EXANDER'S OPERATION.

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ALEXANDER'S OPERATION.

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The shortening of the round ligaments is a subject which might be treated profitably at length. The history of the operation, its present status in different countries, the various methods which are employed in its performance, the results which have been secured, and the relative merits of this operation as compared with several others devised for the treatment of retro-displacements, are all subjects of very practical interest. Some of these subjects will be developed this evening by other members, hence it will be most profitable to occupy the ten minutes at our disposal by giving merely my own experience with this operation.

I adopted the shortening of the round ligaments for the treatment of mobile retro-displacements of the uterus in 1894, and since that time have performed sixty-two operations. In brief, I may say that increasing experience with the operation causes me to estimate it more and more highly, and that I look upon it, when properly performed, in

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suitable cases, as one of the most satisfactory operations in gynæcology. All of the patients have recovered from the operation.

I adopted the Alexander's operation under the influence and following the teachings of Edebohls. Several times I have modified the operation as he performs it, but the technique as laid down by him is so perfect that at the present time I follow it, with the exception of the manner of closing the incision in the aponeurosis of the external oblique. This exception consists in not merely closing the incision by a running suture, but in lapping one layer of the aponeurosis over the other, as is my practice in closing the abdominal wall in the middle line. This, I believe, makes a stronger wall to the canal.

Having stated my general estimate of the value of the operation and the method employed in its performance, it remains to consider a number of questions in detail. The first time I attempted the operation I failed to find either round ligament. This was not at all the fault of the operation, but my own fault, from lack of skill in its performance. Since that time I have never failed to find the ligaments. In spite of the assertions of some, there is no doubt that the ligaments can be found in the inguinal canals, except in the rarest instances.

In two cases, in drawing the ligaments out, they have broken off close to the uterus, so that it was necessary either to abandon the operation or to substitute hysterorrhaphy. This I did in the two cases under discussion. In, I believe, two other cases the ligament has broken off some distance from the uterus, when it was possible to recover it and complete the operation. This is an accident which, in my judgment, will occur in a definite percentage of cases, and is one of the legitimate objections to Alexander's operation.

In one case phlebitis of the left crural vein followed a combination of Alexander's operation, curettage, and perinæorrhaphy. To which operation the phlebitis was due, of course, it is not possible to say. This is the only accident or sequel to the operation which has come under my observation.

In several cases patients have complained of considerable pain in the inguinal wounds. I suspected that this might be due to the employment of buried silkworm-gut sutures, and for some time have substituted chromicized catgut. In one case, in a highly neurotic woman who knew of the presence of the silkworm-gut sutures, she complained of them until I cut down upon them and removed them, from one inguinal canal.

In one case, in which I performed the operation up to the stage of the closure of the subcutaneous fat and skin, which was closed

by an assistant, superficial suppuration, involving the skin and subcutaneous fat, but not extending to the inguinal canal, occurred. This is the only case in which I have seen suppuration follow Alexander's operation. Whether the assistant infected the skin-wound or drew his sutures too tightly, it is not possible to say. I can conceive no other reason for suppuration taking place in such wounds as those present in Alexander's operation. I have been told by various operators that a large percentage of the wounds in the inguinal region suppurate, whether Alexander's operation or operations for the radical cure of hernia. It seems to me that such a statement is a clear indictment of the technique of the operator reporting it. Either he or his assistants have not learned how to clean their hands, or the operator has not learned the proper method of suturing. Direct infection or strangulation of tissue is the only explanation of suppuration in such wounds. In support of this I might add that, of the considerable number of hernia operations which I have done, I have never seen a suppuration.

In two cases the operation was a failure. In one the failure was absolute, as within a few months the uterus was in the same position as before operation. In the second the failure is partial, as while the uterus is not retroflexed, the fundus falls backs of the safety line, and without the aid of the pessary I have no doubt that after a short time the retro-displacement would take place. The cause of failure in these cases is not clear. Either the ligaments were not shortened sufficiently, which is most probable, or they have stretched out subsequent to the operation.

No hernias have been reported to me as occurring in this series of cases. The reports from the Hospital for the Ruptured and Crippled in New York indicate that a considerable percentage of hernias follow Alexander's operation as performed in New York. This appears to be a fact which requires explanation, and probably it is due to faulty technique. The percentage of permanent cures for the radical cure of hernia done by the Bassini and Halsted methods is now so large that one would expect *a priori* a very small percentage, or none at all, of hernias following Alexander's operation, as the likelihood of recurrence is much greater than the primary occurrence of hernia.

It will be of interest to compare this work with my experience with hysterorrhaphy. In May, 1896 ("Suspensio-Uteri with Reference to Its Influence upon Pregnancy and Labor," *Amer. Jour. Obstet.*, Vol. xxxiv., No. 2, 1896) I reported sixty-five cases of hysterorrhaphy; since that time sixty-two have been performed, making a total of one hundred and twenty-seven to date (March 3, 1899). Of these opera-

tions three are known to have been failures, in which the operation was done for retroversion, as the uterus pulled loose from the abdominal wall. This happened twice while the patient was in the hospital, and probably was due to over-filling of the bladder. Since that time I have used a stationary catheter for the first two days. In one case of procidentia the operation was a failure, the cervix again appearing at the introitus, although the uterus remain attached to the abdominal wall. I may add that this is the only case of failure of a procidentia operation which I have seen since the present technique was employed, now about six years.

Two hernias are known to have occurred. In one the wound suppurated, and in the other primary union was obtained. There have been two deaths; one from pneumonia, and one from heat-stroke.

During the same time Mann's operation, or the intra-peritonæal shortening of the round ligaments, has been performed six times. In all of these cases the uterus was in good position when the patients left the hospital, but it has not been possible to follow them subsequently. I have been favorably impressed with the operation, and unless future experience should condemn it, intend to practise it in suitable cases.

Vaginal fixation has been performed twice. In both these cases the patients had passed the menopause and were suffering from a moderate degree of procidentia. Both of the women were extremely fat, and for this reason vaginal fixation was selected instead of hysterorrhaphy. In one case the result secured is very satisfactory, in the other the patient died some weeks after the operation. She was insane before the operation, and developed acute brain symptoms some weeks later.

In conclusion I shall discuss briefly some of the advantages and disadvantages of Alexander's operation, especially in comparison with suspensio-uteri. The mortality should be zero, or approximately this figure, in either operation, but the risk is certainly less in the Alexander's operation. It is impossible to bring surgical technique to perfection and absolutely eliminate the risk of infection. In the one operation an infection would mean only a local suppuration, whereas in the other it might mean a fatal peritonitis.

Alexander's operation is the more desirable also from the standpoint of pregnancy. At least two of my patients have borne children subsequent to the operation without difficulty. The only complaint which has been reported in the literature which can be attributed to Alexander's operation is a certain amount of tugging on the canals in the later months of pregnancy. In no case has there been any inter-

ference with labor. This is not the case with hysterorrhaphy, although the difficulties which have been met with in labor, varying from simple disturbances to impossible labor, necessitating Cæsarean section, have undoubtedly been due in a large measure, if not entirely, to a faulty technique. It is my opinion that if the technique of Kelly be followed the risk of serious dystocia is very slight. Nevertheless, it seems to me, there can be no doubt that of the two operations, when equally applicable, the Alexander operation should be preferred from the standpoint of pregnancy.

Alexander's operation is to be preferred to hysterorrhaphy, because only the proper ligaments of the uterus are made use of in restoring the uterus to its normal position. There is no additional ligament and no intra-peritonæal adhesion as is the case in hysterorrhaphy. The principle of the operations, in my judgment, is the same; that is, the uterus is drawn in front of the line which permits intra-abdominal pressure to fall upon the posterior surface of the uterus, and thus to keep the uterus in anteflexion; but of the two operations, the Alexander accomplishes this in the more natural way.

Alexander's operation puts the uterus in a more normal position than does hysterorrhaphy. The uterus is in a somewhat exaggerated position of anteflexion after both operations, but after hysterorrhaphy it is undoubtedly elevated in the pelvis; after Alexander's operation, it is alleged, that it is somewhat depressed, although this, I think, is questionable.

The relative disadvantages of Alexander's operation are:

1. The difficulties in diagnosis. Every gynæcologist of experience knows that it is at times difficult to exclude absolutely the existence of adhesions, and it is possible that, if adhesions are overlooked, they may result in the failure of the operation. On the other hand, I believe that adhesions of so delicate a character as to defy detection by an expert, as a rule, would not be strong enough to interfere seriously with the result of the operation. This disadvantage of the operation will be magnified by those who are careless in diagnosis, and minimized by those who are painstaking enough to make a diagnosis before operation instead of after it.

2. Another relative disadvantage of Alexander's operation is its comparatively small range of usefulness. It is adapted only to cases of mobile retroflexion. If the uterus is adherent, or if the appendages are diseased, it is clearly inapplicable. In such cases the abdomen should be opened and hysterorrhaphy or Mann's operation performed. In complete procidentia it is also inapplicable, although I have done

the operation a number of times in young women of child-bearing age, when the procidentia was not extreme. In such cases plastic work in the vagina can be relied upon to support the pelvic contents, and the Alexander's operation merely serves to keep the fundus forward. In my practice the most frequent indication for hysterrorrhaphy is procidentia uteri. I consider it one of the most important in the series of operations needed to cure that condition.

3. The final disadvantage of Alexander's operation consists in the difficulty of finding the ligaments and the possibility of breaking them. No careful and well-trained surgeon need hesitate to adopt the operation because of the difficulty in finding the ligaments, as this is no more difficult than to find any other anatomical structure in the body, provided a proper technique is followed. The experience of those who have done the operation many times has demonstrated that the ligaments are in the inguinal canals, except in the very rarest instances. Only a few authentic cases are on record where the ligaments pursued an aberrant course, being inserted at some other point than the spine of the pubes. The possibility of breaking the ligaments in stripping them out of the canals cannot be eliminated. When the ligaments are small, and more especially when they are friable, as is the case where marked pelvic congestion is present, this accident may well happen even in the most careful hands. In my opinion the best treatment under the circumstances is to open the abdomen and to substitute a hysterorrhaphy.