there are certain arteries which cannot be compressed so as to cure an aneurism, because of the intermediate vessels between the point of compression and the sac; and of all arteries I think the common femoral is the one most convenient for compression, and for most certainly cutting off the largest amount of blood from the sac. I suppose there is no other place in the whole arterial system, except the end of the axillary, at which one can be so sure of arresting the whole circulation, as at the femoral artery. I do not know whether or not I shall have to give up the idea after the remarkable facts which have been brought forward to day, but I think that in some cases it must be absolutely essential to employ compression on two places, so as to cut off the possibility of the aneurism being fed by the second vessel.

Dr. MAPOTHER: Both my cases were previously treated for a few days by the instrumental and digital compression, which failed. In one of the cases, after thirty-six hours, the first clot gave way, having been probably formed by the plugging of the first vessel, and not by the filling of the sac with coagulum. Both of my cases required between three and four weeks of care and rest; and, after that, absorption rapidly went on.

Dr. MURRAY: I must express the great gratification I feel at finding the views which my cases have suggested to my own mind, so ably substantiated by Dr. Mapother and the various gentlemen associated with us to-day. These cases of aneurism suggest an almost infinite field of thought, speculation, and theorising, into which it is impossible for me to go. I rise, therefore, simply to insist on the points laid down in my papers, and to answer the questions which have been put. I insist, first, on the administration of chloroform in all these cases to destroy consciousness and to relax muscles. Absolute unconsciousness is necessary. In the next place, you must have the artery not only commanded so as to prevent visible pulsation, but you must have every single jet of blood that could possibly pass into the aneurismal sac stopped. If a single drachm of blood enter after the proper moment, the operation of coagulation will be interfered with. I absolutely insist on that point as to the immobility of the blood in the sac. It is impossible for me to go into the proofs that the cure takes place by the coagulation itself, and not by the deposition of fibrine; but the questions which have been put to me may be answered in this way. In the first case, the aneurism had only been pressed for two hours on a previous occasion, and that treatment was given up at that time chiefly because we feared to persevere much longer with chloroform. Gaining confidence from that, I tried four hours pressing on the aorta, as well as I could, preventing any great amount of blood from entering the sac. At the end of that time I was convinced that I could not command the aorta, and that I might go on for ever pressing the abdominal aorta without arresting the current of blood to it. It was then that I found I had not got at the process by which the artery was to be compressed. I determined to make another effort. This I did, and the aneurism was cured. In the other case, the artery was pressed for ten hours, and the man fainted. On his recovering, the aneurism seemed to be expanding; there was throbbing in the sac as before, and not the slightest evidence of consolidation. The patient seemed as bad as ever, and in danger of being left without being cured. But on applying the tourniquet, after about twenty minutes, not a particle of blood could enter the aneurismal sac, the aneurism ceased to beat, and was cured by the coagulation of the blood. With regard to the time necessary for rest, these two cases are interesting, as showing what a remarkably short time was necessary. In the first case, the patient was walking along the street with the aorta completely blocked up at the end of six days. He went out without my sanction, and walked a quarter of a mile home, although he felt rather tight about the waist, and his legs were a little numb, and when he reached home he had a slight pain in his back; and from that time he got on perfectly well, and was afterwards able to earn his bread by working as a paviour, as he did before the aneurism. In the next case, the man was making baskets in about four days after pressure, and since then he has followed his trade of a basket-maker.

ASSISTANT-SURGEON PELL, 3rd battalion Rifle Brigade, was found dead in his bed at Murree Station on the morning of July 31st. From the appearance of his body, there could be no doubt that death had been caused by cholera. The collapse must have been very sudden in the case of the deceased officer. Indeed, the type of cholera prevalent in Murree appears to be very fatal, as only one or two recoveries had been reported.

LUNATIC ASYLUMS IN AUSTRALIA.—Australia has been overtaken by the "lunatic asylum question". We learn from the *Melbourne Argus* that the sums of £16,000 and £15,000 have been placed on the additional estimates for the construction of lunatic asylums at Beechworth and Ararat respectively.

A CASE OF TRAUMATIC ANEURISM OF THE ORBIT, IN WHICH THE COMMON CAROTID ARTERY WAS SUCCESSFULLY TIED.*

By J. Z. LAURENCE, M.B.,

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JAMES G., aged 41, applied at the Ophthalmic Hospital, Southwark, on Monday, January 21st, 1867. He was an habitual drunkard. On Saturday, the 13th, he drank a great deal of gin-and-water, and about a pint of neat brandy, continuing drinking from one o'clock in the day of the 13th till about three o'clock in the morning of Monday, the 14th. He was taken home at a quarter to four on Monday morning, in a state of helpless intoxication; and, during his staggering journey, he fell down several times on the kerb-stone, on the back of his head, where there was a small wound. On arriving home, he fell down in the passage, and there his wife let him lie. At this time he vomited considerably, and his wife noticed that there was something amiss with his left eye. The vomiting continued, off and on, for nearly a week—a circumstance never before noticed. After lying in the passage about three hours, he had sufficiently recovered from his stupor to complain of an aching pain on the left side of his forehead. His wife then noticed the left eye very slightly protruded; but at eight o'clock it was much more so. The eye was not red. On the same Monday, between one and two in the afternoon, he had a fit, which lasted about ten minutes. He was insensible, convulsed; had stertorous breathing, and was flushed like crimson. He afterwards slept deeply for two hours. No loss of power in the limbs was observed.

On Monday, January 21st, he was seen for the first time at the hospital by the assistant-surgeon, Mr. Moon, who at that time noted down the following facts: "Great proptosis and complete immobility of the left eyeball; complete ptosis; no pain produced on pressing the eyeball backwards; pupil 2", fixed; perception of light; great chemosis of conjunctiva." On Friday, January 25th, I saw the patient for the first time, the case being referred to me by Mr. Moon as one of "orbital cellulitis". It certainly presented the appearances of such a case; but, after I had heard the history of the accident, it struck me that it might be a case of traumatic aneurism of the orbit. Actuated by this thought, I felt for pulsation of the eyeball. Sure enough, there it was. As a matter of course, I then proceeded to a very careful examination of the case, and made the following further notes. "The eyeball pulsates forwards, and synchronously with the pulse at the wrist; the pulsation is completely stopped by firm pressure on the carotid artery; a distinct blowing murmur can be heard over the eye synchronously with the pulse." At a later period of the case, the extent of this murmur was more completely defined; it extended from the eyeball over the left temporal and parietal, the frontal and right parietal regions; it was loudest at a spot about two inches behind the left external canthus. The man complained of a "blowing sound like that of a pair of bellows" at the left temple, which ceased at once when the left carotid artery was compressed. At the same time, we found that the *bruit* ceased in all the parts where we had before remarked it. The whole eyeball was considerably thrust forwards, and apparently enlarged. In order to expose it to view, it was necessary to raise the upper eyelid, which was vastly expanded over it, and was livid, congested, and more or less cedematous. There was considerable conjunctivitis and chemosis; the pupil was dilated; the details of the fundus oculi presented no special characters. He had scarcely perception of light. During the progress of the case, some further symptoms were observed: violent pulsation—unattended, however, by any *bruit* of the carotid artery itself; that he had lost the sense of smell with either nostril; and that nearly every day he had slight bleeding from the nose.

Regarding the effect which digital pressure on the carotid had on the pulsation and *bruit* of the tumour, we determined to give the compression treatment of aneurism a fair trial. Accordingly, the common carotid artery was compressed by the tourniquet figured in Messrs. Weiss' *Catalogue*, 1863, as "Skey's tourniquet". Pressure was then applied for twelve days almost constantly. The effects of the pressure, when accurately applied, were: the pulsation and the *bruit* almost entirely ceased; the eyelids became more flaccid, paler, and cooler. But, as can be readily understood from a consideration of the anatomical relations of the carotid artery, much difficulty was encountered in maintaining continuous effectual compression without interfering with the patient's respiration. Nevertheless, thanks to the exemplary tractability of the patient, the compression treatment was, on the whole, effectually tried. Its action was, moreover, assisted by the

* Read in the Surgical Section at the Annual Meeting of the British Medical Association in Dublin, August 1867.

application of ice to the tumour, and the internal administration of ten-drop doses of tincture of digitalis and of liquor opii sedativus every third hour for two days, when it was found necessary to discontinue the digitalis. No permanent good being effected by compression, the tumour increasing in size, repeated epistaxis, and especially the fact that the patient's health was gradually giving way under continued irritation, were all so many circumstances which, coupled with the advice of my friends Mr. Quain and Mr. T. Carr Jackson, determined me to ligature the carotid.

Feb. 9th. I tied the left common carotid artery in about twenty minutes, in the presence of Messrs. Quain, O'Donnell, T. Carr Jackson, Sleeman, and several other medical men. Immediately after the artery was tied, the pulsation in the orbit stopped, and the protrusion of the eyeball slightly diminished.

On the 23rd of April, 1867, the following notes were taken. "The eyelid is no longer tense, but presents simply the appearance of a case of extreme ptosis. The eye is no longer congested, and all its movements are present to a moderate degree. There was only a single line of chemosis below the cornea. Some small vessel was felt pulsating in the line of the operation-scar; very different, however, from the strong pulsation of the carotid of the right side. His voice, which had failed him ever since the operation, had gained in strength. The right iris is hazel-coloured, the left dull grey; the left pupil irregular and fixed. In fact, the eye presented all the appearances of a case of sub-acute iritis; without, however, any pain in the eye. The cornea misty, the fundus illuminable; but no details seen. There was no pulsation or *bruit* in the orbit or any part of the head."

When the patient was last seen, June 26th, 1867, the eyeball had completely retreated into the orbit; the ptosis had all but disappeared; the movements of the globe were nearly perfect; the eye itself presented much the same appearance as in the last report; all vision was lost; his voice was still husky. No pulsation was felt in the carotid above the point of ligature, nor in the left temporal, facial, or inferior labial arteries. An artery was felt pulsating in front of the thyroid cartilage, and another lower down at the root of the neck above the sternum.

The diagnosis which I formed of the above case was rupture of the ophthalmic artery at or near its origin from the internal carotid, leading to effusion of blood within the orbit. This rupture must, I think, have been caused by some fracture of the base of the skull in the neighbourhood of the optic foramen, the artery having become perforated by a spiculum of bone. The epileptic seizure shortly after the accident appears to me to point, to a certain degree, in the same direction.

The compression treatment, adopted in the first instance in this case, could not, of course, be so efficiently carried out as in a case of popliteal aneurism, but was, on the whole, quite sufficiently so to have yielded some result. The only result which I ascribe to it—indirect, it is true, but to my mind most valuable—was, as I take it, to materially assist in establishing the collateral circulation; and to this circumstance I ascribe the complete absence of any cerebral symptoms after ligature of the artery—symptoms which, in several recorded cases, have been the immediate cause of a fatal result from the operation. So strongly, indeed, am I impressed with this conviction, that, should I ever have occasion to ligature the carotid again, I should consider previous compression of the artery an essential preliminary to the operation, altogether independent of any direct curative effect I might thus hope to obtain.*

I would direct particular attention to what I consider a highly practical fact observed in this case—*i. e.*, that up to a certain day, February 20th, eleven days after the operation, pulsation was seen and felt below the point of ligature, but that this pulsation on the following day suddenly and permanently ceased. This latter fact, I consider, marked the time of formation of the clots of either side of the point of ligature. It marked a high degree of certainty that, when the ligature separated, no secondary hæmorrhage—one of the greatest dangers after the operation—would occur. I formed this favourable prognosis many days before the ligature separated; and the result confirmed my anticipation. I consider this an important fact to note in all cases of ligature of large arteries, and one to which sufficient attention has not, I believe, been directed by surgical writers.

As far as I know, the carotid artery was ligatured for intraorbital aneurism first by Travers in 1804, sixty-three years ago. Since that time, the operation for the same disease has been performed twenty-one times, my own case forming the last of the series. Of these cases, fifteen have been successful, two incompletely successful, one unsuccessful, and two have died; so that the mortality has been 10½ per cent.

I have at present, at St. Bartholomew's Hospital, Chatham, another case of aneurism of the orbit under my care, which I hope at some future period to lay before the profession.

* Mr. Hart has made the same remark in a case of ligature of the carotid, performed by him for the cure of orbital aneurism.

BRITISH MEDICAL JOURNAL.

SATURDAY, OCTOBER 5TH, 1867.

PRELIMINARY SCIENTIFIC EDUCATION.

MEN of science and of enlightened views generally agree that the exigencies of modern life demand a more general indoctrinal acquaintance of our population with the principles of science. Earl Granville recently attributed our industrial shortcomings to the fact, that the scientific element is not sufficiently recognised in education. Medical teachers have long seen how disastrous are the consequences of ignoring the natural sciences in the education of school-boys. Our profession has urgently called attention to the anomalies and incompleteness of the "liberal" education of the day. Medical men are concerned, in their daily work, that the general public should be correctly informed upon the principles by which their work is regulated and must be judged. The elements, at least, of the natural sciences are essential to the medical student. If they be not taught to a boy at school, it falls to the medical teacher to expend, in giving preliminary training in the sciences, the time which ought to be devoted to demonstrating their technical application to medicine and pathology.

The demands of the medical profession have already wrought good results in the matter of school training in Arts. The groundwork is now more thoroughly laid. Even more may be expected when the study of science, involving as it does accuracy and mental discipline, has been incorporated with the usual branches of general education. Obstacles have been placed in the way of introducing science into the ordinary school course. To surmount these obstacles must be the first work of the educational reformer. A report drawn up by a Committee of the British Association considers the best means for promoting scientific education in schools. There is no longer any doubt but that boys at school can be taught, and will take pleasure in learning, the elementary facts and principles of Natural Philosophy, Chemistry, and Botany. Nor is it necessary that attention to these sciences should preclude proper instruction in Mathematics, Classics, and English. We have evidence to this effect in the actual working of some schools at which the new system has been adopted. A prominent objection, noticed in the British Association Report, is that the introduction of natural science into the school course entails considerable expense. This objection is founded, to a great extent, upon ignorance. It is urged especially on the part of an army of private schoolmasters whose individual interests, from a commercial point of view, appear likely to suffer by an innovation such as that desired. Visions of costly apparatus, special apartments, and possible danger to person and property, may suggest themselves, and be more or less believed in by timid schoolmasters and the uninformed public. The expense entailed by introducing science into schools is so small compared with the obvious advantages, that no difficulty is to be apprehended on this account as regards public schools. It is probable that in private schools, where self-interest has not already stolen a march upon competitors, this same self-interest will prove sufficiently strong eventually to remove the objection.

Another objection has been made, which shews a consideration for the youthful brain rarely to be met with except in school