TRANSACTIONS

OF THE

PHILADELPHIA ACADEMY OF SURGERY

Stated Meeting Held January 3, 1927

The President, Dr. Charles F. Mitchell, in the Chair

BILATERAL CONGENITAL DISLOCATION OF HIPS

Dr. J. W. Bransfield reported the case of Mary B., age two years, who was admitted to the St. Agnes Hospital, November 1, 1926. Under ether anæsthesia both hips were reduced by the closed method following the method advocated by the late G. G. Davis. The reduction was done under the fluoroscope and it was interesting to note that if the muscles are stretched sufficiently the reduction can be accomplished by any method used in an acquired dislocation. If the muscles are not properly stretched none of the fanciful movements advocated will influence the reduction. The patient was dressed in plaster and the legs were placed in the "frog" position. The case was removed in seven weeks. Fig. 1 shows the dislocation. Fig. 2 shows the dislocation reduced after the case was removed.

Fig. 1.—Bilateral congenital dislocation of the hips.

Fig. 2.—The dislocation reduced.

Dr. Forrest Willard pointed out that the length of post-operative treatment was unusually short. In all cases which have come to his orthopædic service, it has been found that two months' fixation does not hold it in place, and it is an unique case which will not redislocate, after reduction, with only two months' fixation. The general time of fixation for bilateral congenital dislocation of the hip is at least eight to twelve months. Some surgeons advocate fifteen months. Doctor Willard thinks that this is too long, but that short fixation of two, three or four

months is liable to later allow the hip to slip out of the socket, unless one finds a rare case in which the socket is of normal depth.

CONGENITAL ABSENCE OF BODY OF THORACIC VERTEBRA

DR. J. W. BRANSFIELD reported the case of John A., who was admitted to the St. Agnes Hospital, October 26, 1926. The X-ray showed absence of the body of the seventh thoracic vertebra with a tilting of the spinous process of the eighth. From the history and X-ray study it was decided that this case was of the congenital variety. Under ether anæsthesia the vertebræ were exposed, and the eighth thoracic was found to be easily moved and was restored to normal position. The spinous processes of IV, V, VI, VIII and IX were split after the method of Albee and a graft obtained from the tibia was placed in the groove. The graft was held with kangaroo tendon, the wound closed and a figure-of-eight dressing applied over back and shoulders. On removing the skin clips on the eighth day, a small blood clot was found but no infection occurred. Patient is in hospital at the present time. X-ray shows the graft to be in good position.

FRACTURE OF OS CALCIS

DOCTOR BRANSFIELD reported the case of James W., who was admitted to the St. Agnes Hospital, September 17, 1926. The patient had fallen a distance of three feet from a ladder, landing on the heel. He walked to the hospital, where the diagnosis of fracture of the os calcis was made (Fig. 3a). Under ether anæsthesia the fracture was reduced and the fragments nailed. Fig. 3b shows the nail in position. A plaster case was applied and was removed in four weeks. About six weeks after the removal of the case he complained of pain across the tendo-Achillis. X-ray showed that the nail was loose; it was removed under local anæsthesia. There has been no further disability—the patient walks normally and suffers no pain.

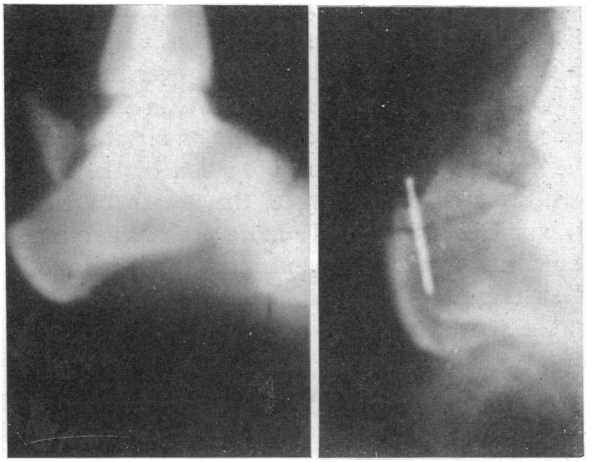

FIG. 3.—Fracture of the os calcis. *a*. Showing the fracture. *b*. The fracture reduced and fixed by nail.

DR. E. B. HODGE remarked that he had a case now at the Germantown Hospital for fracture of the os calcis. This case has been treated by the method which Doctors Jopson and Speese and the speaker have been using with satisfaction. This particular fracture is a badly comminuted one but the ordinary disability in these cases is due to the pulling up of the posterior fragment. The method of treatment is by tongs which pull the posterior fragment down so that the proper angle with the anterior portion is restored. The speaker did not think that this case could have been treated by nailing. Of course, the great disability comes from flattening of the foot; this method

of treatment has made it possible in almost all cases to bring the heel fragment down to its normal relationship with the rest of the bone.

DR. A. BRUCE GILL said that it is well known that fracture of the os calcis often produces prolonged disability. There are a number of conditions which cause this bad result or contribute to it.

The first one of these is the presence of spurs or a mass of bone on the plantar surface of the os calcis. This is due to the fact that the posterior fragment has not been reduced. On several occasions he has been obliged to cut off these spurs or masses of bone from the plantar surface and the result of operation has been satisfactory.

A second condition is a mass of bone on the external aspect of the os calcis. When the os calcis is crushed by a fall on the foot the inferior and superior surfaces are driven closer together and fragments of bone are forced out laterally. The patient complains of pain and tenderness just below and in front of the external malleolus over this mass of bone which is distinctly palpable and is also clearly shown in X-ray films. Why it should be the source of pain the speaker is not quite sure; whether because it contacts with the external malleolus on pronation of the foot, or makes pressure on soft structures as, for example, the sheath of the peroneal tendons, or, what Doctor Gill believes to be more probable, because it is at the outer aspect of the subastragalar joint and interferes with motion of the os calcis beneath the astragalus. This mass of bone presents a bone block to normal pronation of the foot beneath the astragalus. In two cases he has removed this mass of bone with very good result.

A third cause of pain and disability is a lateral displacement of the os calcis, usually to the outer side. At the time of reduction the fragments have not been replaced in their proper position beneath the astragalus. If they are displaced outward the patient has a talipes valgus and presents all the symptoms of a chronic flat foot. The same disability is produced as in a failure to reduce external dislocation of the astragalus in a case of Pott's fracture.

A fourth element in these cases of fracture of the os calcis is the involvement of the subastragalar joint in the fracture. Normal motion of this joint is interfered with by improper position of the os calcis beneath the astragalus or by new bone formation. Therefore motion is limited and it is apt to be painful. In these cases it is best to do a subastragalar arthrodesis to obliterate all motion between the os calcis and the astragalus. A little motion which is painful is much worse than an ankylosis of the joint. He had seen the same condition present in the ankle after Pott's fracture and had not hesitated to do an arthrodesis of an ankle-joint when there was not enough improvement obtained by more conservative means.

The speaker thinks that the method of reduction which Doctor Hodge employed is a very good one. Sometimes the fragments may be reduced by manipulation without the use of tongs or nail. If the knee is bent to relax the tendo-Achillis and if the foot is plantar flexed to bring the anterior

fragment of the os calcis in contact with the posterior fragment a good reduction can thus be secured. Some surgeons tenotomize routinely the tendo-Achillis. This is not very good surgery as in some cases it may be necessary later on to suture again the divided tendo-Achillis.

Possibly a contributing factor in the prolonged pain and disability which so often accompanies these fractures of the os calcis is the fact that fixation or support of the foot is not continued long enough. After the case or splint is removed the shoe which the patient is to wear should be fitted with a steel shank and with a felt pad to give proper support beneath the arch of the foot to prevent a sagging down of the os calcis at the point of fracture, before thorough union has occurred. Frequently, too, these patients have had even before injury a valgus or a certain degree of flat foot, and this condition of pronation or flattening complicates the case by throwing a strain on the foot which has now been further weakened by fracture.

In dealing with fractures of the os calcis one must bear in mind the complete mechanics and function of the entire foot. The speaker suspects it is largely the lack of a broad point of view on the part of the surgeon which sometimes contributes to these disabilities.

Dr. A. P. C. Ashhurst remarked that he had never seen a good result in a fracture of the os calcis. Doctor Gill says he has seen two or three bad results; but the speaker has scarcely ever seen a good one. It is one of the most disabling of all fractures, especially when comminution is present involving the astragalo-calcanean joint; in this type the results are bad in about 80 per cent. of cases, after ordinary treatment. For this reason Doctor Allison, of Boston, proposed, a year or so ago, to operate on all such patients at the time of injury, doing a subastragalar arthrodesis, and not to postpone this operation until the patient had passed through a long period of invalidism. The pain and disability which follows the injury is due to distortion of the upper weight-bearing surface of the calcaneum, rather than to changes on its plantar surface, though the latter may also cause disability. Doctor Allison has operated on more than twenty-five recent cases of fracture of the calcaneum in this way. About 85 per cent. secured good function, and the average period of disability has been twelve weeks. It is therefore a method of treatment which demands attention.

Dr. John A. Jopson said that he was not sure whether Doctor Speese or himself first used tongs traction in fracture of the os calcis. The method is a perfectly simple one. There may be other methods as good or better, but this fulfils the requirements and is simple of execution.

The knee should be bent and the best way is to put it in a Thomas splint with a bend at the knee. And then, as always when using tongs, one has to be careful of the landmarks and should not put the tongs in a position where they will do harm. In fracture of the os calcis, through the tuberosity, it is important that the tongs be in a proper position to make traction; also a small pair of tongs should be used.

The speaker demonstrated this method before the College of Surgeons and

Doctor Cotton, of Boston, who was present, stressed the importance of lateral moulding and manipulation to overcome the lateral displacement of the main fragment or separate fragments—a point on which he lays great stress; with this modification he has continued to use the method and reports that it has proven very satisfactory.

As in all fractures it is important to get the fragments down in position at the earliest possible moment.

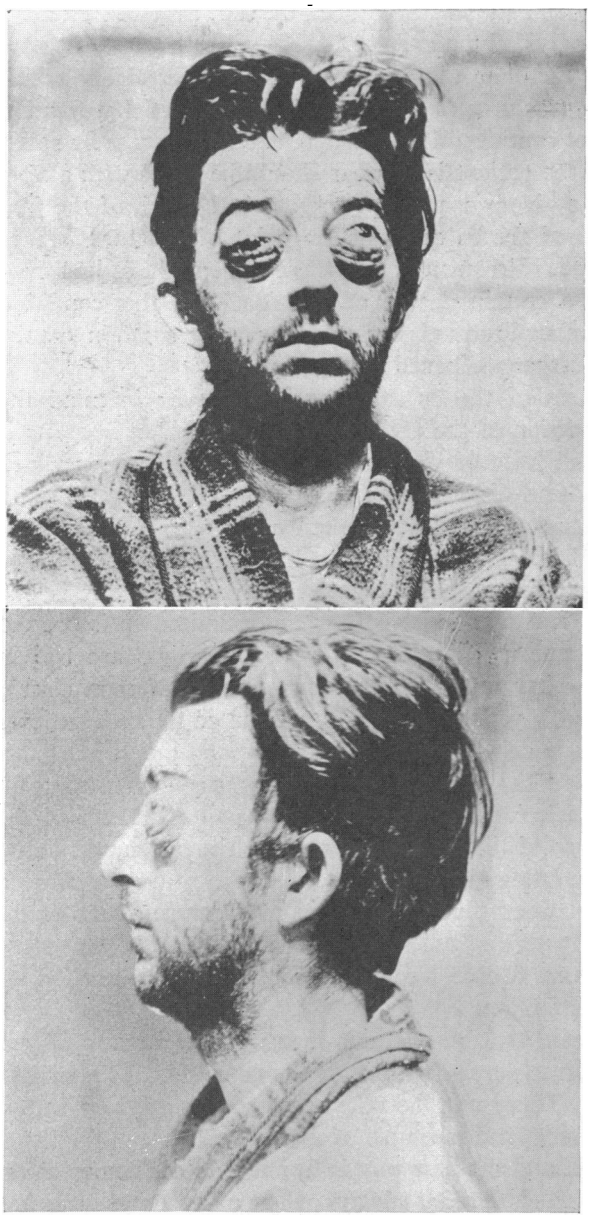

FIG. 1.—Showing the appearance of bilateral exophthalmos more marked in the left eye. At the time of this photograph no subjective bruit was heard.

PULSATING EXOPHTHALMOS

DR. THOMAS A. SHALLOW reported the case of a man, age thirty-four years, who was admitted in the Jefferson Hospital, December 3, 1925, to the Ophthalmological Department of Dr. William M. Sweet. On admission this patient exhibited protrusion of both eyes, most marked in the right eye. In addition he complained of a headache accompanied by buzzing sounds. He gave a history of having been struck on the head November 7, 1924, while riding in an automobile. He was found unconscious some hours later lying in the road and was taken to a hospital in New Jersey. The unconsciousness lasted for twelve hours after he had been taken to the hospital. During the course of the unconsciousness and for four weeks thereafter he had a constant dripping of blood from the left ear.

Six weeks after the accident he noticed that his left eye was turned

upward. This was in the latter part of December, 1924. Within a day or two after he had noticed the turning upward of the left eye, both of his eyes became prominent, the protrusion being more marked in the left eye (Fig. 1). His vision was much impaired in the left eye. He was sent to a hospital in Philadelphia for this condition and a plastic operation upon the conjunctivæ performed. During the following months both eyes were very prominent and about equal in size. In August, 1925, the left eye began to very slowly recede.

In May, 1925, he noticed a peculiar humming noise in his head. This was aggravated on stooping and bending the head forward. He also complained of a peculiar noise in the left ear.

His first admission to the Jefferson Hospital was on December 3, 1925. Examination showed that both eyes were quite prominent, the right eye more so than the left. The conjunctivæ of both eyes was very redundant and chemotic. A well-defined continuous bruit was audible to the clinician over the right frontal sinus and over the right eyeball, and could also be heard indistinctly over the left frontal sinus. The bruit while continuous was accentuated during systole. The pupils of both of the eyes were dilated and reacted sluggishly to light.

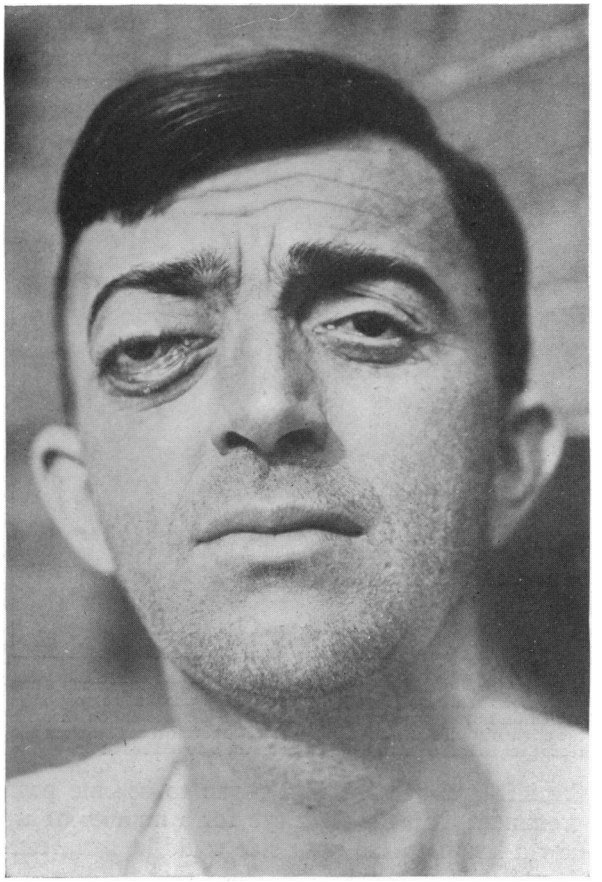

FIG. 2.—Showing the recession of the left eye following ligation of the right common carotid artery and persistence of the exophthalmos in the right eye in spite of ligation of the right common carotid artery.

Eye ground examination: Bilateral exophthalmos. The right eye protrudes 6 mm. beyond the left eye. The optic nerve of the right eye is blurred at the edges and there is some hemorrhagic destruction of the retina. The veins are tortuous and the artery is small. The vision is 10/100. The left eye. The protrusion is not quite so prominent as of the right eye. Vision 20/40. The optic nerve is fairly healthy.

X-ray examination by Doctor Manges shows that the sella turcica is normal. There is no pathology in the bones of the skull to account for the exophthalmos.

Medical examination by Doctor Thomas McCrae did not elicit anything in the patient's general physical condition to account for the exophthalmos.

This case presented several unusual features. It is stated by writers that bruit is the first symptom of an arteriovenous fistula. This patient first complained of buzzing noises in his head in May of 1925, six months after the accident. On questioning his father after the death of the patient, it was learned that his son frequently asked him if it was raining because he thought he heard rain. This symptom disappeared after his discharge from the hospital. The patient himself stated positively that he did not have any noise in the head until May of 1925.

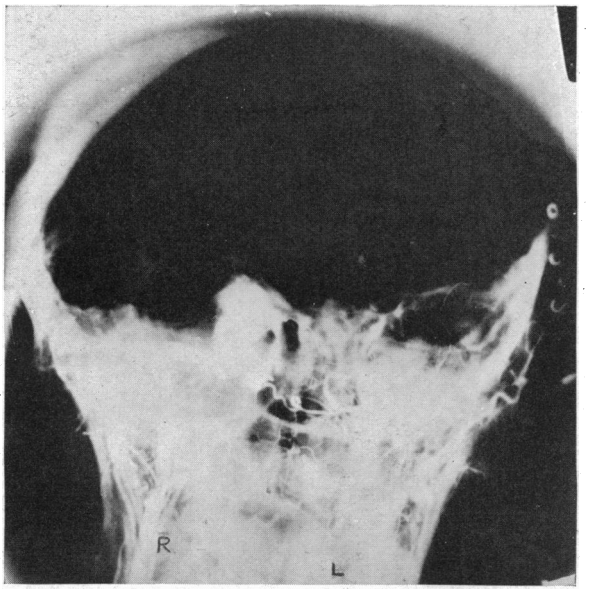

FIG. 3.—Showing aneurism between the right cavernous sinus and the internal carotid artery. The injection was made through the left carotid artery proving the reversal of the circulation through the circle of Willis into the aneurism. The reversal of current is the reason for failure of cure by ligation on the side of the fistula.

The next unusual condition in this case is a bilateral exophthalmos. There are cases on record of arteriovenous fistula in which bilateral exophthalmos occurred, but when it was noted in this case it began in the eye on the same side as the fistula and later extended to the other eye. The bruit could be heard and the thrill could be felt most strongly in the right eye. Dr. J. Chalmers DaCosta believed that the pathology was on the right side between the internal carotid artery and cavernous sinus. In this history the left eye was the first organ to become prominent and remained more prominent than the right eye for a number of weeks. It is hard to explain how a lesion on the right side could be manifested first by exophthalmos on the left side unless it is assumed that the fistula is on the mesial side of the internal carotid artery in the region of the circular sinus and the stream of the current passes directly across the circular sinus to the left cavernous sinus and thence into the left superior ophthalmic vein, causing left-sided exophthalmos (Fig. 1). After the pressure had risen sufficiently to practically cut off vision in the left eye. Within one week after the left eye protruded the right eye began to manifest exophthalmos. The examination of the patient made in December, 1925, over one year after the accident, showed a beginning subsidence of the left exophthalmos. It is to be recalled that Doctor Sweet stated in a previous examination that the right eye protruded 6 mm. more than the left.

In spite of the manner of onset of this condition, that is the appearance first in the left eye, it was decided that the lesion was between the right internal carotid artery and the cavernous sinus, because of the location of the bruit on the right side, and, on January 8, 1926, the reporter ligated the right common carotid artery. Upon ligation, while the patient was still on the

operating table, the bruit immediately ceased. From the time of the operation to January 24, there was a rapid diminution in the protrusion of the left eye and a more gradual diminution in the protrusion of the right eye. The patient did not complain of the bruit nor could one be heard by us over the right frontal bone. There was no palpable pulsation of either the right or the left globe.

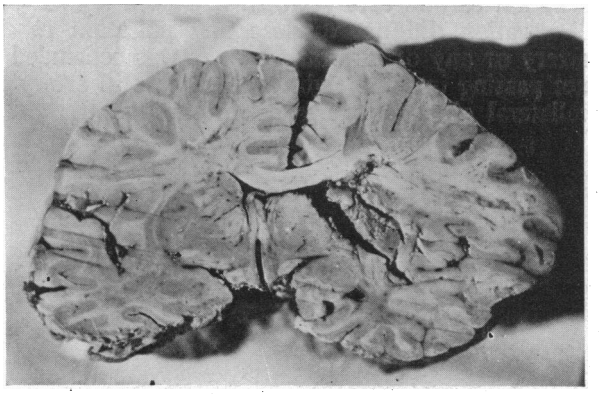

FIG. 4.—Showing the area of necrosis of the left hemisphere of the brain.

On January 25, a very faint systolic bruit could be heard in the right eyeball. On January 31, this bruit was continuous and could be readily heard over the right frontal sinus. The right eye which had been receding became stationary and remained slightly exophthalmic. The left eye continued to recede.

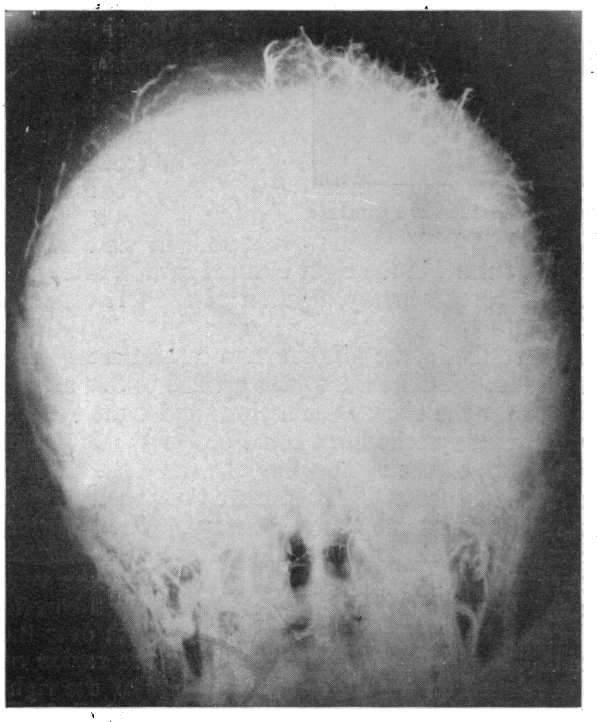

FIG. 5.—Showing the distribution of the bismuth in all of the ramifications of the left common carotid artery in contrast to the almost imperceptible distribution of the bismuth on the right side except in the right internal carotid artery.

An ophthalmological examination made February 28, showed that the left eye ground was almost normal and that the man was now able to read fine print. Right eye: Optic nerve was blurred at the edge and there was some exudate in the retina. Vision 10/100.

The patient was discharged from the hospital, February 28, 1926.

The patient was lost track of for a number of months. He came under observation again in November of 1926. The left eye was almost normal in size. The right eye showed decided exophthalmos. At this time he had a distinct thrill which would be felt in the superficial veins along the inner angle of the right orbit. A continuous bruit could be heard over the right frontal sinus and the right eyeball (Fig. 2). There was a definite pulsation in the right internal carotid

artery. It was thought at this time that the right common carotid artery had become cannalized and that the blood was passing through the right common carotid artery which had been ligated but not cut across. Closer observation did not disclose any pulsation in the right external carotid artery or any of its branches. It was concluded from that that blood was not passing into the right internal carotid artery from below nor from any collateral circulation established through the right external carotid artery. The presence of the blood in the right internal carotid was considered as due to a reversal of current, the blood descending into the vessel (internal carotid) from the Circle of Willis. The blood was descending in the right internal carotid and not ascending. The patient was readmitted to the Jefferson Hospital to Doctor Sweet's service. Pressure on the left common carotid artery cut off the circulation in the right common carotid artery. Upon the release of this pressure the patient stated that objects were dancing in front of his eyes. This phenomenon continued for a second or two. In view of the fact that the circulation could be cut off in the right internal carotid artery by compression of the left common carotid artery, ligation of the left common carotid artery was decided upon.

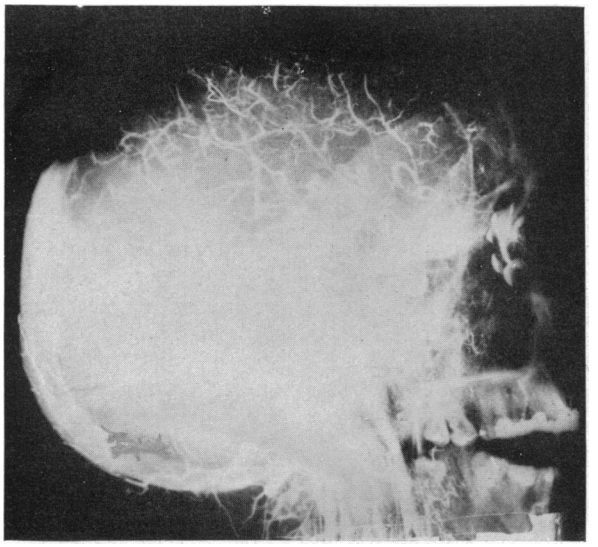

FIG. 6.—Showing the enormous distention of the superior ophthalmic vein and its branches on the side of the fistula.

December 18, under ether anæsthesia, the left common carotid artery was exposed and drawn into the wound. A Crile clamp was applied to this artery. Through a stethoscope applied over the right frontal sinus and right eyeball, with the clamp in place, a very faint systolic bruit could be heard. No thrill could be felt in the superficial veins of the right orbit. In the right internal carotid artery there was no pulsation present. This proved conclusively that the current was reversed in the right common carotid artery. The reporter, therefore, ligated the left common carotid artery with the hope of curing the aneurism. Within two hours after the operation the patient became very restless and slightly irrational. No pulsation in the right internal carotid artery or the right external carotid artery could be felt. The bruit over the right forehead was very faint. No thrill could be detected in the region of the right eye. The patient developed on the third day weakness of the right arm and leg. He became comatose twelve hours before death and died six days after the ligation of the left common carotid artery.

Post-mortem Examination.—The left common carotid artery was injected with a bismuth solution to determine the question of the route of the blood. An X-ray examination of the head was then made and it showed the bismuth in the left common carotid artery and in the aneurism, which was on the right

side and in the right common carotid artery (Fig. 3). A very thin trickle of blood could be seen in the right external carotid artery. The X-ray also disclosed that the right half of the brain was not injected with the bismuth throughout the course of the right internal carotid and its branches, and it was, therefore, concluded that the circulation had been reëstablished through the anterior communicating branch over the anterior cerebral artery of the left side directly into the left common carotid artery. Examination of the brain showed an area of softening in the left hemisphere in the region of the temporo-sphenoidal lobe (Fig. 4).

The reporter concludes from this case that the surgical procedure in the treatment of traumatic arteriovenous fistula, associated with exophthalmos, should be the ligation of the common carotid artery on the side of the lesion. When this procedure fails it is because of the development of reversal of current in the aneurismal sac and along the course of the internal carotid artery, the blood coming from the opposite side (Fig. 3). Any further surgical intervention should be limited to ligation of the superior ophthalmic vein on the side of the lesion (Fig. 6). Ligation of the opposite common carotid artery being unjustifiable because of the likelihood of necrosis and subsequent softening of the brain on the side of the last ligation (Fig. 4) and because of the great diminution of circulation in the vessels of the brain on the side of the first ligation as shown in this case by the X-rays (Fig. 5).

FURTHER OBSERVATIONS ON SPINAL ANÆSTHESIA WITH ANHYDROUS COCAIN IN 500 CASES

DR. J. RALSTON WELLS read a paper with the above title, for which see p. 757.

DR. J. S. RODMAN called attention to two points which seemed to be of more interest than others. One of the great difficulties about cocain has been its toxicity, but apparently Doctor Wells by his present method has been able to largely overcome that difficulty. The other point brought out was the fact that cocain was the only anæsthetic that sought out the sensory nerves alone. The speaker had a rather unpleasant experience once with stovain, one patient developed bladder paralysis for about ten days and another developed partial paralysis of the lower limbs for one week. This had made him cautious about the use of stovain. Doctor Wells has given this type of anæsthesia for the speaker in twelve cases and it has proven very satisfactory. Doctor Rodman feels that it has reached the point where it is safe to use it when indicated.

PURULENT PERICARDITIS IN CHILDHOOD

DR. ERNEST G. WILLIAMSON read a paper with the above title, for which see p. 659.

DR. JOHN H. JOPSON asked that Doctor Williamson include in his series another case from the Children's Hospital in which the speaker drained the pericardium for suppuration but failed to save the child's life.

DR. J. W. BRANSFIELD remarked that he had presented a patient before the Academy two years ago, who had a suppurative pericarditis following a stab wound. He resected two ribs at the costochondral junction. The patient made an uneventful recovery.

DR. J. S. RODMAN said that ligation of the internal mammary artery is now a routine procedure in pericardiotomy, but that in one case, some years ago, he failed to do this and lost the patient from secondary hemorrhage; the patient dying before anything could be done. This patient had pyæmia in addition to the pericardial infection.

DR. A. P. C. ASHHURST mentioned a case, the only one of its kind he ever encountered. In December, 1924, a boy ten years of age, was treated at home by a practitioner who thought the child had a pericardial effusion; he called as consultation a specialist, who introduced a needle, but got nothing; the puncture was repeated three times, and got nothing until the fourth puncture, when blood was obtained. The consultant then withdrew the needle and retired from the case. The patient immediately became much worse, and was brought to the hospital the next day, by the family physician. There were the usual signs of massive pericardial effusion, and severe secondary anæmia. It was evident that the child had been bleeding into the pericardium. Under local anæsthesia an incision was made and the pericardium found full of old and disorganized blood, which was ejected in violent spurts. The patient improved as the blood flowed, and after nearly two litres had been evacuated the pericardium seemed dry. There was no bleeding from the heart at this time; presumably the pressure of the pericardial contents had allowed the puncture of the heart to heal. A rubber catheter (No. 16) was left in the pericardium as a drain. The child, who had seemed almost moribund before operation, was remarkably improved on return to bed, and asked for some ice-cream. The next day, however, he gradually failed; there was no bloody drainage, but death (which occurred thirty hours after operation) seemed due to secondary anæmia.

After death the wound was explored by Doctor Hicks, the ward surgeon, who found a little bloody serum in the pericardium, and the heart contracted in systole.

DR. HENRY P. BROWN said that when the correct diagnosis of suppurative pericarditis is not made, it is usually because it has not been considered. The incision should be made in the lower part of the pericardial cavity. It should be borne in mind that the diaphragm is usually one rib lower in the adult than in the child. The sinus must be kept wide open; a free incision into the pericardium with adequate tube drainage is the best, the edges of the pericardial incision being sutured to the muscle or skin. The case reported by Doctor Williamson developed a sterile effusion in the right pleural cavity, which cleared up after three aspirations. The reason for the development of this collection could not be discovered.