Carpenter quotes Ranchfuss as having recorded 24 cases of congenital aortic stenosis, the majority of which appear to have been due to endocarditis.² Cases in which two segments of an aortic valve are adherent to one another, and apparently have been so since birth, are not very rare. Whether such a

Fig. 2.—Congenital aortic stenosis; the valve segments are thickened and adherent to one another.

condition is the result of an endocarditis or is a malformation may not be obvious. It is a curious fact that when two aortic segments only are present the valve is far more likely to become affected during adult life with chronic endocarditis than when it is possessed of the normal three segments. Dr. Parkes Weber³ argues from this that in some of the cases of disease of the aortic valve occurring in adults, where two cusps are found adherent, the adhesion which is thought to be the consequence of endocarditis has in reality existed from fetal life. This may be so; but I have met with specimens in the *post-mortem* room which have illustrated various stages in the development of such adhesion during adult life. An inflammatory nodule appears at the junction of the attachment of two segments. This swelling generally spreads more or less equally into the adjacent segments, and may unite them together by a mass of considerable size, which, with other nodular thickenings that may have subsequently appeared, sooner or later becomes calcareous. The disease is one of adult life—in one instance only have I seen the nodular swellings under the age of 20—yet it is possible that a similar inflammation may attack the valves of the fetus. This would be especially probable if one could connect the valvular disease with syphilis; but of such an association it seems to me there is little if any evidence. While, however, other causes of fetal endocarditis besides rheumatism may exist, in the case of congenital disease of the aortic valve recorded above, the thickening, although well marked, resembled that commonly seen in rheumatism, and the history given by the mother leaves little doubt that rheumatism was the cause.

In closing I wish to express my thanks to Dr. Elliott and to Dr. Watson Williams for allowing me to use these cases.

NOTE.—Another case of congenital disease of the heart of some interest has recently occurred in the *post-mortem* room of the Bristol Royal Infirmary. In the heart of a female infant, aged 4 months, the rare lesion of a wide communication between the aorta and pulmonary artery, situated immediately above the valves, was present. Besides this, however, very large vegetations were attached to the segments of the aortic and pulmonary valves. The mother had never suffered from rheumatism, but during her pregnancy there had been offensive smells in the house and a few weeks after her confinement, the drains, which had been found to be in a bad state, were repaired by the landlord. The possibility

of the fetal endocarditis having been infective in nature suggests itself.

REFERENCES.

¹ BRITISH MEDICAL JOURNAL, 1891, vol. ii, p. 255. ² Med. Soc. Trans. vol. xiii, p. 147. ³ Edin. Hosp. Repts., vol. ii, p. 298. ⁴ Trans. Amer. Pediac. Soc., 1900, vol. xii, p. 142. ⁵ Congenital Diseases of the Heart, p. 44. ⁶ St. Bart's Hosp. Repts., vol. xxxv, p. 147.

ON THE TREATMENT OF TRAUMATIC ANEURYSM BY PROXIMAL LIGATURE:

WITH SIX SUCCESSFUL CASES.

By CECIL BIRT,

Major, Royal Army Medical Corps.

It is usually laid down in surgical treatises that the correct treatment of traumatic aneurysm is to incise the tumour and apply ligatures to the ends of the artery when found. In the revised tenth edition of Erichsen's *Surgery*, it is stated that the result of departing from this first principle of treatment of diffused traumatic aneurysm in the axilla is well shown by three recorded cases in which the subclavian was tied for subcutaneous rupture of the axillary artery. Two died of gangrene and secondary haemorrhage respectively; the third recovered after amputation at the shoulder-joint.

In gunshot injuries the difficulty of the procedure is great, and can only be sufficiently realized by those who have attempted the operation in the living or made dissections in the dead of the widespread lesions caused by high velocity bullets.

The following cases, which have been admitted to No. 19 Stationary Hospital, Harrismith, Orange River Colony, during the past six months, show that proximal ligature alone has been sufficient to bring about recovery in every instance in which this plan has been adopted.

CASE I.—*Gunshot Wound: Diffused Traumatic Axillary Aneurysm: Ligature of Third Part of Subclavian: Recovery.*—A trooper was struck by a Lee-Metford or Mauser bullet half an inch internally to the angle of the anterior fold of his right axilla. The wound of exit was at the corresponding site behind. The artery was injured, as the radial pulse was lost. The nerves were not severed, since he retained his rifle in his grasp for some minutes. Paralysis of the limb soon came on. On the third day after the injury when he arrived here he had great extravasation of blood in his axilla, arm, and side of his chest; paralysis of the forearm was complete; pain was severe. By the sixth day the swelling had rapidly increased. The hollow of the armpit was replaced by a diffused expansile pulsating tumour. The arm was tense, livid, and ecchymosed in places; his suffering was much aggravated. I therefore tied the third part of the subclavian artery. His symptoms were at once relieved. Twelve days later, when the dressings were removed, the wounds were healed, the tension in his axilla and arm had subsided, and the aneurysm was firmly consolidated. The symptoms of pressure on the nerves were gradually abating when he left.

CASE II. *Gunshot Wound: Diffused Traumatic Axillary Aneurysm: Ligature of Third Part Subclavian: Recovery.*—A yeoman was wounded at a few yards' range by a rifle bullet which entered midway between the right coracoid process and the angle of the anterior fold of his right axilla and emerged below the spine of his right scapula. He lost much blood. Major R. Caldwell, R.A.M.C., who was near him when he was shot, thought the haemorrhage would prove fatal. He controlled it by compressing the subclavian artery. Forty-eight hours afterwards on his arrival at this hospital the bleeding had ceased. There was a diffuse axillary aneurysm taking an upward direction, causing much swelling beneath the pectorals as well as in the armpit. The right radial artery was pulseless. His upper limb was completely paralyzed and anaesthetic. His pain was great. The third part of the subclavian was therefore tied. In 8 days' time the operation wound was healed and the tumour had become reduced in size and solid. He was regaining feeling and power in his forearm and hand. On his being invalided to England he was making rapid progress towards a complete recovery.

CASE III. *Gunshot Wound: Diffused Traumatic Brachial Aneurysm: Ligature of Third Part Axillary Artery: Recovery.*—Dr. Allan Campbell, whose case this was, has kindly per-

mitted me to refer to it. The wounds were large, and situated in the middle of the arm. The limb was much swollen and discoloured; widely-diffused pulsation was marked. Bullae had formed. The tension was so great that some present at the operation considered amputation the only rational mode of treatment. Dr. Campbell tied the third part of the axillary artery three days after the infliction of the injury. Recovery was rapid and all that could be desired. No portion of the extremity became gangrenous.

CASE IV. Diffused Traumatic Popliteal Aneurysm: Ligature of the Superficial Femoral in Scarpa's Triangle: Recovery.—A guardsman strained his left knee while going up Majuba Hill in June last. Pain and an aneurysmal swelling in his left ham shortly afterwards came on. Palliative measures were tried without benefit. On the day before he came under my care the tumour had suddenly become greatly enlarged. The aneurysm had evidently ruptured. The hollow behind the knee was obliterated by a diffused pulsating swelling extending down the leg and up the thigh. The skin was livid and thinned. The leg was oedematous. It seemed that gangrene could not be averted. The pain was intense. The femoral was tied at the apex of Scarpa's triangle. The oedema, pain, and tension were thereby immediately reduced. He was invalided to England with a whole limb, though with the movements of the knee-joint much curtailed by the thickening left by the consolidation of the large extravasation.

CASE V. Gunshot Wound: Diffused Traumatic Popliteal Aneurysm: Ligature of Upper Third of Popliteal: Recovery.—A yeomanry officer received a bullet wound behind the bones of his left leg, injuring the lower part of the popliteal artery. Five days later the limb was much swollen and ecchymosed. The skin was stretched to such a degree that sloughing seemed inevitable. Expansile pulsation was to be felt over the upper part of the calf and in the popliteal space. The pain had become so severe that he besought that amputation might be performed. There was every indication that this contingency would probably arise. The first part of the popliteal was tied as a tentative measure. This proved amply sufficient to check the symptoms. The aneurysm consolidated and the circulation was re-established in every part of the leg. He was quickly regaining power in the limb when he embarked for England.

CASE VI.—Gunshot Wound: Circumscribed Traumatic Radial Aneurysm: Ligature of Upper Third Radial Artery: Recovery.—A yeoman's forearm was perforated by a Mauser bullet which broke both bones. Sixteen days afterwards, although the wounds were healed, he suddenly experienced severe throbbing pain near the entrance wound, which lay over the middle of the radial artery. A circumscribed aneurysm was found, which increased in size to the dimensions of a large walnut in forty-eight hours. The radial artery was accordingly tied in its upper third. Recovery was complete.

In all the cases the wounds ran an afebrile and aseptic course. Kangaroo tendons were used. The limbs were sterilized with 1 in 500 potassium-mercuric-iodide in 50 per cent. alcohol.

Major S. Westcott, C.M.G., in charge of 19, Stationary Hospital, has kindly allowed me to publish the above cases, the success of which was largely due to the assistance given me by him and by Major H. B. Mathias, D.S.O.

CASE OF ACUTE EXOPHTHALMIC GOITRE.

By ALEXANDER JOHN CAMPBELL, M.D.,
Duns.

On September 26th, 1901, a young woman, aged 27, came to my house to have an upper bicuspid stump extracted. I extracted it, using cocaine hydrochloride $\frac{1}{2}$ -gr. A few hours afterwards I met her in the country walking homewards. She stopped me, and said that she had forgotten to tell me about a swelling on her neck to which her mother had drawn her attention a few days before. She undid the collar of her jacket and I saw that she had goitre. She complained of no symptoms. I sent her some syrup of hydriodic acid, and bade her take a teaspoonful three times a day.

I did not see her again till October 14th, when I called on her to draw some more bad teeth. She was "busy cleaning" at the house where she was housemaid. I injected cocaine hydrochloride $\frac{1}{2}$ -gr. into the gums and drew three teeth. There was no faintness, and very little pain was felt. The goitre was unaltered in appearance; the patient was somewhat bloodless. She was not at all excited. I prescribed a mixture of syrup of the iodide of iron and syrup of hydriodic acid, which, owing to her subsequent condition, was never taken. After I left the house the patient returned to her cleaning, and worked with great energy all the rest of that day and the next.

On October 17th her master called on me. He told me that she had been ill during the previous day, feverish, and complaining of pain in the left side. She had been given some grey powder, but the bowels had not moved. Her pulse had been beating at the rate of 112 per minute, but had sunk to 90. Her temperature had not been taken, but she had been "feverish, hot, and perspiring." I could not see her that day, but I sent a drachm of compound liquorice powder to be taken at once, and ordered powders, each containing 4 grs. of citrate of caffeine and 10 grains of phenacetin, to be taken every four hours.

On October 18th I saw the patient. She had been much excited during the night, and complained of pain in the precordial region. The heart was beating 144 times per minute, the pulsation of the heart and of the abdominal aorta were very violent, and the pain complained of was said by the patient to be due to the thumping of the heart. There was no cardiac murmur, and I could hear no morbid lung sounds. The temperature was normal, and the tongue moist and clean. I was told that the morning pulse had been 100 per minute. I applied a mustard plaster to the precordial region for half an hour. The voice was tremulous, and the patient was trembling slightly all over.

On October 19th, after a very restless night, her temperature was 99° F.; her pulse-rate was 140 per minute. Her eyes were wide open, and a margin of sclerotic showed between the iris and the edge of the upper eyelid. Again I failed to find the sign of any morbid condition of the lungs. There was von Graefe's sign, but the reactions of the pupil to light and accommodation were normal. I ordered potassium bromide gr.x and tinct. digitalis $\text{m} \times$ to be given twice during the night, and a diet of milk and milk puddings.

On October 20th I continued the bromide and digitalis mixture, giving it every three hours, and painted the precordial region with glycerine of belladonna. Temperature 99°, pulse 140.

On October 21st the patient had been very restless, and the arteries were thumping violently. The temperature was normal and the pulse-rate 128. A suppository of morphine hydrochloride ($\frac{1}{2}$ -gr.) was given at night, and the patient rested well.

During October 22nd the patient took a greater quantity of food. The pulse-rate was 120 per minute. In the evening she complained that the thumping of the abdominal vessels was severely painful. Hot fomentations were applied and another morphine suppository given, after which the patient rested fairly well.

On October 23rd the patient was removed to her mother's house, a distance of about half a mile. She stood the journey well. The thumping of the heart was not now so much complained of as the thumping of the abdominal aorta, although precordial discomfort was still felt. The bowels had not moved for two days, so I ordered a tablespoonful of castor oil to be given; temperature 99°, pulse 120. She slept pretty well that night.

On October 24th the tongue was coated with white fur; the bowels had not moved. I gave 3 gr. of calomel and a motion followed.

On October 26th the white rim above the iris had disappeared, and the staring expression was less marked. The lagging of the eyelid (Graefe's symptom) could still be observed. I think that the power to make the eyes converge to fix a near object was lessened, but I could not make myself sure. I continued the use of potassium bromide and digitalis; the pulse varied in rate between 108 and 120 beats per minute.

On October 28th the abdominal pain was less violent, the