C A S E
OF
ANEURISM BY ANASTOMOSIS OF THE
SCALP,
TREATED SUCCESSFULLY BY LIGATURE OF THE
COMMON CAROTID AND SETONS.

BY
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THE difficulty of treating aneurism by anastomosis, where it extends over a large portion of the scalp, is my reason for bringing before the Fellows of this Society a case of perfect cure by ligature of the common carotid and the introduction of setons.

The patient, a married female, æt. 28, had been suffering from dilatation of the vessels on the right side of the scalp for upwards of eight years. The disease was at first of limited extent, implicating only the vessels over the upper portion of the parietal bone, but it gradually spread towards the temporal fossa, behind the ear, and in the direction of the occiput. The vessels continued to enlarge, and those over the frontal bone and in the palpebræ of the right eye also became slightly affected.

A fortnight ago, a small ulcer formed over the parietal protuberance, and hæmorrhage occurred from it on several occasions, which was at first easily arrested by lint and bandage. The last bleeding, however, having been more severe than its predecessors, she sought and obtained admission into the Manchester Royal Infirmary.

She came under my notice for the first time on the 19th of May. Her countenance was pale, and plainly indicated that she was just recovering from hæmorrhage which had taken place a few days before. On the removal of the bandage I found the disease to extend over all the right side of the scalp. The temporal artery and its branches, with the exception of those distributed around the eye and the forehead, which, though visibly distended, did not pulsate, were much enlarged, some of them to the size of the little finger, and communicated to the hand a distinct arterial thrill. The occipital artery and its branches were also similarly affected, though in a less degree. The pulsation was only slightly checked by pressure on the trunks of these vessels, but was completely suspended by compression of the common carotid. I attempted to remove the lint covering the ulcerated surface, but arterial hæmorrhage supervened to so great an extent that I immediately replaced the bandages, and invited a consultation of my colleagues.

On the following day, having taken the precaution to have the requisite appliances for the arrest of hæmorrhage at hand, I removed the compress in the presence of Dr. Eason Wilkinson, Mr. Dumville, and several of the resident members of the hospital staff. Profuse bleeding followed from the ulcerated surface, which occupied a space at the upper part of the parietal bone about an inch and a half in diameter. Pressure with the fingers failed to stop the effusion of blood, escaping, as it did, from countless sponge-like orifices. Lint steeped in a solution of perchloride of iron was also applied and the carotid compressed, but the blood continuing to flow, with the consent of my colleagues, I proceeded to place a ligature on the trunk of the common carotid, above the omohyoid muscle, which had the desired effect. The patient was

seized with a convulsion at the commencement; some delay, in consequence, occurred in securing the vessel, and it was feared she would scarcely survive the completion of the operation. In consequence of the urgent nature of the case chloroform was not given. Essence of beef, yolk of eggs, and brandy were afterwards freely administered, and the head kept very low.

May 22nd.—The condition of the patient was favorable, and she had partaken freely of nourishment. Pulse 100; bandages and compress removed from the head; the ulcerated surface dry, with the exception of a few drops of arterial blood exuding from its edges where the lint had adhered. No pulsation perceptible in the vessels of the temple or any part of the scalp. Wound in neck healthy, suppurating. Simple dressing and a light bandage applied to the ulcer.

26th.—Progress satisfactory. Very feeble pulsation can be felt at the temple, near the ear; the vessels of the scalp soft, flaccid, and apparently bloodless.

28th.—On removing the dressing, several drops of arterial blood flowed from the edge of the ulcer. Skin over the eyebrow disposed to slough from pressure of the bandage.

Four setons of worsted about four inches in length were passed through the diseased structure, one across the temporal fossa, the others through the parts of the scalp where the vessels were most distinct.

June 3rd.—Still progressing favorably; no increase of pulsation; setons suppurating. The ligature around the carotid came away to-day.

7th.—Two setons removed.

9th.—Some vessels near the original sore distended and slight pulsation in them discernible. Seem to be supplied with blood from the opposite side of the scalp. Three setons inserted into the largest vessels. An hour afterwards the pulsation had ceased and the blood in the vessels appeared to be coagulated.

18th.—All the setons freely suppurating. The vessels into which they pass enlarged, and on pressure a free discharge of pus. Two setons withdrawn, arterial hæmorrhage fol-

lowing, but easily checked by a light compress of lint. No pulsation felt in any part of the scalp. The slough over the eyebrow separated, and the sore looking healthy; general health good.

19th.—The remaining setons removed; free discharge of pus, but no further hæmorrhage.

27th.—The wound healing. All parts of the scalp firm and no vessels enlarged, except at the posterior part of the parietal bone, where one, about an inch and a half in length, can be distinctly traced pulsating slightly. A seton inserted along its entire length.

July 13th.—The seton removed and a quantity of pus escaped.

August 6th.—No return of pulsation since the introduction of last seton. The original sore quite healed, that on the forehead contracting.

10th.—Part of the scalp behind the ear sloughing; has been slightly feverish the last few days.

15th.—The slough has separated, and having extended to the bone, a portion of it, about one third of an inch in diameter, is denuded. In other respects quite well. Left the hospital to-day.

December 27th.—Scalp carefully examined, but not the slightest trace of the disease could be discovered. The exfoliated bone almost separated.

Remarks.—The success of the plan of treatment adopted in the above case affords a prospect of bringing this hitherto unmanageable complaint more effectually under the control of the surgeon.

At the time of the patient's admission into the hospital the disease had arrived at a stage when prompt measures were absolutely necessary for the preservation of life. On a careful examination I was satisfied that the circulation through the vessels could only be completely stopped by ligature of the common carotid, and, therefore, as soon as hæmorrhage supervened, finding the usual remedies inadequate, I immediately resorted to that operation.

But the unfavorable results which have frequently followed

deligation of the carotid for aneurism by anastomosis of the scalp induced me not to rely solely on this method of treatment; and the further progress of the case showed that if other means in addition had not been employed, no permanent benefit would have resulted from the operation. Indeed, the repeated failures of ligature of the carotid, as well as of other arteries supplying this variety of aneurism in other parts of the body with blood, prove to demonstration that it can no longer be regarded as a curative measure except in very mild forms of the disease.

This need excite no surprise, for the operation, to be successful, must either permanently arrest the circulation through the diseased vessels, or lead to their obliteration, conditions which, however probable where the disease is confined to a single vessel and assumes the ordinary form of aneurism, are not likely to follow when several are affected, as in the present case, involving the entire temporal system with its arteries, veins, and capillaries.

For the blood in the vessels after deligation does not coagulate, but readily finds its way into the general circulation, and the vessels remaining unchanged become again distended as soon as the circulation through the anastomosing branches is re-established.

But, despite these drawbacks, deligation even when not required for the suppression of hæmorrhage has its advantages, the temporary interruption which it causes to the circulation through the diseased structures, affording a favorable opportunity for the application of other remedies. I resorted, therefore, to the use of setons as soon as I was satisfied by the usual indications that the scalp was supplied with blood sufficient for reparative purposes.

The setons were first passed across the trunk and branches of the temporal and occipital arteries, also through the parts of the scalp where the vessels appeared to be most dilated. Others were afterwards introduced wherever any return of pulsation showed itself. Some of the later ones were inserted in vessels dilated to the size of the little finger, and in which a slight arterial thrill could be perceived. The earlier

setons seemed merely to excite adhesive and suppurative inflammation in those structures which they penetrated: but where the vessels had become distended with blood, the inflammatory action was preceded by coagulation, which took place shortly after the introduction of the setons.

Fine needles, in length about four inches, threaded with worsted of sufficient bulk to prevent the escape of blood, were passed freely into the vessels, precaution being taken both in their entrance and exit by the penetration of the skin at a short distance from the vessels to prevent the entrance of air. The extent of structure traversed by the setons would be about thirty-six inches.

It is unnecessary to dwell on the futility of trusting to setons only in the treatment of these cases. They have so repeatedly failed that their success in the present instance must be attributed to the quiescent state of the circulation produced by the ligature of the carotid. In confirmation of this view, I may briefly refer to the case of a young lady who was under my care several years ago, whose index finger and thumb had become, through enlargement of the vessels, twice their natural size. The disease commenced at the extremities of the fingers, and gradually extended itself towards the hand. Some of the vessels were in circumference as large as goose-quills, and gave a livid bluish appearance to the fingers. Not the least pulsation or arterial thrill could, however, be discovered, and the vessels were partially emptied of their blood by pressure. Three fine worsted setons were passed from the hand to the apex of the finger, and remained there for three weeks. Others were inserted at intervals. At the end of six months all evidence of the disease had disappeared. Slight traces of the affection presented themselves about eighteen months afterwards, which two small setons completely removed.

Deligation of the arteries, therefore, prior to the insertion of setons, does not appear necessary in all cases of aneurism by anastomosis. The disease being an affection of the arteries, veins, and capillaries, varying in its character according to the extent to which each of these structures is implicated, deligation seems to be required where the arterial tissue is

principally involved, or where enlargement of the capillaries and minute arteries has taken place to such a degree as to enable the force of the heart's action to communicate its impulse through the capillaries to the blood circulating in the veins.

Similar considerations will also determine the extent of deligation, which, except where severe hæmorrhage occurs, need in the majority of cases only be applied to the smaller arteries.

Though setons were employed in the case now related, galvanism, the injection of perchloride of iron, and other similar agents, may, in some instances perhaps, be advantageously substituted ; and even the risks attending ligation of the arteries may by instrumental or digital compression be occasionally obviated.