CASE
OF
TRAUMATIC ANEURISM
OF THE
OPHTHALMIC ARTERY,
CONSEQUENT ON INJURY OF THE HEAD,
CURED BY LIGATURE OF THE COMMON CAROTID ARTERY.

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THE relation of the ophthalmic artery to the optic nerve is so close, that any serious enlargement of the vessel must be very liable to affect the function of vision, and it is therefore fortunate, that the artery is so situated, and so well protected, as to be very little subject to disease or injury. It appears, however, to have suffered in a few instances of injuries of the head, and as the changes which take place under these circumstances have not been particularly noticed, I venture to submit the following case to the consideration of the Society.

J. M., æt. 49, a labourer, was admitted into the London Hospital, March 24th, 1854, with a fracture of the clavicle, and considerable hemorrhage from the right ear, and labouring under the symptoms of concussion. He was by no means a robust man, and his hands were contracted and crippled by rheumatism. It appeared, that he had fallen from the top of a stack of wood, seven feet in height, and pitched on his right shoulder and right side of the head.

He was stunned by the fall, and remained quite unconscious until after his admission into the hospital. There were only slight marks of contusion on the head, and no evidence of fracture of the skull. Shortly after being placed in bed he vomited, and he remained in a semi-conscious condition, with a feeble pulse, for several hours. The head was shaved, a cold lotion kept to it, and a smart purge given. On the following morning he was more conscious, and after remaining for three days very restless, he seemed to be improving. The hemorrhage from the ear was followed by a serous discharge for about a week, and by total deafness of the right ear, and he complained of a dull aching pain on the right side of the head. In about a week after the accident, the face was observed to be drawn slightly to the right side, but the tongue could be protruded straight out of the mouth. He was blistered behind the right ear, and ordered to take small doses of calomel; and as he was in a weak condition, his diet was improved. In a fortnight later, the paralysis of the right side of the face had nearly subsided, and the pain in the head had diminished. About the beginning of May, I noticed a little inflammation of the conjunctiva of the right eye, attended with slight chemosis. For this, a lotion consisting of a weak solution of the nitrate of silver, was ordered. The injection of the conjunctiva and chemosis continued, however, to increase, and the eye-ball was observed to be prominent. I then suspected that some mischief was going on at the bottom of the orbit. There was also more pain in the head. An issue was made behind the ear, and the nitrate of silver lotion to the eye was discontinued. Fomentations were substituted, and two leeches were applied to the right temple, and repeated two or three times. This relieved the pain in the head, but had no effect on the eye.

May 22d.—The eye-ball protruded so much, that I was induced to make a careful examination of the orbit, which led me to detect a pulsation on placing the finger on the upper lid, and pressing gently on the globe. The proptosis

was more marked two days afterwards, and a very distinct *bruit* was heard when the ear was placed against the patient's right temple. He also described the pain in the head as a distressing throbbing sensation. Vision was not all impaired; but he had very little power of moving the eye. He was kept at rest in bed, with the head elevated, and a small bladder of ice was applied over the orbit; but this was so uncomfortable, that it was discontinued after two days.

31st.—A consultation was held to consider the propriety of tying the carotid artery. The patient had lost the left eye from cataract ten years before, which rendered it of greater consequence to save the right. The sight of this eye was somewhat impaired, but as he could see, with a little difficulty, to read small letters, and vision was not decidedly injured, and the proptosis had not perceptibly increased for two days, it was decided to wait.

June 2d.—Finding the eye getting more prominent, and vision becoming impaired, the pupil being widely dilated, I determined on tying the right common carotid artery. The ligature was applied on the vessel in the upper third of its course. The pulsation of the eye-ball was at once arrested, and the man was relieved of the beating pain in his head. A dose of morphia was given at bed-time.

3d.—The man had slept only one hour. He experienced pain in swallowing, and had slight twitchings of the muscles. The eye was less prominent, but vision was not so good as before the operation.

4th.—He was unable to discern the objects before him; indeed, his vision was lost. He could only distinguish between light and darkness. The pupil was dilated, and the iris did not act on exposure of the eye to strong light. He was otherwise doing well, and felt no pain in the head.

5th.—The chemosis and redness of conjunctiva had nearly disappeared, and the projection of the eyeball had almost subsided. The cornea was dull and hazy. The grey iris was slightly discoloured, of a greenish hue, and the pupil was widely dilated, of an irregular oval form from old adhesions. He experienced considerable intolerance of light.

On the 8th the cornea was observed to be less hazy, and by the 11th had become nearly clear. Vision was returning, but the intolerance of light continued. He had quite recovered the power of moving the eyeball, which had subsided to its proper place in the orbit. He could hear better on the right side, and the facial paralysis was scarcely perceptible. He eat and slept well. On the 13th he could distinguish objects held before him. The pupil, however, remained dilated, and the iris motionless under the stimulus of light. In about a week later the intolerance of light passed off, and he was able to discern objects at a distance pretty clearly, but not near objects. He could not see to read, nor make out the hands and figures of a watch. On looking, however, through a small hole in a card, he was able to see much better, and could read with a little difficulty, and ascertain the time on the face of a watch. The ligature came away on the 23d day. *p.s.*—The patient was discharged from the hospital at the end of July. His vision was at that time much improved. The pupil was less dilated, but still fixed.

The history of the above case clearly shows, that a severe injury of the head had been the occasion of the formation of an aneurism of the ophthalmic artery. The bleeding from the ear, the subsequent discharge of serum, and total deafness of the right ear, and paralysis of the parts supplied by the portio aura, indicated some serious injury to the base of the skull, and it seems probable that the petrous portion of the temporal bone was fractured, and that by the extension of the fracture to the optic foramen the ophthalmic artery had been wounded by a splinter or detached fragment of bone. There was no indication, however, of an aneurism having formed until upwards of five weeks after the accident. Its progress was then slow, and vision was not affected until nearly a month after the first appearance of anything wrong in the orbit, and was only slightly impaired before the operation.

I was unwilling to place a ligature upon the carotid, which in a person of feeble health and weak power was not unlikely

to produce cerebral mischief, without an urgent necessity for the operation ; but the previous loss of the left eye rendered the preservation of the right of greater consequence. I watched the case, therefore, with anxiety from day to day, having resolved to tie the carotid artery immediately that vision was seriously threatened ; and having performed the operation, apparently in good time to save the eye, I was greatly mortified to find sight entirely gone on the second day afterwards. This occurrence, and the recovery of sight in a short time, are circumstances of much interest in the history of the case. The temporary loss of vision must be ascribed to changes consequent on defective nutrition, from the arrest of the circulation through the carotid artery, the aneurismal tumour interfering probably with the supply of blood to the eyeball from collateral sources. But as the proptosis subsided, and the circulation became reestablished, the eye recovered its nutrition, the cornea became transparent, and sight returned. The remarkable dilatation of the pupil, which continued after the recovery of vision, cannot, I think, be referred to the same cause. It seems most likely to be due to the aneurism pressing on or stretching the ciliary nerves, and destroying their functions, as respects the motions of the iris, producing, in fact, mydriasis.

This case clearly establishes the great danger to vision caused by a traumatic aneurism of the ophthalmic artery, from pressure on or traction of the optic nerve, and the ciliary nerves. It also shows, that to avoid these sources of danger, as well as to prevent the risk of the eye being injured by impeded nutrition after operation, a ligature should be applied to the common carotid artery at an early period, or soon after the detection of the pulsating projection of the eye-ball.

In 1834, I witnessed, at the London Hospital, a case of a similar nature to the one just related. A youth sustained a fall which produced concussion, attended with proptosis, dilated pupil, and loss of vision of the right eye. The prominence of the eye-ball increased, and at the end of a

month pulsation was detected. During a fit of coughing, violent arterial hemorrhage occurred from the nose, when Mr. Scott, who was at hand, instantly tied the right common carotid artery. The proptosis subsided, but vision remained permanently lost. Mr. Busk, in a brief notice of this case, justly remarks, "the protrusion of the globe immediately after the accident, without symptoms of cerebral compression, proved that it arose from extravasation of blood within the orbit, and the further continued protrusion rendered it probable that the aperture in the vessel from which the blood escaped had not closed.

These two cases, and the interesting one related by Mr. Busk, in the 'Society's Transactions' (vol. 22), are, I believe, the only examples of aneurism of the ophthalmic artery, consequent on an injury of the head, on record. In Mr. Busk's case, it appears that a seaman was rendered insensible by a severe blow, which was followed by bleeding from the right ear and deafness, with paralysis of the left side of the face, and immobility of the left eye, with dilated pupil. Suppuration of the cornea ensued, and ended in an opaque cicatrix of its lower half. About seven months after the accident, Mr. Busk detected a small pulsating tumour in the left orbit, and tied the left carotid artery. The patient recovered, with vision through the upper part of the cornea, but with a fixed pupil. The proptosis appears to have been but slight, and after the discovery of pulsation, the carotid artery was tied without delay.