation.

Thus in 9 cases of procidentia treated by ventral fixation and repair of laceration, there has been entire symptomatic relief in only 1, and partial relief in 3, while of the remaining 5 cases there has been no relief, the procidentia having recurred in 4 of them.

Four cases were treated by ventral fixation alone. None of these have been examined. Three say they are just as bad as before operation, while one has been perfectly well and had a successful confinement two years after operation.

Two cases were treated by Alexander's operation and repair of the vagina. In both the procidentia has recurred and neither has been helped in any way. One has a double inguinal hernia, doubtless as a result of the operation.

In one case the perineum only was repaired. This case wrote over two years after operation that she was somewhat better but had to insert a sponge to keep the uterus from protruding when on her feet.

In two cases vaginal hysterectomy was performed and the vaginal outlet repaired. One wrote four years later that she then had the same trouble as before, while the other, three years after operation wrote that the "cushion of the bladder" came down somewhat and that she also had leucorrhea but that otherwise she felt very well.

In summing up the results in these 18 cases of procidentia, it is found that of 9 cases treated by ventral fixation and repair of lacerations, only 1 has been cured, 4 have been relieved to some extent and in 4 the procidentia has recurred. Of 4 cases of ventral fixation alone, 1 has been entirely relieved, while in 3 the condition has recurred. Repair of the perineum in 1 case has given only partial relief, and Alexander's operation has given no relief whatever in 2 cases. Vaginal hysterectomy with repair of the vaginal outlet has given no relief in 1 case and partial relief in the other. Thus in these 18 cases of procidentia only 2 (11.1%) have been cured, 6 (33.3%) have been partially relieved and 10 (55.6%) have been in no way benefited by the operation.

Fifty cases of uterine fibroid have been followed. In 42 of these supravaginal hysterectomy was performed, in 5 myomectomy and 3 were discharged without operation.

Twelve of the cases of hysterectomy were examined. Eight of these have had perfect anatomical results and all but one say they

have been perfectly well. This one case was perfectly well and strong for three years after operation except for mild symptoms of the menopause, but for the last two years she has had pain in the right side of the pelvis, which was the location of the pain before operation. Examination showed nothing to account for it.

Of the other 4 cases who were examined, 2 have endometritis and vaginitis, which according to their statements has been present since operation. Of the other 2 cases, 1 has a hernia in the scar and there is a hard tumor, which feels like a fibroid, about the size of an English walnut, in the left side of the pelvis. She feels, however, perfectly well, complaining only of occasional headache. In the other, there is a smooth, rounded bony tumor on the inner surface of the pubes on the left side which is entirely insensitive to touch but is the seat of occasional sharp twinges of pain. A fibrous band extends from the tumor to the cervix, which is, however, perfectly free except for this. The patient says she first felt the tumor six months after operation and that it has been slowly growing during the four and a half years which have elapsed since then. She feels otherwise perfectly well.

In discussing the symptomatic results of these cases of hysterectomy for fibroid, I shall leave out of consideration the symptoms arising from artificial menopause, as these will be considered separately.

Of the 42 cases of this series, including those which have been examined, 33 (77.5%) have been perfectly well since operation and the other 9 cases have had more or less trouble. Five of these 9 cases have been described in speaking of the anatomical results. Of the other 4 cases, 1 had a hernia in the scar and vaginal inflammation and piles which had not been helped by local treatment at her home. Last April the hernia was repaired and the hemorrhoids cauterized at the Massachusetts General Hospital, with what result I have been unable to ascertain. The remaining 3 cases have complained of general weakness and nervousness but have had no local symptoms referable to the operation. In view of the fact that both ovaries were removed in these 3 cases, it is probable that the nervous symptoms are due to the menopause, and that they are, therefore, only temporary. Hence the results may be considered satisfactory. Thus the total of cases in whom the result has been satisfactory is swelled to 36 or 85.7%.

In regard to the effect of leaving one or both ovaries in a hysterectomy for fibroid, in avoiding the symptoms of the artificial menopause, data have been obtained in only 28 cases, because many patients have not given any information as to nervous symptoms following operation and have not answered later letters containing specific questions and because in the records of 7 cases I can find no clue to show what was done with the ovaries.

Of these 28 cases, in 23 both ovaries were removed. Twenty-one of these 23 cases have had moderate or slight symptoms, such as flush-

ing, giddiness, chills or palpitation. In the other 2 cases there have been no symptoms. One of these was fifty-four years old and had flowed only once in the six months before operation, so that it is probable that the climacteric was well established when the ovaries were removed. The other case was thirty-seven years old. There was a large fibroid extending to above the umbilicus. Her periods had been regular and normal up to three months before operation. She skipped the next period and since the last one, which came at its regular time, she had been flowing constantly. She writes, three years after operation, that she has been perfectly well and has had no nervous symptoms whatever. It would seem probable from this that the irregularity in the catamenia before operation was due to the menopause rather than to the presence of the fibroid.

Of the 5 cases in whom one or both ovaries were left, 3 have had typical symptoms of the climacteric. These cases were forty-two, forty-three and forty-six years old. All three had had menstrual irregularity before operation, and this in conjunction with their ages leaves little doubt that the menopause was beginning at the time the ovaries were removed. Whether or not the nervous symptoms were less severe than they would have been if both ovaries had been removed cannot, of course, be known. The fourth case was forty years old, and the catamenia was normal up to the time of operation. One ovary was left. She writes that she has had no typical symptoms of the menopause but has had chills accompanied by malaise and headache every month for three years. There has been no flow, but she has associated these symptoms with the catamenia on account of their regularity. She says she has not been so strong or "ambitious" since the operation. It is hard to see how any good has been done in this case by leaving an ovary. The fifth case, forty-five years old at operation, had flowed for ten days every two weeks for the previous ten years. There was a fibroid the size of a large egg and supravaginal hysterectomy was done, both ovaries being left. She writes, three years after operation, that she has been perfectly well and has flowed regularly, though much less profusely, ever since. She has had no nervous symptoms whatever. This, then, is the only case in which distinct good has been attained by avoiding castration, and the result is the more interesting as the patient was at the age when the menopause was to be expected.

These statistics, although too few to afford ground for any comprehensive conclusion, are reported because they seem to show pretty definitely, in spite of the exception just described, that in patients over forty years of age little benefit is to be derived from leaving an ovary and also because they show that sometimes in cases considerably younger than the usual age at which the menopause is to be expected, no symptoms follow complete castration.

Of the 5 cases of fibroid on whom myomec-

tomy was done, 4 have been perfectly well during periods varying from two to six years after operation. The fifth case writes that she has not been in good health and suffers from back-ache. She says that her doctor thinks there may be another tumor growing.

Of the 3 cases who were not operated on, one, aged thirty-nine, had a fibroid the size of a cocoanut. It was not removed on account of the absence of symptoms and the history of Graves' disease. She wrote about four years after leaving the hospital that she felt poorly for eight months after leaving the hospital but that since then she has been in good health. She thinks the tumor is growing very slowly. It would be of interest to know whether the menopause has occurred, as this might account for the improvement in her condition, but she makes no mention of her catamenia and a second letter has not been answered.

The second case, forty-three years old, had a large fibroid. Hysterectomy was advised but refused. Three years later the patient reported that she felt much better. Up to a year before she had had a constant bloody vaginal discharge, but since then, the periods have been regular and the flow profuse but lasting only five days. There is now a constant watery discharge but without blood. There are no symptoms except occasional pain in the region of the left ovary. The fibroid now extends nearly to the umbilicus. It is freely movable and without tenderness. The patient says she does not think it has increased in size during the last three years.

The third case is now fifty-three years old. She was at the hospital four years ago with a large fibroid, twice the size of a child's head and adherent behind and laterally. The patient declined operation on account of the lack of symptoms. When seen last summer she said she had had no trouble since she left the hospital. Menstruation had ceased over two years ago and she had had no vaginal discharge since then until the last month, when she had noticed slight leucorrhea. There was a large fibroid reaching nearly to the umbilicus which seemed to be adherent. She said she had been enjoying better health since the menstruation ceased than for the last twenty years. Evidently, in this case, the improvement in the general condition has been due to the menopause.

Thus in none of these 3 cases has any ill effect resulted from not having removed the fibroid. They were all near the age of the menopause, and we know this has occurred in one case. In the other two it is probably about to occur.

Twelve cases of cancer of the cervix or body of the uterus on whom radical operation was performed and who left the hospital in good condition have been traced. Five of these cases have been examined, 4 have been perfectly well and show no sign of recurrence two and a half, four and a half, five and five and a half years after operation, respectively. The fifth case, three and a half years after operation, shows a slight indefinite thickening on the left side of the

pelvis, entirely free from the vault of the vagina, which shows a perfectly normal scar. There are no symptoms whatever. It is impossible to say whether this thickening is recurrence or not.

In 5 cases, recurrence and death occurred within three years. Of the other 2 cases, 1, operated on a little over two years ago, is perfectly well and has no pain nor vaginal discharge. The other, five years after operation, said she was perfectly well and had no vaginal discharge until two months before I saw her, when she had had a slight show after lifting a heavy weight. She refused examination, without which it is of course impossible to know whether or not this slight flowing was due to beginning recurrence.

Thus of 12 cases of radical operation for cancer, in 5 recurrence and death occurred within three years and in 3 cases there was no sign of recurrence four and a half years or more after operation. Of the other 4 cases, the time since operation is too short to give any idea as to the probable outcome in 2 and the evidence is inconclusive in the other 2. It may, therefore, be said that cure has been obtained in 3 cases, that the operation has failed in 5 and that the result is still uncertain in 4.

In summing up the results of this investigation, the following conclusions have been reached:

The anatomical results of repair of lacerations of the cervix or perineum, or both, in 13 cases have been satisfactory in 46%, partially satisfactory in 38.5% and entirely unsatisfactory in 15.5%. The symptomatic result in 53 cases has been entirely satisfactory in 26.4% and partially satisfactory in 47.2%, leaving 26.4% in whom there has been no relief. Of 5 cases in

whom cystocele was repaired, there has been a satisfactory symptomatic result in only 2 or 40%.

Curettage for endometritis in 22 cases has given complete symptomatic relief in 45.5% and partial relief in 31.8%, the remaining 22.7% having received no benefit.

Ventral fixation for retroversion in 22 cases has been anatomically successful in 77.3%, partially successful in 4.6%, and has failed to cure the displacement in 18.1%. In spite of this satisfactory percentage of anatomical cure, only 23.5% of these 22 cases have received satisfactory symptomatic relief.

The symptomatic results in 46 cases of ventral fixation, including the above, have been entirely satisfactory in 39.1%, partially satisfactory in 28.3% and unsatisfactory in 32.6%.

Of 6 cases of ventral fixation with repair of lacerations, 50% have been cured, 33% have received partial relief and 17% have not been helped.

Of 6 cases of Alexander's operation only 16% have been cured, while the remaining 84% have received no benefit.

Of 4 cases treated by curettage alone, 25% have been cured, 50% have been partially relieved and 25% have not been helped.

Taking all these cases together we find that in 63 cases of retroversion, the symptomatic relief has been complete in 37% and partial in 27.5%, while in 35.5% there has been no relief.

Of 7 cases of prolapse, in 3 ventral fixation and repair of laceration was done, giving entire symptomatic relief in 1, partial relief in 1 and no relief in 1, while in 4 cases repair of lacerations without ventral fixation has given complete relief in 1, partial relief in 1 and no relief in 2,

LESION.	Operation.	ANATOMICAL RESULT.							SYMPTOMATIC RESULT.						
		Excellent.	Percentage.	Fair.	Percentage.	Poor.	Percentage.	Total.	Excellent.	Percentage.	Fair.	Percentage.	Poor.	Percentage.	Total.
Lacerations	Repair of Cervix or Perineum or both	6	40	5	38.5	2	15.5	13	14	26.4	25	47.2	14	26.4	53
	Repair of Cystocele and Perineum			1	100			1	2	40	1	20	2	40	5
Endometritis	Curettage								10	45.5	7	31.8	5	22.7	22
	Ventral Fixation	17	77.3	1	4.6	4	18.1	22	18	39.1	13	28.3	15	32.6	40
Retroversion	Ventral Fixation and repair of lacerations	1	100					1	3	50	2	33	1	17	6
	Curettage								1	25	2	50	1	25	4
	Alexander's operation			1	33.3	2	66.6	3	1	16			5	84	6
Prolapse	Ventral fixation and repair of lacerations	1	50			1	50	2	1	33.3	1	33.3	1	33.3	3
	Repair of lacerations					2	100	2	1	25	1	25	2	50	4
	Ventral fixation and repair of lacerations			1	25	3	75	4	1	11.2	4	44.4	4	44.4	9
Procidentia	Ventral Fixation								1	25			3	75	4
	Repair of Perineum										1	100			1
	Alexander's operation												2	100	2
	Hysterectomy and repair of lacerations										1	50	1	50	2
Fibroid	Hysterectomy	8	66.6	4	33.3			12	33	77.5	9	22.5			42
	Myomectomy								4	80	1	20			5
	Not operated								3						3
Cancer	Pan-hysterectomy	No recurrence 44 years or more after operation 3 Recurrences and death 5 Uncertain 4													

a total of entire relief in 28.6%, partial relief in 28.6% and no relief in 42.8%.

Of 18 cases of procedentia, in 9 ventral fixation and repair of lacerations have given entire symptomatic relief in 11.2%, partial relief in 44.4% and no relief in 44.4%. In 4 cases ventral fixation alone has given entire symptomatic relief in 25% and no relief in 75%. Alexander's operation has failed to give any relief in 2 cases, hysterectomy with repair of lacerations has given partial relief in 1 case and no relief in 1 case, and repair of the perineum has given partial relief in 1 case. Taking these 18 cases together, 11.1% have been entirely relieved, 33.3% have been partially relieved, while 55.6% have received no benefit.

Of 42 cases of hysterectomy for fibroid, 77.5% have been entirely relieved, while the remaining 22.5% have been only partially relieved. In 3 of the cases of partial relief, the trouble since operation has been slight and probably wholly dependent on the artificial menopause — so they may be classed as satisfactory. Thus 85.7% of these 42 cases have shown satisfactory symptomatic results.

The anatomical results in 12 cases of hysterectomy have been perfect in 66.6%, while the remaining 33.3% show no serious defect.

In regard to the avoidance of the symptoms of the artificial menopause by leaving an ovary in hysterectomy for fibroid, these cases show that little benefit is to be expected in cases over forty years old.

Of 5 cases of myomectomy, 80% show entire symptomatic relief, while in the remaining 20% there has been partial relief.

Three cases of fibroid, discharged without operation, have all been perfectly well for over three years.

Of 12 cases of cancer of the uterus on whom radical operation was performed, 3 show no sign of recurrence four and a half years or more after operation and may, therefore, be considered as probably cured. In 5 cases recurrence and death occurred within three years, while in the remaining 4 cases the result is still doubtful.

EYE-STRAIN CONSIDERED AS A FACTOR IN THE PRODUCTION OF LATERAL CURVATURE OF THE SPINE (PRELIMINARY COMMUNICATION).¹

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EVERY ophthalmologist is familiar with the fact that astigmatic patients, when one or both axes are oblique, and patients having vertical heterophoria, are apt to tilt the head to one side in order to obtain clearer vision. Also, there have been reported some cases of torticollis in which there has been a marked improvement in attitude after correction of the refractive error and relief of any existing vertical heterophoria. It has been my lot to see a number of cases of

¹ Read before the New England Ophthalmological Society, March 8, 1904.

lateral curvature of the spine in which eye-strain seemed to me to play a part in producing the condition. In two of these cases there was a progressive myopia, and not only did relief from eye-strain seem to cause a marked improvement in attitude, but, when the curvature had been corrected by appropriate exercises, the myopia stopped increasing. Also, in one of these two cases the vision improved to an unusual degree after correction of the spinal curvature and improvement of the general nutrition.

The cases are too few in number to permit of dogmatizing on the subject; but I think that the results obtained justify my belief that there is, in some cases, at least, a connection between eye-strain and spinal curvature. I will describe briefly three of the cases. They may be taken as typical ones.

CASE I. Girl aged eleven. I first saw her Aug. 28, 1901. Complained of occasional blurring of print, and of frequent frontal and supraorbital pain. Carried her head tilted to the left. Compound hypermetropic astigmatism, Axis 90°, O.D.; Axis 75°, O.S. Corrective lenses were ordered for constant use. Nov. 20, 1902, head not tilted to the left as much as at first visit, but still tilted somewhat. Noticed that the patient sat in a slouching position, and seemed unable to hold herself erect. Referred the case to Dr. R. W. Lovett for correction of faulty attitude. Nov. 24, Dr. Lovett reported "a left curve" of the spine, "which carries her head and body to the left of the vertical." He also reported a "slight stiffness," "showing that the curve is of some duration," and stated that, in all positions the patient bent farther to the left than to the right. May 6, patient stands correctly.

CASE II. Girl aged eight. I first saw her on May 31, 1894. The mother stated that the child winked constantly when she read. Examination of the refraction with a mydriatic showed the following conditions:

R.V. = 6/4 — c + 0.25 Sph. () + .25 Cyl., Ax. 0°.

L.V. = 6/4 — c + 0.25 Sph. () + .25 Cyl., Ax. 0°.

At the post-cycloplegic visit, the cylinders only were accepted, and these were ordered for constant use. Sept. 18, 1896, the child says she can now see better without the glasses than with them. A mydriatic was again used, and the following refractive condition was found:

R.V. = 6/4 — c — 0.25 Sph. () — 0.25 Cyl., Ax. 0°.

L.V. = 6/4 — c — 0.25 Sph. () — 0.25 Cyl., Ax. 0°.

In other words, the child had become myopic. There was also an exophoria of 1.5°. Advised her withdrawal from school for a year. The patient held her own until March, 1898, when I found an increase of myopia of 0.5 D., O.U. In the following November, I found a further increase of 0.25 D., O.U. There was no change in the astigmatism or the vision. There was, however, a right hyperphoria of 1.5°. Also, I noticed that the patient tilted her head to one side. I referred the case to Dr. Lovett, who found a lateral curvature of the spine. In addition to the treatment prescribed by Dr. Lovett, I ordered exercise prisms for the correction of the hyperphoria. With appropriate exercises for the trunk muscles, the spine became straight, and the myopia stopped increasing. Also, on Sept. 23, 1899, there was barely 0.5° of hyperphoria.

CASE III. Girl aged twelve. Was brought to me Nov. 19, 1900. The father stated that she held her book very near when she read, and that she had worn glasses for near-sight for several years. The head was tilted forward and sideways. Examination with a mydriatic showed the following conditions: