ANEURYSM OF COMMON CAROTID ARTERY IN THE NECK
FOLLOWING PARTIAL LIGATION FOR AN INTRACRANIAL ANEURYSM

SIDNEY W. GROSS, M.D., AND ABRAHAM HOLZMAN, M.D.
Neurosurgical Service, Montefiore Hospital, New York, New York
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There is still considerable controversy regarding the treatment of aneurysms of the circle of Willis.\(^{3,9,10}\) Nevertheless most surgeons who have had experience in this field employ carotid ligation, either as a definitive method or as an adjunct to intracranial procedures.\(^{2,4}\) It is not our purpose at this time to discuss the relative merits of the various methods of treatment of intracranial aneurysms. The following case illustrates an unusual complication of ligation of the common carotid in the neck for an aneurysm of the circle of Willis.

CASE REPORT

H.L., a married white woman of 25, collapsed while walking in the street. She was taken by ambulance to the emergency ward of a city hospital. On admission, she was in deep stupor, and there was a hematoma in the right occipital region. The patient improved during the next few hours and she was transferred to our care.

Examination about 24 hours later disclosed a thin woman in stupor. She could be roused with ease. She was confused and disoriented. The neck was moderately rigid, and there was a positive right Babinski.

Course. During the next 3 days the patient became more alert and less confused. The cerebrospinal fluid was grossly bloody. The initial pressure was 320 mm. On the 7th day ptosis of the right upper eyelid developed. Two days later there was a complete internal and external right 3rd nerve paralysis. The right pupil did not react to light and was widely dilated. The fundi showed beginning papilledema.

Fig. 1. Angiogram showing berry aneurysm springing from the internal carotid artery just above its junction with the posterior communicating artery.
Daily digital compression of the common carotid artery was started. The patient complained of light-headedness at first, but after a few days she could tolerate 10 minutes of compression without symptoms. At this time right carotid angiography was done with 35 per cent diodraat by the percutaneous technique. This disclosed a berry aneurysm (Fig. 1) springing from the internal carotid artery just above the origin of the posterior communicating artery.

Operation. A few days later the right common carotid artery was exposed with the use of local anesthesia. Occlusion of the artery with a rubber tape caused a slight weakness in the left upper and lower extremities. The common carotid artery was therefore partially occluded with a heavy braided silk ligature. The lumen was probably reduced to one-fourth or one-fifth of its original size.

Course. Following this procedure the patient improved rapidly. Within a few days the ptosis was much less evident, and the internal rectus palsy had also diminished. She was permitted to go home 3 weeks after the incomplete ligation. We had planned to re-admit her at a later date for ligation of the internal carotid artery.

About 2 months after the partial ligation, the patient noted a small swelling in her neck at the operative site. Examination at this time disclosed a small mass, about 2 cm. in diameter, under the operative scar. A thrill and a bruit were present. There was slight weakness of the levator of the right lid, and an almost complete paralysis of the right superior rectus. The right pupil was slightly larger than the left and reacted to light sluggishly. The fundi were normal.

The patient was advised to re-enter the hospital; however, she postponed this for about 3 months. At this time the pulsating mass in the neck had increased in size slightly. The patient now tolerated compression above and below the mass in the neck without symptoms.

2nd Operation. On May 6, 1953, about 5 months after the initial partial ligation, under general endotracheal anesthesia the common carotid artery was exposed below the mass. The common carotid was imbricated with three arterial sutures, then doubly ligated with braided silk and divided. The aneurysm in the neck was then dissected from the surrounding tissues. The internal and external carotid arteries were then doubly ligated and divided. The specimen (Fig. 2) on removal measured 2.5×2×1.5 cm. Fresh blood clot was present in the aneurysmal sac.

Course. The patient improved rapidly following this procedure and she was discharged from the hospital 10 days later. She has remained well.

COMMENT

According to Halsted,1 Antyllus, one of the great surgical figures of antiquity, was the first to describe a method for the treatment of peripheral aneurysm. Antyllus advised isolating the aneurysm between ligatures, then opening the sac with a small incision to empty its contents. This method remained in vogue until John Hunter (1728–93) advocated ligation high up in healthy tissues by a single ligature as the best method for the treatment of aneurysms.

Modern management of an aneurysm depends on its location, size, duration, etiology (spontaneous or traumatic), and age and condition of the patient. Pratt7 listed the following methods: (1) Excision with end-to-end anastomosis. (2) Venous transplant. (3) Obliteration operation (Matas). (4) Occlusion by proximal ligation.