hemiplegia. Still more, there is no doubt that in some of the cases in which there has been a paralysis on the opposite side to that of a cerebral lesion, with another lesion in the side of the cerebellum corresponding with the paralysis, this last lesion was such as to produce a pressure on the pons Varolii. So that we come to this state of things: that generally when a pressure upon one-half of the pons Varolii, by blood effused in the cerebellum exists alone, it causes a crossed paralysis; while it seems not to cause a paralysis at all, or if it helps in causing it the effect is produced in the corresponding side of the body, when there is, together with the lesion in the cerebellum, another in the opposite side of the brain proper. If you remember what I said a moment ago, that the pons Varolii can, without causing paralysis, bear pressure easier than some other parts of the brain, you will easily understand that a large clot in the cerebellum pressing on the pons will not always cause paralysis; but why is it that when there are two causes of paralysis—one in the brain proper, able to produce that symptom in the left limbs (for instance), and another in the pons Varolii, able to produce it in the right limbs—why is it, I repeat, that almost always then it should be the first that causes paralysis, and not the other?

The answer to that question neither the views I am endeavouring to establish nor the old ones I criticise can give at present. But—and this is the reason of my having brought up this topic now—there is a general tendency in all parts of the encephalon, when there is disease on the two sides, to give rise to paralysis only on one side. This we see not only in cases of disease of the brain on one side and of the cerebellum on the other, or, as I have shown already, in disease in the two halves of the pons Varolii or in both corpora striata, but also in cases of disease located in a part of the cerebral lobes on one side and in another and quite different part of the lobes of the other side. This point will come out fully from the facts I shall now have to mention as showing that *when there is disease in the two halves of the brain it is not rare at all that paralysis will appear on the side of the most marked or most extensive cerebral lesion.* A double and considerable hemiplegia, as I should have stated before, is relatively rare even in cases of disease of the two sides of the brain,—excepting, perhaps, when there are extensive alterations of the cerebral convolutions. The tendency to the production of one-sided paralysis either on the opposite side or on the corresponding one to that of the most extensive lesion, is certainly very great.

The number of cases that I could give showing that, in cases of disease of the two sides of the brain, paralysis can appear on the side most injured or altered is extremely large. I will only mention hastily some of the most interesting.

Dr. G. May* has seen a case in which there was paralysis, at first limited to the right limbs, extending, but to a less degree, to the left side. There was an abscess in the right half of the pons Varolii, and the whole surface of that nervous centre was ulcerated, and four ounces of fluid were found in the ventricles.

Kingston† has recorded a case in which there were trembling, numbness, and an incomplete paralysis of the right limbs. Death took place from accidental poisoning. There was an aneurism of the right internal carotid just before its entrance into the cranium, and another (size of a filbert) of the basilar artery. The pons Varolii was flattened and soft, and the right ventricle dilated by serosity.

Dr. Martineau‡ has published an important case, in which not only was there a much greater lesion on the side of the paralysis than on the other, but the paralysis was not constant, and came on by attacks, which, although in the same limbs, perhaps occurred at the time of an extension of the disease from one place to another, either in the same or in the other side. The left side of the pons Varolii and the left corpus striatum were inflamed in several places, and there was an old effusion of blood in the right corpus striatum. The paralysis always appeared in the left side.

Dr. Sims§ has given a still more remarkable case of right hemiplegia allied with atrophy of the two anterior lobes and the two optic thalami, with destruction of the right corpus striatum and slighter alteration of the left.

Cazauvielh,* in a good paper on Atrophy of the Brain, has recorded an important case of long-continued paralysis and atrophy of the left limbs, with atrophy of the left hemisphere, and only a slight alteration of the right posterior lobe.

For some other valuable cases, I will simply quote the following authors:—Campana,† Bayle,‡ Lallemand,§ Constant,|| Boinet,¶ Cheyne,** Wenzel,†† H. Rendu,‡‡

I could swell this list considerably, but I believe that the facts mentioned are quite sufficient to establish that sometimes, when there are lesions of unequal extent in the two halves of the brain, a paralysis will appear in the limbs on the same side where the lesions are most extensive. In most of the cases of that kind that I have collected, each of the two lesions was perfectly able to produce a paralysis, so that, according to the old views about the origin of that symptom there should have been almost always paralysis on the two sides instead of only a unilateral one. Still more, if we suppose that it was the greatest lesion that produced the paralysis, it should invariably have appeared on the side opposite to that of its location, and such was not what occurred. If, to make matters agree with the old views, we suppose that it was the smallest lesion that produced the paralysis, we are then in presence of facts showing a considerable alteration of parts considered as motor centres or parts of the pretended tract of conductors for voluntary movements, without the appearance of paralysis. It is clear, therefore, that those facts are in complete disagreement with the admitted views, while they are easily explained if we admit the views I hold.

Clinical Lecture

ON A

CASE OF SUCCESSFUL LIGATURE OF BOTH EXTERNAL ILIACS FOR INGUINAL ANEURISMS.

By EBEN. WATSON, M.A., M.D.,

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GENTLEMEN,—I have the pleasure of calling your attention this morning to a very rare occurrence in surgery—namely, the successful ligature of both external iliacs for inguinal aneurisms. The patient is the same Thos. M'C—whom I introduced to your notice at the beginning of the present session. I then described to you the history and results of ligature of the left iliac for inguinal aneurism, performed by me on the 1st May, 1875 ||| I now show you the man cured of aneurism of the right common femoral by ligature of the right iliac artery, which I performed in your presence on the 19th January, 1876; that is, eight months and nineteen days after the previous operation. In Mr. Erichsen's "Surgery" you will find reference made to a similar case, in which Mr. Tait tied both iliacs successfully, at an interval of eleven months between the operations. I do not know of any other such case on record.

After the first operation M'C—remained quite well, and was able to resume his work as a shoemaker; but on the 17th November, 1875, he returned to the hospital complaining of violent headache, or rather of a violent pain on the right side of the head, said to be quite of a peculiar nature. Ordinary remedies had no effect on this pain, and I began to wonder if it could be due to some intracranial aneurism. I did not, however, make out any bruit; and as the man had once had syphilis, I put him upon full doses

* Archives Gén. de Médecine, &c., 1828, vol. xiv., p. 15.

† Bulletins de la Soc. Anatom., vol. xxxii., 1857, p. 246.

‡ Traité des Maladies du Cerveau. Paris, 1826. p. 303.

§ Lettres sur l'Encéphale, vol. iii., p. 170.

|| Gazette Médicale de Paris, 1836, p. 463.

¶ Bull. Soc. Anat., 1834, p. 136.

** On Apoplexy, p. 125.

†† Quoted by Gintrac, loc. cit., vii., p. 83.

‡‡ Rech. Cliniq. et Anatom. sur les Paralysies, &c. Paris, 1874. p. 109. I mention this case as a specimen of superficial lesion of the two sides of the brain.

||| See THE LANCET of Jan. 15th, 1876.

* Association Journal, 1853, p. 554.

† Quoted by Gintrac, loc. cit., vi., p. 387.

‡ Bulletins de la Soc. Anatom., 1860, p. 443.

§ Medico-Chirurgical Transactions, vol. xix., p. 367.

of iodide of potass, on the theory that the headache might be periostitic in its origin. Soon afterwards the pain rather suddenly ceased, and the man declared himself quite well on the 24th November.

Nevertheless, he remained in the hospital, chiefly because I wished to show him to you, and to the Medico-Chirurgical Society of Glasgow. As before, he made himself very useful in the wards, but was not allowed to do any heavy work. It was only on the 27th of December last that he told me in passing through the wards that there was an unusual beating in his right groin, as if he had another aneurism there, and on examination such turned out to be the truth. The tumour was in the site of the common femoral, just under Poupart's ligament, as large as a walnut, pulsating freely in all directions, and yielding a loud aneurismal bruit when listened to with the stethoscope. I immediately ordered rest in bed, and compression only with a sand-bag, because of the tenderness of a gland which was situated close to the aneurism.

Unfortunately the patient could not endure any form of pressure. I tried the abdominal compressor in several positions above the aneurism, and Signoroni's tourniquet further down. I even applied Carte's circular tourniquet below the aneurism, and on the tumour itself, but all to no purpose, and the man himself begged me to tie the vessel, as I had done before, on the other side. By this time the aneurism had considerably increased in size, and now measured three inches in length. The bruit was very loud, and a grating sensation was communicated to the hand when laid on the tumour, just as if the blood-current was displacing coagula in the sac as it passed through. A consultation of the surgical staff of the hospital agreed with me that ligature of the right external iliac should now be performed, and therefore, having put the man on low diet for a few days, and gently opened his bowels, I performed the operation on the 19th of January.

The limb was carefully wrapped in cotton-wool and flannel, and chloroform was administered, but he went under its influence with difficulty, had frequent attacks of retching and coughing, and occasionally during the operation came partially out of the anæsthetic stupor. His condition, therefore, was not such as made the operation easy, and it also happened that, after making the ordinary incisions through the skin, aponeurosis, and muscles, I found it very difficult to separate the transversalis fascia from the peritoneum; in fact, I punctured the latter in scratching through the fascia, the unsteadiness of the patient and his not being thoroughly under the chloroform at that moment having much to do with this error. However, immediately recognising the mishap, I closed the puncture with a single stitch of catgut, and proceeded with the operation, which I speedily completed without further difficulty. I dare say that the trial of compression on this side served to condense the areolar tissue, which is usually found loose and easily torn between the transversalis fascia and the peritoneum. The pulsation in the aneurism was at once arrested, and never for a moment returned. Its size was also greatly diminished on the ligature being tightened. I ought to mention here that the ligature was of silk, prepared as before by being drawn through melted wax and carbolic acid. It was cut short at the knot, and after the carbolic spray had been freely used, the wound was closed with stitches of silver wire, a drainage-tube of oil-silk having been inserted at the upper extremity. Next day I removed the dressings and extracted the drainage-tube, as there was no discharge at all, and not the least tenderness on pressure. There was, however, considerable flatulent distension of the abdomen, constant sickness, and occasional vomiting. His pulse was 72 and his temperature 99°. I ordered him a calomel-and-opium pill twice during the day, and one of colocynth and henbane at night. Nevertheless he continued to vomit frequently until next day, when his bowels were freely relieved by an enema. The abdominal distension at once disappeared, and, in fact, he was quite well.

He was kept on mild, soft diet, and had no bad symptom after the second day—in fact, after he recovered from what I believe was a bilious attack, increased by the effects of the chloroform, which evidently disagreed with him both at the time of its administration and afterwards. The wound was frequently dressed, and healed rapidly without suppuration. By the 10th of February it had completely cicatrised, and the dressings were discontinued.

Six days after the operation it is noted in the journal that the blood in the aneurismal sac felt quite solid, and by the time the wound was healed its size had greatly diminished. It is now represented by a small hard mass, of a flattened form, underneath Poupart's ligament.

The patient's diet was improved, and he was allowed to sit up in bed. In doing so he seemed to have bruised or irritated a gland in the iliac region outside of the cicatrix, and it was painful for a day, but a poultice soothed the pain, and the swelling very soon entirely disappeared.

Almost all restrictions were now removed, and the patient is reported on March 4th as being out of bed most of the day. It will be noticed that in this case the wound was firmly cicatrised in twenty-two days, and the patient was well and out of bed in six weeks from the date of the operation.

I am glad to be able to show you this man to-day (7th of June), nearly six months after the second operation was performed. He has been quite well since then, and only now complains of weakness of the abdominal parietes, where the incisions were made, and where you saw a considerable bulging when he coughed. I believe that a double truss with large and flat heads will be the best remedy for this state of parts.

I also beg you to note that there is no fulness or tenderness in the site of either ligature. In both iliac regions the parts seem to be quite healthy, with the exception of the obliteration of the arteries there, which is complete.

This case therefore proves that prepared silk ligatures may be applied on the continuity of an artery, and neither cut it nor produce suppuration, for both of these ligatures still remain, I believe, around the iliac arteries where I placed them, the one thirteen months, the other six months ago. As to the exact state of these ligatures, the best information I can give you is the following:—On the 15th of last January I assisted the late Dr. Dewar to tie the femoral artery with a silk ligature prepared as mine were. Unfortunately the patient, who was an old man and otherwise ill at the time of the operation, only lived for twenty-four hours. I examined the artery and the ligature carefully after death, and found that the latter had ruptured the internal and part of the middle coats of the former, the rest of the arterial wall remaining sound. The parts of the coat which had been ruptured were turned in towards the centre of the tube, and glued with lymph and clot. The ligature was buried in lymph, and, on cross section was seen to be already intruded into by the cellular elements. I have little doubt that its fibres would have soon been further separated and encapsuled by the lymph, and thus preserved from change. Such I believe to be the state of the ligatures in my case. They are still holding the arteries, but they are, by this time, so incorporated with living tissue that they may continue there indefinitely, without causing any disturbance or irritation.

At the time when this man's case was interesting us all—namely, last winter—I made some experiments upon the durability of catgut ligatures in the living body. More perfect ones might easily be devised, and I may yet pursue the subject further; but in the meantime I shall give you the results we arrived at.

EXP. 1.—Three catgut ligatures, prepared as usual for surgical purposes and of different thicknesses, were tightly tied round a piece of wood and immersed in blood freshly drawn from a man's arm. In twenty-four hours' time no appreciable change in the ligatures had taken place. The knots on the ligatures were quite firm, and the ligatures themselves were not thinned. My notes do not contain any indication of a later inspection of the ligatures.

EXP. 2.—Three similar catgut ligatures were employed, and a double knot was firmly tied on each. They were then pulled through a sinus in a man's leg, as a seton, so that the knots were embraced by the tissues and bathed in the sero-purulent discharge of the sinus. In six hours there was no appreciable difference in any of them. But in thirteen hours the ligature of smallest size had entirely liquefied and disappeared. That of medium size had become soft and diminished in thickness, so that the knot slipped on being slightly pulled; in fact, the ligature actually broke on slight traction being made on it. The third ligature, which was of the thickest catgut used in surgery, had also very much thinned; the knot on it slipped readily, but it did not break.

EXP. 3.—Again three catgut ligatures, similar in all respects to those previously used, after having been knotted, were inserted in an abscess recently opened. In six hours the catgut was bleached, but not otherwise changed. In thirteen hours the ligature of smallest size was softened, and the knot did not hold, while the others were unaffected; but after twenty-four hours' residence in the pus, all were found softened, thinned, and incapable of retaining the knot.

I ought to have stated that in Exps. 2 and 3 antiseptic dressings were employed, and in neither case was the pus at all putrid.

The question now comes to be whether or not the time—less than thirteen hours—is long enough to hold an artery with a ligature for the cure of aneurism; and the practical answer which must be given is that in some cases it would seem to have been long enough, while in others it was not. My experiments would seem to show that if suppuration is entirely prevented, the catgut ligature will hold for twenty-four hours, or perhaps even longer; but as no surgeon can be certain of securing that condition, especially in deep wounds and in unhealthy patients, the propriety of employing catgut ligatures in such cases is rendered doubtful; whereas the successful case of ligature of both internal iliacs now before you goes far to prove the safety and the certainty of prepared silk ligatures in such cases, and the length of time which has elapsed since the operations greatly strengthens this conclusion.

THE SPHYGMOGRAPH IN MEDICINE.

OBSERVATIONS ON THE TRACINGS FURNISHED BY MANY CASES OF DOUBLE AORTIC MURMUR.

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(Concluded from page 184.)

CASE 4. *Double aortic murmur; some cardiac hypertrophy; tortuous and visibly pulsating temporal artery; flat-topped tracings; pallor; anasarca.*—T. M.—, aged seventeen, van-boy on the Great Western Railway, admitted June 23rd, 1876. Had rheumatic fever badly when he was quite young. Was taken ill fourteen days ago with pains in back, arms,

and abdomen; they are now felt in the legs, knees, and right arm. Is pallid. Pulse 88, jerking, not small or empty. Temperature 103°. Right temporal artery was seen pulsating most markedly and tortuous at the time of his admis-

sion; when he was quiet in bed it was less visible. Heart's apex beats at and a little outside the fifth left space; dulness area a little increased to left; loud double murmur heard at xiphoid and at midsternum; the systolic portion is loud

at both second cartilages and in both sides of neck; the diastolic is weak at upper sternum. No mitral murmur.

Fairly good breathing at both backs. At the sternal notch a distinct pulsation is felt, but it is not certain whether it proceeds from the dilated aortic arch or from the large vessels of the neck. Sometimes a thrill is felt in this situation. He was ordered ten grains of salicylic acid every two hours. The temperature fell by the 24th to 100.4°, and by

the next day to 98.4°. By the 26th the rheumatism had disappeared; the heart sounds were as before. The salicylic acid was taken every four hours after the first day; fifteen grains of potassio-tartrate of iron and fifteen minims of tincture of calumba being substituted for it on the 26th.

On July 3rd he was up and about, but was very pale, and both feet were notably anasarous.—6th: Specific gravity of urine 1022; not albuminous.

This case was undoubtedly one of valve-lesion from rheumatic endocarditis; there cannot be any suspicion of arterial degeneration or of uræmia. With regard to the tracings, those which I have figured and several others, taken at very different pressures, all agree in exhibiting

signs of increased arterial tension. The effect of gentle exercise—walking a few minutes in the ward—as compared with repose was decidedly to increase the degree of arterial tension, as might be expected from the action of the heart being increased. The height of tracing (g) shows how

dilatable the arteries were. The contrast between (c) elevation and (f) depression of arm is quite similar to that in Case 3, and the same remarks are applicable to both. During elevation both tracings retain their tension-signs, though perhaps attenuated. The tracings on the right of (e) should be compared with those on the left by those who regard narrow peaks as produced by jerking of the lever away from the knife-edge (inertia), and not by true elevation from distension. If the four tracings on the right cannot be ascribed to inertia, why should the six on the left be?

CASE 5. *Double murmur at midsternum, systolic in left side; radial pulses visible; dropsy; bronchitis; albuminuria; previous attack of gout; autopsy showed considerable lesion of aortic valves, hypertrophy of heart, sound kidneys.*—W. O.—, aged forty, labourer, admitted October 3rd. Was in good health up to August 10th, then got bad cough, and his breath became very short. No expectoration. Lower limbs and scrotum greatly swollen. Urine contains some albumen