

and strychnia in full doses was given, and a quart of normal salt solution injected subcutaneously before it seemed safe to give the ether. Upon opening the abdominal cavity a large quantity of blood was found, partly clotted, and in the ruptured sac was found the unruptured clear amniotic sac containing a fetus as large as a house fly. The tube and ovary were tied off, the clotted blood washed out, and the wound closed without drainage. Stimulants, strychnia and salt solution were given as needed, and the case proceeded to a successful termination; the patient doing remarkably well, and returning to her home in four weeks, being at the present time in excellent health, and able to do her housework.

Dr. Whitney's report, Case V: The specimen from Case V consisted of a portion of the tube and ovary. Close to the uterine end was a dilatation the size of the end of the finger from which a shaggy red mass protruded. Microscopic examination showed small, flat, branching tufts similar to the villi chorionic, of about the sixth to the eighth week. With this was a smooth, unruptured sac, containing an embryo a few millimetres in length. The ovary was of normal size, and contained a large corpus luteum with a wide yellow border.

ANALYSIS.

An analysis of these five cases shows that only three had been conscious of any pelvic trouble. All but one had borne children. Three had had from one to six miscarriages. All but one were wives of working-men, and from necessity led active, busy lives. One was in poor health. Their ages ranged from twenty-six to forty years. In all there had been between conception and rupture, menstrual irregularity, that is, the individually usual quantity, quality and date were changed and the dark, shreddy, scanty, tedious discharge of decidual *débris*, with probably some menstrual fluid, deceived and confused the patients.

In all the event of rupture was marked, sudden and utterly prostrating. In all the pain was excruciating, calling for full doses of morphine subcutaneously. In all five the pregnancy developed in the tube. In four peritoneal collapse was marked. In all the physical signs of effused blood in the peritoneal cavity were easily made out by palpation and percussion.

I believe that, without operation, four of these cases would have died before reaction from the shock and hemorrhage. In the exceptional case, the bad general state and the large amount of effused blood would have made her recovery, without operation, doubtful and slow at best.

The time of detention in the hospital after operation ranged from twenty to forty-two days, but three were out inside of a month.

CONCLUSION.

My experience in these five cases of extra-uterine pregnancy seems to warrant me in offering the following postulates:

- (1) Extra-uterine pregnancy is more common than has generally been supposed.
- (2) Inter-peritoneal hematocoele is almost always the result of a ruptured extra-uterine pregnancy.
- (3) Diagnosis of extra-uterine pregnancy in the pre-placental period, before rupture, is uncertain and seldom urgent, and if a diagnosis is made, the time

for operation can be selected to suit attending circumstances.

(4) Diagnosis after rupture should be made by the general practitioner. It is easy and of greatest urgency in view of prompt interference.

(5) Prompt laparotomy after rupture is the only safe and conservative course.¹

(6) The condition of peritoneal collapse, that is, shock and hemorrhage, is no bar to immediate and successful operation.

(7) The operation of laparotomy for extra-uterine pregnancy is comparatively easy, and the mortality from it is low.

(8) The after-effects of the operation are milder in extra-uterine pregnancy than in laparotomies for appendicitis, pus tubes, uterine fibroma, or ovarian cystoma, and do not involve sterility.

I cannot close this paper without expressing my warmest thanks personally, and on the part of these five poor women, to Drs. F. W. Johnson and R. A. Kingman, to whose promptness, liberality and skill these patients owe their lives, and also to Dr. W. F. Whitney, whose exact pathological work gives value to these reports.

Clinical Department.

A CASE OF EXTRACTION OF A BIT OF COPPER FROM THE VITREOUS WHERE X-RAYS HELPED TO LOCATE THE METAL.¹

BY CHARLES H. WILLIAMS, M.D., BOSTON.

Mr. J. M., seventeen years old, was brought to me June 5, 1896, by Dr. Shurtliff, of Somerset, with this history: the day before he had placed a Flobert rifle cartridge in a vise and hammered it; the cartridge exploded and a piece struck his left eye. Examination showed no injury to the eyelids, but a vertical cut extended two-thirds across the cornea, the anterior chamber was empty, and the pupil was filled with a mass of opaque lens substance. Under atropine there was some adhesion between the iris and lens capsule, and no view could be had of the interior of the eye on account of the opacity of the lens. There was very little redness of the sclera and no complaint of pain. Light projection was fairly good upward, inward and outward, but uncertain downward; fingers could not be counted.

It was hard to decide whether this injury was caused by a piece of cartridge which had struck the eye and then rebounded, or whether the metal had lodged within the eye. No use could be made of the electro-magnet for diagnosis or removal, as the metal was probably copper, and in order to throw some light on the question of its being still in the eye two radiographs were made by means of x-rays, through the kindness of my brother, Dr. Francis H. Williams, and

¹ Read at a meeting of the American Ophthalmological Society, July 16, 1896.

² I regret to have to record a fatal case which clinches this postulate. Nineteen days after this paper was presented, while it was still in the printer's hands, I saw in consultation another case of ectopic gestation which was quite typical. At the time I saw her the rupture was fourteen hours old. Together with her family physician, I urged a prompt laparotomy. Through the patient's utter refusal to go to the hospital, however, it was forty hours after rupture before the operation could be performed. She lived about a week. I am convinced that, had the operation been done when it was first urged, the patient would have recovered, as her condition was no worse than that of three of my cases.

Professor Norton, at the Massachusetts Institute of Technology. The apparatus used was a Wimshurst machine, which had twelve plates each twenty-six inches in diameter and gave an almost continuous series of sparks. The principal advantages of this apparatus were that it did not break the Crookes tubes, and that the rays were constantly given off from one electrode so that a better defined picture could be made than with the usual form of alternating current and induction coils where first one electrode and then the other becomes the source of rays.

A preliminary experiment was made by having Professor Norton lie on the table with his left cheek resting on the plate-holder and a bent piece of copper wire one sixteenth of an inch thick on his right eyelid, the Crookes tube being placed about eight inches from his head so as to throw a shadow of the wire through his eye onto the distant plate. After ten minutes' exposure the plate showed, on being developed, a well-defined picture of the bent copper wire. The patient was then laid on the table with his left or injured eye close to the plate-holder, resting on it as on a pillow, while the Crookes tube was placed so that the rays passed partly across the bridge of the nose and partly through the thin nasal and orbital bones to the injured eye and so on to the plate. After ten minutes' exposure the developed plate showed what appeared to be a foreign body a little back of the centre of the eyeball. A second radiograph with the tube in a different position showed no foreign body, but this was accounted for by the fact that the metal when found was a thin strip, therefore the rays in the first case may have struck it on the flat and given a picture, and in the second case have struck it edgewise with no effect.

It is much more difficult to get a satisfactory x-ray picture of a foreign body in the eye, than in other parts of the body where there is no surrounding bony wall, as in the orbit, to make a poor conductor of the rays; but, as this case shows, a picture of such a body can be taken by using a powerful apparatus even under these unfavorable conditions, and such a picture can be of use in determining the presence of the foreign body if it is of sufficient size to give a radiograph impression. In this case the history, the condition of the eye and the assurance given by the radiograph led me to operate, hoping to find and remove the metal.

Under ether, a conjunctival flap was made between the external and inferior rectus muscles, a cataract knife was then passed through the sclera into the vitreous, making a cut about three-eighths of an inch long parallel to the edge of the cornea and about three-sixteenths of an inch from it. Through this cut a curved iridectomy forceps was introduced, and a hard substance was finally grasped in the posterior portion of the vitreous and extracted. This proved to be a thin, nearly straight strip of copper, one-fourth of an inch long by one-eighth of an inch wide and of the thickness of the cartridge shell. There was considerable hemorrhage from the wound during the operation, and this extended into the shallow anterior chamber, but when the protruding vitreous was excised and the wound closed by bringing the conjunctival flap together with three fine sutures, the bleeding nearly ceased and gave no further trouble. The eye was irrigated with a 1-to-6000 solution of corrosive sublimate before and during the operation, and dressed with an absorbent cotton pad and flannel roller bandage. No anodyne

was required during the whole course of the healing, and there was never any complaint of severe pain in the eye. On the eighth day the conjunctival sutures were removed and the scleral wound was healed. There was some injection of the ocular conjunctiva, but no swelling of the eyelids or pain.

The patient was sent home on the eighth day, and at the end of a week, and again in two weeks, reported in person. There had been no bad symptoms, the corneal wound had closed, there was a development of fine vessels from the edge of the cornea toward the corneal wound, and the ocular conjunctiva showed less congestion. At the date of the last visit the eyeball had begun to shrink in size, and at the site of the scleral wound there was a slight depression. There was no perception of light in the injured eye at this time, and the cornea was not clear enough to allow an inspection of the interior of the eye. The other eye was normal in sight and condition.

July 11th, or about five weeks after the original injury, the patient reported to me, saying that the day previous he had hit the injured eye with a bit of wire, most of the blow falling on the outer edge of the orbit. The eye was red and tender, and he complained of occasional flashes of light before the sound eye during the last few hours. Up to this time both eyes had been quiet, and it seemed as if at least a good-looking eyeball could be preserved on the injured side; but this second accident made it necessary to advise enucleation of the injured eye on account of danger of sympathetic inflammation, and this was done the next day. Vision remains normal in the sound eye.

This case is interesting as being the first, so far as I am aware, in which a piece of metal has been located by the x-rays in the vitreous and successfully extracted from a living eye.

Reports of Societies.

AMERICAN MEDICAL ASSOCIATION.

FORTY-SEVENTH ANNUAL MEETING, ATLANTA, GA.,
MAY 5, 6, 7 AND 8, 1896.

SECTION ON SURGERY AND ANATOMY.

(Concluded from No. 6, p. 143.)

SOME MECHANICAL CAUSES OF INTERFERENCE WITH THE ACTION OF THE STOMACH AND THEIR SURGICAL RELIEF.

DR. W. J. MAYO, of Rochester, Minn., in speaking of this subject, divided the cases into two classes: first, those which are caused by influences which act from within the cavity of the stomach or its immediate connections, such as a tumor, cicatrix or a foreign body which may obstruct its inlet or outlet or prevent its normal muscular action; and, second, those which act from without the stomach, and interfere either by pressure or adhesion, obstructing its inlet or outlet, or by fixing some part of its wall prevent its functional action. The history of the case, physical examination, the distention with air and the test meal constitute the main diagnostic resources. The amount of free hydrochloric acid is of some service when taken into consideration with the physical examination and the history.

The treatment of the forms of obstruction due to stenosis as a result of scar tissue is exceedingly try-