

cause the inferior oblique and superior rectus are stronger in their associated action of turning the cornea upward than the inferior rectus in opposing them. Therefore, if hypermetropia is the causative factor in the production of abnormal convergence, and its influence extend to the elevators and depressors of the cornea, it must follow that in every case of hypermetropic internal squint the deviation is oblique, and a purely lateral turning is theoretically impossible. Thus we observe an hitherto unstudied condition in concomitant squint, the existence of which can be readily proven. During fixation with the right, for instance, the left eye turns in and up—the right image will be the true, and the left, which is the false image, will be lower. During fixation with the left, the right eye turns in and up—the left image will be the true and the right, the false image, will be lower; or, while fixation is accomplished by one eye, which must be accommodated to give clear distant vision, but can not converge, the visual axis of the second eye crosses that of the first on a higher plane, and as accommodation and fixation are transferred from one eye to the other, the inward and upward squint is also transferred.

The same principle holds in its application to constant squint where one eye always fixes, and the other always deviates. Here there is no transference of accommodation or deviation, but the result of excessive accommodation in the better eye is manifested in the inward and upward deviation (eso-hypermetropia) of the worse eye and is necessitated by the supra-normal response of the branches of the third nerve distributed to the muscles of that eye.

I have omitted a consideration of the action of the levator palpebræ, which, belonging to the group of muscles supplied by the motor oculi, should also receive additional stimulus from hypermetropic excitation of its nucleus. Its function, however, differs from that of the other members of this group of muscles, and, while its over action in hypermetropia would be important as showing the physiologic relation of all the nuclei, it is independent of, and not kindred to, rotation of the ball. A slight increase in the vertical axis of the commissure in the squinting eye over that of the fixing eye might be difficult to determine, since the halves of the face are seldom symmetrical. The application of this extension of Donders' theory of hypermetropic squint to the treatment is obvious. It is essential that a full correction of the error of refraction shall be constantly worn, from the moment the diagnosis can be made, or the patient is old enough to wear glasses. In lieu of glasses the accommodation can be paralyzed by atropin.

The surgical treatment consists of: 1, in alternating squint, a division of both internal muscles; 2, in constant squint, a division of both internal muscles, and the superior rectus of the deviating and perhaps the inferior rectus of the fixing eye.

The degree to which the tenotomies should be carried must be governed by the distance separating the false and true image of a small light at six m. Hence it should be done in all cases, where a restoration of binocular fixation is possible, under cocain anesthesia.

Failure to secure good results from operation will often be encountered in cases of constant squint, because division of the interni will not correct the hypertropia, and it is essential to the permanency of even a cosmetic effect that the upward deviation

shall be recognized and considered of equal importance to the horizontal. In concomitant squint, the hypertropia is a transient and alternating condition, transferable with the esotropia, and should *never* be surgically treated. By equalizing the convergence by tenotomies, binocular fixation is secured without interfering with the horizontal plane on which the two eyes will act together. This plane may be higher than that of the emmetrope, or after a period of normal accommodation, obtained by wearing full correction for hypermetropia, the elevators of the cornea may be properly and equally antagonized by the depressors and the horizontal plane of binocular fixation be lowered to correspond with that in emmetropia. In either case the visual axes are on the same level.

I earnestly urge, first, an examination and close analysis of the degree and kind of turning of the cornea by a study of the relative positions of the false and true image of a small gas jet or candle flame at six m. and shorter distances; second, a recognition of the hypertropia which will be invariably found to complicate esotropia, of its transference with the esotropia in concomitant or alternating strabismus; third, of the permanent upward deviation of the inward-turned eye in constant squint; and, fourth, emphasize the deductions taught by these conditions, namely, that the hypertropia of the former disappears under correction of the error of refraction and tenotomy of the interni, and in the latter, vertical equilibrium can be obtained only by operation on the vertical muscles.

SOME REMARKS ON TOTAL EXTIRPATION OF THE FIBROID UTERUS: ILLUSTRATIVE CASES.

A paper read before the Ohio State Medical Society, Zanesville, May 16, 17, 18, 1894.

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The subject of fibroid tumor of the uterus is too broad to be considered in all its aspects, in the time allotted, before this Society. I have therefore thought it advisable to speak of but two phases of the subject: 1, what cases require operation; 2, methods of operating.

Clinical experience demonstrates that only a small percentage of those suffering from fibroids require operative interference for relief. This is so well known that the profession at large have come to regard them as purely innocent growths. This is true in the majority of cases. My experience, based upon more than two hundred carefully recorded cases, justifies me in saying that the majority of women from thirty-six to forty-five years of age suffering from fibroid tumors, do not require operative interference; but this fact increases our responsibility in determining early the cases really requiring operation.

A great many women who are the subjects of fibroid tumor suffer no more inconvenience than a slight pain preceding and during the menstrual period, which is not excessive or unduly prolonged. They suffer but little, if any, from pressure symptoms or peritonitis, and the tumor only annoys them because they are conscious of its presence by manual manipulation or from information given them by their phy-

sician. As long as the patient remains comfortable and her general health is not interfered with by pressure or loss of blood, she certainly ought not to be subjected to an operation.

The chief symptoms and secondary diseases of cases requiring operative interference, are hemorrhage, pain, cystitis, peritonitis and pressure causing temporary intestinal obstruction. These cases when they do not yield readily to internal medication combined with thorough curetting, the patient being put under good hygienic surroundings, are to be looked upon with suspicion and the future progress of the case watched with unusual care and interest. Experience leads me to believe it is out of this latter number, where the symptoms can not be easily controlled, that almost all of the operative cases come. I do not mean by this statement that all of these cases should be at once subjected to the radical operation of hysterectomy, but I wish to emphasize the opinion that these cases should be carefully watched. It is not unusual to have a case referred for operation where there has been severe and frequent hemorrhage with metrorrhagia lasting from ten to fifteen days each month for a number of years. To say that these patients are in the most unpromising condition for such a radical operation is to repeat what you all know. They are exsanguinated to an extreme degree.

Three cases operated upon by me within the past year, although still able to walk had lost such large quantities of blood that the act of rising to the feet caused severe vertigo. They suffered but little pain at any time, but had been confirmed invalids for years. They had had all kinds of internal medication, combined with electricity, before they were referred to me, with the result of only lessening the hemorrhage, not controlling it. These cases illustrate in a forcible manner the point I wish to emphasize; that is, if hemorrhage and metrorrhagia can not be controlled within a few months by careful medication, that case should be referred for operation and not be permitted to become so enfeebled as to make the result of the operation problematical. In other words, if once a patient becomes a bleeder she nearly always continues to be a bleeder, and there is no permanent relief except by operation.

There is another class of cases in which the most prominent symptom is not hemorrhage, but pain from pressure of the tumor. A tumor the size of a cocoanut, which has become adherent in the pelvis from inflammatory exudation, may cause intense suffering and a great number of reflex symptoms which demand relief. In support of this I could cite many instances of which the following is a fair illustration:

Miss M., aged 40, referred by Dr. Rhu, of Marion, Ohio, was known to have had a fibroid tumor for more than three years. For one year before my visit she observed that she was growing more and more incapacitated for walking. When she attempted to walk she suffered from a sense of fullness in the pelvis and pain in the legs and head. Much of the time she was practically disabled, so far as locomotion was concerned. She could not walk across the street without causing pain in the legs which was at once reflected to the head, so that she suffered greater pain in the head than in any other part of the body.

I saw the case in consultation with her physician, March 12, 1893, at which time she was just recovering from a sharp attack of peritonitis. On examination, I found the tumor occupying the entire space in the pelvis, with a large nodule above and to the left side, wedged down, firmly fixed by adhesions and causing great pressure. It was evident the

patient could only be relieved by the removal of the tumor. As her life was in danger from recurring attacks of peritonitis, I advised immediate removal. Total extirpation was made at my private hospital, March 16, 1893. The entire lower part of the tumor was adherent. After removal, the tumor somewhat resembled in shape two large cocoanuts joined together. The patient made a prompt and uninterrupted recovery and is now enjoying excellent health. By examination of the tumor, we found a good explanation of the cause of the pain complained of when the patient attempted to walk. The tumor filled the pelvis, where it had become firmly adherent to its walls, the resulting pressure on the nerves of the sacral plexus causing the pain in the legs and inability to walk. The pain in the head was a reflex from the same cause. As the tumor continued to enlarge, it could do so in only one direction, upwards. The weight from above when the patient attempted to walk was an additional source of pressure on the nerves, which was somewhat relieved when the patient lay down. It is hardly necessary to add that this patient had been under constant medical treatment, including electricity, for years before the operation.

That we may have cystitis from the pressure of a fibroid tumor alone, is well illustrated by the following case:

Mrs. K., Dayton, Ky., age 36, married eight years; no children; no miscarriages; referred by Dr. Richards. This patient had suffered several years from pelvic pain, backache, pain in the limbs and metrorrhagia. She did not consult a physician until about a year ago when she was compelled to do so for relief from an irritable bladder. She was not conscious at that time that she had a fibroid tumor, but her physician was not long in determining the cause of the bladder difficulty, which was pressure on the bladder from a fibroid tumor filling up the true pelvis. No medication relieved this tormenting trouble, which gradually grew worse until she developed cystitis of an aggravated form. Her sufferings were very great. When she was referred to me for consultation, March 2, she had not been able to retain her urine for longer than one hour at a time, for more than two months. The tumor was fixed in the pelvis and could not be pushed upwards. Total extirpation was advised and the patient readily consented. It was done March 6. The patient made an easy and prompt recovery; her bladder difficulty improved from day of operation and at the present time she holds her urine for five hours and suffers but little inconvenience. I have no hesitation in saying that in due time she will be perfectly relieved.

Peritonitis is to be dreaded even more than hemorrhage in these cases. My experience convinces me that in almost every case we have the two conditions present. We have periodical hemorrhages extending over long months, or even years, with more or less severe pain located in one or the other ovarian regions, or in both, gradually increasing from month to month, until finally the patient is attacked with acute general peritonitis from which she may or may not recover. This inflammation will recur on the slightest provocation. These cases should be operated upon at the first attack, and not be permitted to go on and have half a dozen or more recurrences, each one jeopardizing life. The cause of peritonitis in these cases, in almost every instance, is a pyosalpinx, a suppurating ovary or both, complicating the fibroid, and it is obvious to every one that the only rational treatment is an early operation. This should be insisted upon in every case at the first attack of peritonitis. The following case illustrates this condition:

Mrs. N., age 52; married thirty years; no children; referred by Dr. DeWitt. The tumor extended three inches above the umbilicus. The patient had been conscious of the existence of the tumor twelve years, but had suffered but little inconvenience until about three years before the operation, when she commenced to have irregular hemorrhages which gradually grew worse, but she would not consent to an operation. For about a year she had suffered considerable pain in both ovarian regions and the hemorrhage had been markedly increased. The patient lost much

flesh, was anemic and very weak. I saw her on May 20, 1893, when she was just recovering from a sharp attack of peritonitis of some fifteen days' duration. Total extirpation was made May 23, 1893. Extensive intestinal adhesions were found; a pyosalpinx and large suppurating ovary holding eight ounces of pus, which was imprisoned below the tumor in the pelvis, were removed with the uterus. The patient made a prompt recovery and is to-day enjoying perfect health.

That intestinal obstruction should be one of the complications which might be anticipated in these cases is plainly evident. A small tumor fixed in the pelvis causes intestinal obstruction by narrowing the lumen of the rectum. This symptom can be overcome in the majority of cases after a few days' careful medication, yet the temporary obstruction is almost always accompanied by an acute attack of peritonitis, thereby endangering the life of the patient, as the following case will show:

I was called in consultation with Dr. Van Meter on May 7, 1894, to see a patient, a strong, healthy-looking German woman 38 years of age, who has been known to have a fibroid tumor for two years. One year ago she had an attack of peritonitis with complete intestinal obstruction for five days; for twelve hours the patient had stercoraceous vomiting. The tumor was so firmly packed in the pelvis, compressing the rectum to such an extent that the finger could not be pushed by the tumor. The intestinal obstruction was finally overcome, only to have it occur again May 1 of the present year. Obstruction was complete for four days, and was accompanied by acute general peritonitis from which the patient is now slowly convalescing. An operation was advised for removal of the tumor but not assented to. This patient has obstruction from pressure of the tumor in the pelvis, against the rectum; without operation she will die from this cause at no distant day.

Just as the question of extra-peritoneal or intra-peritoneal treatment of the pedicle in hysterectomy was so hotly contested a few years ago, so now is total extirpation and the extra-peritoneal method being discussed.

The extra-peritoneal fixation of the stump had the advantages over other methods, used at that time, of controlling hemorrhage and yielding the best results. It therefore became the method that was almost universally adopted. The objections to this method are many and serious. If we use the extra-peritoneal method and clamp, we not infrequently see the pedicle slough and become a menace to the life of the patient for days afterwards. Not a few die from septic infection and peritonitis from this cause. If the patient makes a primary recovery, she is not in all cases restored to health. Quite a number of these patients suffer great pain afterward, owing to the dragging of the pedicle on the tender abdominal scar, and pressure upon the distorted pelvic organs, interfering with their functions. Not infrequently hernia follows this operation, developing at the point of the fixation of the pedicle. Last and by no means least, the prolonged and painful convalescence which necessarily follows this method is a very serious objection to it.

The new methods which have entered the field and are contesting for supremacy in the hands of leading operators to-day are, total extirpation, and Baer's method. Baer's method is extirpation of the tumor and body of the uterus, ligating the uterine arteries, leaving the cervix and closing the peritoneum over it. Both of these methods have their advocates, but as yet total extirpation has yielded the best results and is the method which I prefer above all others. While I am aware of the fact that I have not had as much experience in this line of work as some ope-

rators, yet I have removed the uterus, for all purposes, sixty times, and so feel justified in expressing my opinion upon the subject.

The difficulties attending total extirpation are not so great as one who has never attempted it would suppose. They are easily overcome by one accustomed to performing difficult and complicated pelvic operations. With the patient in Trendelenberg's posture, the time required to perform the operation is no longer than that required in making many of the difficult abdominal and pelvic operations now being performed daily. After ligating off the ovaries and dividing the broad ligaments, the peritoneum is divided across the front of the tumor just above the top of the bladder and across the back of the tumor somewhat lower down. The peritoneum is then stripped down in front of the bladder and separated from the tumor down to the vagina. After stripping the peritoneum from the back of the tumor, the uterine arteries and their branches are easily secured. The ligatures are placed between the two flaps of the peritoneum but do not include this membrane in their grasp. The number of ligatures does not usually exceed two or three on either side. One end of each should be left about six inches long and, after removal of the cervix, carried out through the vagina to be cast off through that passage. The vagina is lightly packed with gauze and the peritoneal edges which were stripped from the tumor are turned in towards the vagina and neatly coapted by a running stitch of catgut. The wound in the vagina is treated as after an ordinary vaginal hysterectomy.

This method has stood the test of experience and is gaining in favor with the best operators of the present time. Theoretically there is little to be desired in technique, as it is very near perfection. It promises as good results in patients with thick abdominal walls as in those with thin abdominal walls. This can not be said of the extra-peritoneal method.

By total extirpation there is not as much danger of hemorrhage as there is in ovariectomy, from the fact that in the latter operation the pedicle is transfixed and ligated in mass. Not infrequently the pedicle is thick and short with great tension upon it, favoring slipping of the ligature and consequent hemorrhage. In total extirpation the broad ligament is divided from the uterus and ligated in sections which are not put upon the stretch, so there is no danger of the ligature slipping off. The ligatures do not include any uterine tissue, therefore the tissue within the grasp is not susceptible to any undue shrinkage and resulting hemorrhage. There is no raw surface left in the peritoneal cavity to form attachments to intestine and omentum. There is no sloughing of the pedicle. There is no distortion of the pelvic organs from the stump being fixed to the abdominal wall, pressing upon the bladder, or interfering with the bowels. The risk from hernia at the point of fixation of the pedicle is entirely obviated. There is a comparatively painless convalescence which is at least two weeks shorter than that of the extra-peritoneal method. And here I wish to reiterate what I said in my first report on this subject, read before the Academy of Medicine in December, 1892. That I was convinced that this method had come to stay, and that the clamp in abdominal hysterectomy would as certainly be a thing of the past as it is now a thing of the past in ovariectomy. In conclusion, I wish to say that with the present

low mortality following total extirpation of the fibroid uterus, we should not hesitate to advise all patients who are subjects of fibroid tumor to submit to the operation at once, if their life is endangered or health destroyed, either from the tumor or complications arising from it.

WOUND OF LEFT SUBCLAVIAN ARTERY.

Read before the Southeastern Kentucky Medical Society, at Stanford, Ky., April, 1894.

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On the afternoon of Nov. 7, 1893, Charles Haywood, aged 19 years, was stabbed in the left side of the neck about one and one-half inches above the clavicle and about two inches from sternal end of clavicle. The knife, which was an ordinary pocket knife about three inches in length of blade, going downward, backward and inward, wounding the subclavian artery in its first division; as to the nature of the wound of the artery, we were unable to tell, but are of the opinion that the knife punctured the vessel. Dr. James Steele and myself saw the case in about two minutes after the wound was received. The red arterial blood was spurting out of the wound in a stream half as large as one's finger and to the distance of about one foot above the boy's head. He was reeling from the shock and the sudden loss of so much blood, and was in what I thought a dying condition. We caught the boy, and by direct pressure, and from his fainting, stopped the blood. Dr. Steele continued the pressure while I went for styptics to my drug store, which was right at hand. The wound was packed with absorbent cotton saturated with Monsel's solution until we could get instruments, etc., to attempt to ligate the vessel, and while we were attempting to do so, we prevented hemorrhage by pressure against the vertebral column. We enlarged the wound but after repeated efforts were unable to reach the bleeding vessel, it being so deeply seated. We saturated absorbent cotton with Monsel's solution and packed it over (*not in*) the wound and held it until a firm clot was formed and the entire mass adhered firmly to the boy's neck and effectually stopped the bleeding, but it made a very ugly and bunglesome mass of blood and cotton. The patient was now resting very easily, and it being dark we decided not to disturb him until morning, when we would be better prepared to again try to secure the vessel.

Dr. B. F. Herndon saw the case with us next morning, November 8, and we decided that as we had the hemorrhage stopped it would not be wise for us to interfere with it, by again trying to secure the vessel and also having the fact staring us in the face that in all probability we would again fail, and even if we did succeed in tying the vessel our patient would be almost sure to die during the operation or soon after; lastly, the friends were unwilling for us to do so, unless we could give more hopes of success.

We had to relieve the bladder with the catheter for several days. We applied Listerin to the mass on the wound every day and by so doing were enabled to keep down all offensive odors, and had the wound entirely cut off from the atmosphere. The patient had scarcely any fever and the circulation was kept

regular with digitalis and aconite. The pupil of left eye was widely dilated and remained so for about two months, when it became normal, and has continued so. The reason of this is supposed to have been on account of the wound being so near the origin of the vessel that it interfered with the circulation in the left carotid artery. A slight abscess also formed in the right ear and discharged for some two weeks a non-offensive pus, but then ceased to give any further trouble.

The second day after the wound was received, we washed the patient thoroughly, except the wound, which was not interfered with until November 19, when the coagulum, cotton, etc., was thoroughly softened with warm carbolized water, and removed, when the wound seemed to be in the very best condition. The entire wound was filled with healthy granulations and we thought our patient would soon be well. The circulation in the left arm was much improved, having been reduced to the minimum when the injury was first received, but the left arm was almost useless and has remained so ever since and is much smaller than its fellow.

When we dressed the wound we saturated absorbent cotton with Monsel's solution and laid it over the sore, Dr. Gross saying it is one of our best antiseptics, and this being the case we would thereby get a double effect from its use. The patient seemed to be doing splendidly until November 24, when we again dressed the wound which was suppurating slightly and not of the most healthy nature. There was a very slight depression in the lower angle of the wound, which was gently dressed with carbolized water and then a linen cloth covered with vaselin was placed over it. The patient was left lying upon his back, in which position he had been from the beginning, and with his head slightly rotated toward the right side. The next day, November 25, the patient became uneasy and had forebodings that he was not going to recover. He also had some fever and his pulse was a little fast. We cheered him up as best we could and left him. Both Dr. Steele and myself lived near where he was.

On Sunday morning, November 26, about 4 o'clock, we were both aroused with the information that the boy was bleeding. Dr. Steele, being endowed with the happy faculty of going into his clothing head foremost, was upon the scene in about three minutes and found the boy had almost bled to death, and he ran to my residence and store for Monsel's solution, which with us in this particular case was a cure all. When we returned the boy had fainted, the hemorrhage had ceased and he was not dead, but was so near the brink we thought we would soon be relieved of our charge.

Dr. Erichson says: "After the first secondary hemorrhage the surgeon may, and after the second he must use heroic measures to stop it." We were inclined to cut down upon the artery and tie it at all hazards, even in the face of the record that there had never been a successful case of this kind, but the friends of the patient objected. Our patient soon rallied and was doing as well as could be expected until December 8, when we were again startled by the cry: "The boy is bleeding!" Luckily for the patient and also for ourselves this was soon after daylight, and Dr. Steele and myself were both up and were enabled to be at the patient's bedside in less than three minutes from the time the hemorrhage began. We