CASE REPORTS AND TECHNICAL NOTES

ANEURYSM OF ANOMALOUS OPHTHALMIC ARTERY
PRESENTING IN THE SPHENOID SINUS AND SIMULATING AN ANEURYSM OF
THE INTERNAL CAROTID ARTERY ON ROUTINE ARTERIOGRAPHY

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Epistaxis as the presenting symptom of aneurysms or arteriovenous fistulae in
the region of the sphenoid sinus has been mentioned in at least 3 other cases.1,2,3
The diagnosis was based upon the occurrence of arterial epistaxes and an associated
bruit, or adjacent cranial nerve palsies. In none was the aneurysm demonstrated by
contrast radiography. Two of these patients were cured by carotid ligation 2,3 but
the third died of the epistaxis.1

CASE SUMMARY

Case §288-991. A 42-year-old colored female was admitted to the emergency ward on
Oct. 13, 1949 within 1 hour following an automobile accident in which her head struck the
dashboard.

She had sustained multiple lacerations of the face, bilateral fractures of the mandible
and a compound comminuted depressed fracture of the right frontal bone involving the entire
supraorbital ridge, right frontal sinus and roof of the orbit.

Examination. There was complete anesthesia of the right forehead and cheek. The right
eye was completely blind, deviated upward and outward, and the pupil was ovoid and fixed.
Funduscopic examination revealed venous engorgement but no hemorrhages in the right
retina. The left eye was normal. Cerebrospinal rhinorrhea was not evident.

Motor power and coordination of all extremities were good. The deep tendon reflexes were
generally hypoactive and there was a left positive Babinski. There was no evidence of intra-
thoracic or abdominal injury.

1st Operation. Following preparation with blood transfusion, penicillin, tetanus antitoxin
and atropine the patient was taken to surgery. The wounds were debrided, grossly contami-
nated bone fragments were removed, lacerations of the dura were repaired, and the right
frontal sinus was curetted and packed with gelfoam and gauze. The incisions were closed
primarily and the gauze pack was brought out through the lateral end of the supraorbital
incision. The head dressing was adapted to also immobilize the jaw fractures.

Course. Postoperatively she was placed on chemotherapy and tube feedings. The packing
was removed on the 6th and the sutures on the 8th day. More nearly accurate reduction of the
mandibular fractures was secured by means of Jelenko splints. When discharged on her 23rd
postoperative day there were anesthesia and a soft depression of the right forehead, blindness
of the right eye and weakness of the right 3rd nerve.

She was followed in the out-patient department where the Jelenko splints were removed,
and the 3rd nerve weakness recovered completely. During this time she also had been treated
in the emergency ward for 3 episodes of epistaxis.

The otolaryngological service readmitted her to the hospital on Dec. 3, 1949 for investiga-
tion of these epistaxes. Nasopharyngoscopy revealed the source of the bleeding to be the
sphenoid sinus. In an attempt at lipiodol instillation, cannulation of the sphenoid ostium
resulted in brisk arterial bleeding through the cannula.

Right percutaneous carotid arteriography on Dec. 15, 1949 revealed an ovoid midline
opacity below and anterior to the sella turcica which apparently arose from the right internal carotid artery (Figs. 1 and 2). An oblique view, however, showed this opacity to have an elongated stalk connecting it with the internal carotid artery close to the posterior genu (Fig. 3).

Fig. 1. Carotid arteriogram. Right lateral view. Arterial phase showing the globoid well defined collection of dye anterior to the sella turcica, apparently continuous with the internal carotid artery.

Fig. 2. Right lateral view. Venous phase showing the persistence of dye in the aneurysmal sac beyond the arterial phase.

2nd Operation. On Dec. 19, 1949, following a 15-minute trial occlusion of the right internal carotid artery under local anesthesia, it was permanently ligated 2 cm. distal to the carotid bifurcation in the neck.

3rd Operation. Two weeks later a right frontal osteoplastic flap was reflected and two silver
clips were placed across the internal carotid artery where it emerged from the cavernous sinus (Figs. 4 and 5). The ophthalmic artery was not visualized; however, pulsations present in the internal carotid artery ceased proximal to the clips.

Course. The patient made an uneventful recovery and subsequently returned for a tantau-

![Image](image_url)

**Fig. 3.** Left anterior oblique view. Arterial phase showing the continuity of the aneurysm and what is taken to be an anomalous ophthalmic branch of the internal carotid artery.

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**Figs. 4 and 5.** Lateral and anteroposterior views showing tantalum cranioplasty and the clips on the intracranial portion of the internal carotid artery where it emerges from the cavernous sinus.

lum cranioplasty (Figs. 4 and 5) to correct the defect of the supraorbital ridge and forehead. The blindness of the right eye persists and primary optic atrophy is now evident. There has been no recurrence of the epistaxis and she has made an excellent adjustment to her duties as a housewife 2 years postoperatively.
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COMMENT

Epistaxis complicating a severe head injury is not unusual but when it occurs weeks later its direct relation to the injury is not so apparent.

The differential diagnosis of a neoplasm, arteriovenous fistula or aneurysm was greatly simplified by the right carotid arteriogram which showed a saccular midline aneurysm located anteroinferior to the sella.

The term aneurysm is used because of the density of its contained dye, globoid outline, sharply defined margins, the lack of a venous exit, and its continuity with the internal carotid artery.

The routine lateral and anteroposterior arteriogram views at first suggested an origin from the right internal carotid artery. In an attempt to better define the neck of the aneurysm a left anterior oblique view was made; this revealed an unusually long narrow stalk which was taken to be the ophthalmic branch (Fig. 3).

The ophthalmic artery in this instance arose quite far posteriorly in the cavernous sinus rather than at its usual site of origin at the anterior genu of the internal carotid.

Revascularization of this “trapped” aneurysm via the ophthalmic artery was felt to be unlikely in view of the cessation of pulsation in the isolated segment of the internal carotid artery.

In this particular case the coincidence of the blindness, optic atrophy and aneurysm of the ophthalmic artery following the accident suggests the possibility of an unrecognized fracture involving the lesser wing of the right sphenoid, optic foramen and adjacent sphenoid sinus.

SUMMARY

1. A case of traumatic aneurysm of the ophthalmic artery is summarized.
2. The use of an oblique view in angiography to accurately identify the origin of this aneurysm is illustrated.
3. Indirect control of the aneurysm is outlined.

REFERENCES


TRANSGENT LOSS OF VISION FOLLOWING CEREBRAL ARTERIOGRAPHY

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Not a few descriptions of the various complications of cerebral arteriography may be found in the literature, but those related to disturbance of vision have been rare. The authors deem it worth while to record a case in which there was marked reduc-