old enough to give reliable answers, we should also ascertain the acuteness of vision of each eye and the relative power of the internal and external recti muscles. In general it may be said that it is not best to operate on children under six years of age, and not before the effect of atropine and glasses has been carefully tried; but the best results will often be obtained in children of from six to eight years of age, where the deviation has not yet become permanent, or binocular vision lost. If under atropine the eyes are found to be hypermetropic a nearly full correction with glasses should be given as soon as the child is able to wear them, even as young as four years of age, and the effect of the atropine should be gradually diminished while the glasses are worn. It has been found that about ten per cent. of the cases can be cured by optical means; but the success is closely related to the age of the patient and the care with which this treatment is carried out. The best measure of the strabismus is to get the angular deviation of the eye with a perimeter; but a rough estimate can be made by holding a millimetre rule at the margin of the lower lid of the squinting eye and noting the difference in the position of the centre of its pupil when the other eye fixes a distant object in front of the patient or is covered so that the squinting eye fixes it; one millimetre will correspond to about 5° of angular deviation. If after a thorough trial of the optical treatment no improvement results, it will be necessary to resort to operative measures, which is the final outcome of a majority of the cases, especially in adults. In most cases of periodic squint a simple tenotomy removes the trouble, especially if the deviation does not exceed 20° , and it is a common rule that one tenotomy will give about 15° of change in the deviation of the eyes. It is best to leave a *slight* convergence as the first result of the operation, for there is a tendency toward increased effect after a time, and a slight convergence will often pass into a practically parallel position. Noyes states that for a deviation of from 5° to 15° only one eye is to be operated on; from 15° to 30° , both will require it, but there should be at least a two weeks' interval before the second operation; for more than 30° both eyes may be done at the same sitting. In cases of permanent convergence the squinting eye, or in alternating cases the one which usually squints, should be first operated on. If there be marked deviation, especially with considerable amblyopia, and weakness of the external rectus of the squinting eye, it will often be best to make a tenotomy of the internal rectus and also an advancement of the tendon of the external rectus of the deviating eye, and if the result is not sufficient a tenotomy of the internal rectus of the opposite eye can be done at a later date.

During the last ten years a number of operators, especially Landolt and de Wecker, have recommended advancement instead of tenotomy in many of these cases. The advantages are that by advancement of the weaker externus when the internus has normal power, we add to the power of the externus and give it a better hold, without taking away from the power of the normal internus, and the eyeball is also left in a better position for rotation. The advancement operation is not so simple as the tenotomy and requires a longer after-treatment to get the tendon of the externus to take hold firmly in its new position. The conjunctiva is incised near the cornea vertically and dissected up from the externus muscle which is then grasped with

the forceps near its insertion and a small cut made at its lower border through which a blunt strabismus hook can be passed under the muscle. The muscle is then raised from the sclera and two sutures are passed through it and its surrounding tissues far enough from its border not to tear out easily. The tendinous attachment of the muscle to the sclera is then divided between the sutures and the eyeball, and while the eye is rotated by an assistant toward the cut muscle, the sutures are carried through the superficial layers of the sclera near the cornea to get a firm hold, and tied. The conjunctival incision is then brought together by fine stitches and a binocular bandage applied. The patient should remain in bed for five or six days, when the sutures can be removed, but the bandage should be continued for two days more to allow the healing to take place with as little disturbance from muscular contraction as possible. In advancement operations there is a tendency to get increased effect by the contraction of the cicatrix, and my brother wrote me last winter from Berlin that they were beginning to have there cases in which this contraction had produced so much deviation as to require another operation to remedy it. This, however, seems to be rather an excess of advancement in the earlier cases similar to that which occurred after the first tenotomies, producing an over-effect, and does not contraindicate the operation. The treatment of strabismus does not end with the operation; it is necessary to continue the careful correction of refractive errors with glasses, and often to supplement the glasses with orthoptic exercises which may train and strengthen the muscular action and help the maintenance of binocular vision.

Many cases of convergent strabismus are perplexing; it is often difficult to decide what operation will give the best results, or how much must be done to produce a given amount of alteration in the convergence as a final result, and we must not be disappointed if cases are found which need more than one operation, or in which we have to rely on our best judgment rather than on fixed rules.

Clinical Department.

REMARKS ON SECONDARY PUERPERAL HEMORRHAGE, WITH REPORT OF TWO CASES.¹

BY RAY W. GREENE, M.D.,

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THIS puerperal hemorrhage is to be distinguished from the more familiar accident, post-partum hemorrhage. It is not of common occurrence, but is sometimes dangerous and even fatal. The literature of the subject is meagre.

The causes are twofold, constitutional and local. Under the first head we have

- (1) Altered condition of the blood, as in purpura, septicemia and especially malaria.
- (2) Psychic influences, for example, strong emotions, especially fear and grief.

Under the second general division we have

- (1) The retention in the uterine cavity of some material (placental tissue, blood-clot or membrane)

¹ Read at the meeting of the Worcester District Medical Society, November 11, 1896.

which may prevent complete contraction, or set up congestion or favor sepsis.

(2) Accidental dislodgement of a thrombus from the placental site.

(3) Uterine inertia. This cause is classed by some authors under the first general division, namely, constitutional.

(4) Retro-displacements, producing congestion.

(5) Fibroids, especially when located in placental area.

(6) Malignant disease.

(7) Inversion of the uterus, a very rare secondary accident, unless associated with adherent placenta.

The disposition nature makes of any retained material is varied. In most cases, when the pieces are detached, uterine contractions force them out in a few hours. If small, gradual removal with the lochia accomplishes the same result.

Less often the retained portions, especially if adherent, become the starting-points for hyperplasia. "This hyperplasia is manifested as a greater or less thickening of the lining membrane or in the production of localized papillary, polypoid or fungus excrescences." This process is very frequently associated with some form of inflammation affecting the different normal tissues of the placental site, and in some cases the fibrinous element especially predominates.

Here we get the fibrous polypus and placental polypus. The fibrous polypus may originate with blood-clot, membrane or placental tissue. When the process is not complete enough to efface the placental character of its origin, the polypus is called placental. These growths are sometimes thrown off spontaneously without much hemorrhage. When hemorrhage does occur, it has been demonstrated that the amount does not depend on the size of the mass but on the degree of congestion or the accompanying inflammation set up by the irritation of a practically foreign body.

My two cases are similar and belong to the polypoid variety.

Mrs. C., in prime health, was delivered of her second child after a short normal labor. The child was born with a veil, so-called, but the membrane, though torn, was closely examined, so that none was left in the uterus. That the placenta itself was found intact, I am quite sure, since I remember examining it closely for the purpose of demonstration to a nurse who had never before been present at a confinement. Convalescence was normal. Patient was up and dressed after three weeks. About the thirty-first day a smart flowing began and increased. By the use of drugs and rest there was temporary relief. Thinking this flowing a possible catamenial period, aggravated by too active life about the house, I pursued conservative measures for five days, when the hemorrhage was followed by a watery, bad-smelling discharge, and the temperature registered 100° F.

On examination, I found protruding from the dilated cervix an irregular two-lobed mass, harder than normal placental tissue, and about the size of a hen's egg. There was not room to get my finger about the mass into the uterus. By a uterine sound I was neither able to get the depth of the uterus nor dislodge the offending mass. Owing to the alarmed condition of the patient and the tenderness of the abdomen, I was unable to feel the fundus. Under ether (the thirty-seventh day after the child was born)

the examination was comparatively simple and satisfactory. By bimanual examination, the fundus was found below the top of the symphysis, and the vaginal finger could easily enter the cervix beside the placental mass, and found it adherent to the uterine wall by a very tough fibrous pedicle about one-half inch in diameter.

This pedicle was broken off by the finger nail, and no attempt was made to curette off the rough stump of the pedicle, for the uterine wall was extremely soft, so that my finger, when attempting to sever the pedicle, slipped by it and penetrated the uterine wall to the peritoneal covering. This accident did not affect the convalescence, which was uneventful.

Within a few weeks of the case just mentioned, I confined Mrs. W., age thirty-six, of very nervous temperament, who had during this third pregnancy been much run down physically. Since the first pregnancy there had been extensive varicose veins of the legs and thighs, and during this pregnancy much pain and inconvenience were caused by this condition, worse than ever before. The labor was normal, with rapid second stage. The placenta and membranes came away intact, according to the notes taken at time of labor. Then followed a smart hemorrhage, which was quickly controlled by hot injections and friction over the fundus. The lochia was natural in quality and amount. The convalescence progressed normally, but slowly, owing to general debility, till the eighteenth day, when profuse flowing started up without any special exertion. On my arrival, two hours later, I found the patient in bed (which had been raised at the foot). The bedding under the exhausted patient was literally soaked in blood. It would be impossible to estimate the amount of blood lost. There was abundant evidence of a serious hemorrhage from the uterus. The nurse and neighbor present were alarmed, and the patient was blanched and unable to speak above a whisper. The pulse was thready at 120 beats per minute. On examination, I found but little flowing from the vagina, which was filled with large clots. In the softened and dilated os I felt a mass about one inch in diameter and two and one-half inches long, held fast to the wall of the uterus by a fibrous pedicle one-half inch in diameter. I dislodged the mass with a dull curette, washed out the uterus with hot antiseptic solution, gave ergotine under the skin and made the patient comfortable in a dry bed. As this affair happened after dark, I was handicapped with poor light and by lack of intelligent assistance. In my haste to get the patient comfortable I had mistaken a blood-clot in the washings for the polypoid mass. For, much to my chagrin, I did not find the mass sought till two days later, when it was expelled from the uterus, giving much pain to the patient. Fortunately there was no return of the hemorrhage. The convalescence was slow, owing to the general debility and great loss of blood.

Two questions have been asked me in regard to these cases:

(1) May not these polypoid growths be independent of the puerperal state?

I am confident that the mass in the first case contained placental tissue, and, I think, originated from a portion of adherent placenta, probably succenturiata, since a close examination of the uterine side of the placenta, at least, showed it to be intact.

Of the second case I am not so certain. It is more

likely, however, that the polypoid mass originated with some shred of membrane or clot of blood, rather than an ordinary fibrous growth independent of the puerperal state.

The second question relates to treatment. Is it advisable to explore the cavity of the uterus in every case when we know that *small* fragments of the placenta or membrane are left behind?

Usually I would follow the conservative plan of trusting nature to expel them; but, on the slightest provocation, either by reason of hemorrhage or suspicion of sepsis, the uterine cavity should be explored and made clean as possible, in accordance with modern antiseptic methods.

Medical Progress.

RECENT PROGRESS IN SURGERY.

BY H. L. BURRELL, M.D., AND H. W. CUSHING, M.D.

EXPERIMENTAL RESULTS WITH ANTISTREPTOCOCCIC SERUM.

Petruschky¹ reports that his experiments with cultures of streptococci and an antistreptococcic serum sent to him by Marmorek have not obtained the same promising results which that investigator reported. In the first place, he found that a dose stated by Marmorek to be absolutely fatal killed his rabbits only exceptionally. In fact, two of his own cultures of streptococci, which he had grown for two years, proved to be more virulent, so that their actions were not checked by antistreptococcic serum, although the latter was injected within twenty-four hours of the time of infection. The author, under the circumstances, thinks he is justified in his conclusions (1) that the therapeutic action of the serum is not yet to be recommended in man; and (2) that up to the present time there is no certain proof of the possibility of serum-therapy in streptococcic infection.

EFFECTS OF ETHER ON THE BLOOD.

The author of this paper, Von Lerber,² bases his conclusions on examinations of the blood of 101 patients. One or two examinations were made before etherization, and from two to four examinations afterward.

The quantity of hemoglobin was compared in 98 cases. In 65 cases it was the same after operation as before; 19 times there was an increase, 14 times a diminution, but in only two instances did this amount to 10 per cent., and in these there was great loss of blood at the operation. Ether, therefore, does not affect the quantity of hemoglobin.

The red blood-cells were counted in 101 cases. In 55 cases they were increased, in 42 diminished, and in four there was no change. The gain and loss were in most cases only temporary. So that it may safely be said that ether has no deleterious influence on the red blood corpuscles. A spectroscopic examination of the urine in 83 cases failed to show any increase in urobilin. This is further evidence that the red blood-corpuscles were not destroyed.

In 96 cases the white blood-corpuscles were increased; in five they were diminished. In three of these latter the opening of abscesses (which had caused pathological leucocytosis before the operation) sufficiently explained the decrease in white corpuscles. In one case the decrease seemed due to rapidly approaching death, and in the other case the decrease was insignificant. The author concludes that etherization often occasions a marked leucocytosis.

THE APPLICATION OF SCHLEICH'S METHOD OF COCAINIZATION.

Gottstein³ published results of cocaineization by the method of infiltration in 118 operations. Nearly one-half of these were for the extirpation of tumors. There were eight cases of resection of the vas deferens, two cases of strangulated hernia, ten gastrotomies, and several exploratory laparotomies. One advantage of this method is that the patient can usually get down from the table immediately after the operation, so that hypostatic pneumonia, which so often follows ether operations in feeble patients, is avoided. It was a great pleasure to observe how slight a reaction followed these "major" operations. As far as possible an Esmarch bandage was used after the injections were made. The anesthesia usually lasted thirty minutes, sometimes still longer. In only two cases was there any evidence of cocaine intoxication.

THE SURGICAL TREATMENT OF FOCAL EPILEPSY.

Sachs and Gerster⁴ contribute a paper which presents a critical analysis of 19 cases operated upon by the authors. Of these, three are reported as cured, five as improved and eleven as unimproved. Of this last group three died as the result of the operation. The authors concede that surgical procedures will avail but little in the majority of cases. In all of the cases in which no improvement resulted, the operation was not undertaken until many years had passed after the initial trauma, and after the beginning of the epilepsy. They conclude that if a long period of time has elapsed, all operative procedures will prove equally unavailing. As a result of their study of these cases, the paper closes with the following conclusions:

(1) Surgical interference is advisable in those cases of partial epilepsy in which not more than one or, at the utmost, two years have elapsed since the traumatic injury or the beginning of the disease which has given rise to the convulsive seizures.

(2) In cases of depression or other injuries of the skull surgical interference is warranted, even though a number of years has elapsed; but the prospect of recovery is brighter the shorter the period of time since the injury.

(3) Simple trephining may prove sufficient in a number of cases, and particularly in those in which there is an injury to the skull or in which a cystic condition is the main cause of the epilepsy.

(4) Excision of cortical tissue is advisable if the epilepsy has lasted but a short time, and if the symptoms point to a strictly circumscribed focus of disease.

(5) Since such cortical lesions are often of a microscopical character, excision should be practised even if the tissue appears to be perfectly normal at the time of operation; but the greatest caution should be exer-

³ Centralbl. f. Chir., No. 50, 1896; Medical News, March 20, 1897.

⁴ American Journal of Medical Sciences, October, 1896; Annals of Surgery, February, 1897, p. 209.

¹ La Presse Médicale, November 11, 1896; Medical News, January 9, 1897, p. 51.

² Inaug. Diss., Basel, Schweiz. Verlagsdruck, 1896; Medical News, October 17, 1896, p. 438.