Giant internal carotid artery aneurysm masquerading as a paranasal sinus tumor.

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Abbreviated Reports

Giant Internal Carotid Artery Aneurysm Masquerading as a Paranasal Sinus Tumor

Although giant intracranial aneurysms frequently arise from cavernous internal carotid artery [1–7], extensive extracranial extension masquerading as a paranasal sinus tumor is rare. We describe massive bleeding during attempted biopsy of such a lesion.

Case Report

A 48-year-old patient underwent a left intranasal ethmoidectomy at another hospital for an attempted biopsy of a suspected left maxillary and ethmoid sinus mass. Massive bleeding occurred with an estimated blood loss of 3500 ml. The patient was transferred to our hospital where a left internal carotid angiogram showed the mass to represent a partially thrombosed giant aneurysm (Fig. 1A). The aneurysm caused superior and posterior displacement of the precavernous and cavernous portions of the internal carotid artery, indicating an extradural location, and it elevated the supraclinoid carotid and the proximal anterior and middle cerebral arteries. A CT scan showed a mass involving the left middle cranial fossa and infratemporal region with extensive erosion of the skull base (Fig. 1B). The left maxillary sinus was remodeled (Fig. 1C) as evidenced by anterior displacement and posterior concavity of its posterior wall secondary to long-standing local pressure effect. The mass showed characteristics of a partially thrombosed aneurysm on pre- and postcontrast CT scan (Fig. 1D), which has been previously described [8]. The patient was treated with a superficial temporal to middle cerebral artery bypass followed by occlusion of the left common carotid artery. A follow-up angiogram showed no evidence of aneurysm patency.

Discussion

Giant intracranial aneurysm may clinically present as a space-occupying lesion. Massive extracranial extension through erosion of the skull base into the paranasal sinus region as illustrated in this case is rare. The differential diagnosis for such a lesion includes primary sinus neoplasm, mucocele and extradural tumors at the skull base, such as meningioma, neurinoma, and chordoma. Careful analysis of an adequate CT study both with and without contrast material points to the nature of the lesion by delineating its sacular outline and its contents of blood and organized clot. Arteriography made the definitive diagnosis by demonstrating the lumen and site of origin of the patent aneurysm. Proper identification of such a lesion prevents

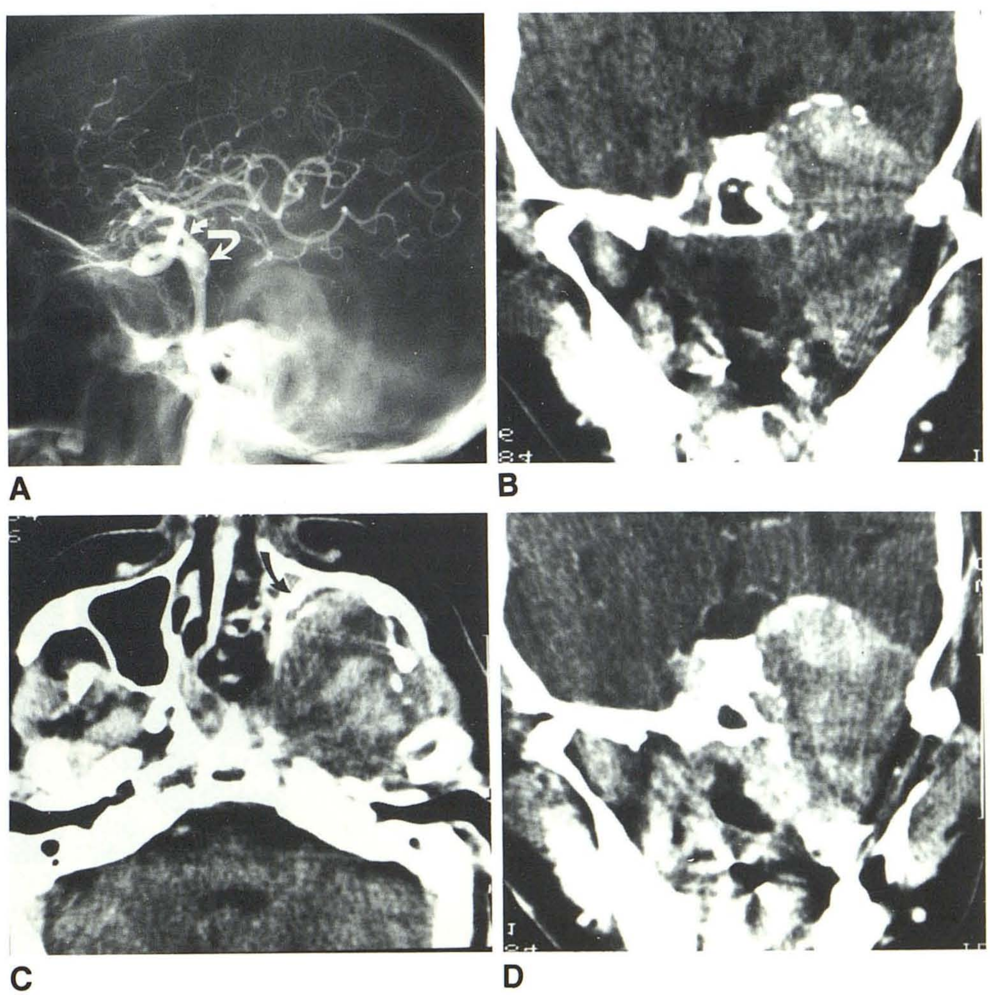

Fig. 1.—**A**, Lateral left carotid arteriogram shows residual lumen (*curved arrows*) of partially thrombosed giant carotid artery aneurysm. **B**, Precontrast coronal CT scan shows extensive erosion of left skull base involving body of sphenoid and carotid sulcus. Aneursym extends into infratemporal fossa and shows rim calcification and area of eccentric hyperdensity. **C**, Precontrast axial CT scan shows that aneurysm has caused remodeling of posterolateral wall of left maxillary antrum (*curved arrow*). **D**, Postcontrast coronal CT scan shows enhancement of patent lumen of aneurysm.

the potential disastrous consequences of attempted biopsy or surgical resection. In fact, it should be emphasized that any erosive mass at the skull base that involves the cavernous sinus region should be studied angiographically. This would allow the identification of not only giant aneurysm but also masses encasing or occluding the carotid artery.

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REFERENCES

1. Heiskanen O, Nikki P. Large intracranial aneurysms. *ACTA Neurol Scand* **1962**;38(3):195–208
2. Obrador S, Dierssen G, Rodriguez Hernandez J. Giant aneurysms of the posterior cerebral artery. *J Neurol* **1967**;26:413–416
3. Ball J. Massive aneurysms at the base of the skull. *Brain* **1969**;92:535–570
4. Polis Z, Bryezinski J, Chodak-Gazewicz M. Giant intracranial aneurysm. Case report. *J Neurosurg* **1973**;39:408–411
5. Sarwar M, Batrutzky S, Schechter MM. Tumorous aneurysms. *Neuroradiology* **1976**;12:79–97
6. White JC, Ballantine HT. Intrasellar aneurysms simulating hypophyseal tumors. *J Neurosurg* **1961**;18:34–49
7. Morley TP, Barr HWK. Giant intracranial aneurysms: diagnosis, course and management. *Clin Neurosurg* **1969**;16:73–94
8. Pinto RS, Kricheff II, Butler AR, Murali R. Correlation of computed tomographic, angiographic, and neuropathological changes in giant cerebral aneurysms. *Radiology* **1979**;132:85–92

Opacification of an Optic Nerve Sheath Cystic Tumor with Intrathecally Injected Metrizamide

A technique for opacifying the optic nerve sheath has been reported but has not been used frequently [1–5]. We report a case in which metrizamide enhancement of the optic nerve sheath helped to characterize an optic sheath cystic mass.

Case Report

A 16-year-old boy was admitted for evaluation of long-standing, painless left proptosis that had recently progressed. Physical examination demonstrated normal extraocular motility and inferior displacement of the left globe. Skull radiographs showed enlargement of his left optic foramen. MR and IV-enhanced CT studies demonstrated a cystic mass downwardly displacing the left optic nerve. To determine if the mass communicated with the subarachnoid space, a metrizamide-enhanced CT study was performed. The patient was placed prone on a fluoroscopic tilting table. Via lumbar puncture, 5 ml of metrizamide (170 mg/ml) were instilled. The patient was kept in a 20° head-down position for 2 min and then placed prone in a CT/T 9800 scanner. Axial and coronal sections (3- and 1.5-mm thick) through the orbits were obtained. Other technical factors included 120 kV, 200 mA, and 3- and 4-sec scanning times. The metrizamide-enhanced CT study showed opacification of a left optic nerve sheath lobular and cystic mass with an irregular capsule and of a normal right optic nerve sheath (Fig. 1). The patient tolerated the procedure well. Subsequently, he had a left frontal craniotomy, superior orbitotomy, unroofing of his optic foramen, and excisional biopsy. Surgical and pathologic findings demonstrated a benign optic nerve sheath cystic mass with a fibrous capsule. The patient had an unremarkable postoperative course with persistent proptosis.

Discussion

Opacification of the space around the optic nerve via an intrathecal injection of contrast medium implies communicaton of the space with the cerebral subarachnoid spaces [1]. The optic nerve sheath rarely opacifies with metrizamide [1] or gas [6] after an intrathecal injection of contrast medium.

In this case metrizamide CT proved useful in diagnosing an abnormal optic nerve sheath. In nine prior attempts with other patients (three with orbital tumors, six with intracranial problems) using similar techniques we successfully opacified the optic nerve sheath only once. The reason for failure is not clear but none of these patients had an abnormal optic nerve sheath. Since adequate amounts of contrast media in our patients were demonstrated in the suprasellar cistern, we discount technical problems as a cause of failure to opacify the optic nerve sheath.

Despite its low success rate, opacification of the optic nerve sheath may prove useful in determining the communication of a cystic orbital mass with the subarachnoid space.

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A B C

Fig. 1.—Metrizamide-enhanced axial (**A,B**) and coronal (**C**) CT images of opacified left optic nerve sheath cystic mass. Note irregular fibrous capsule of mass (*black arrows*, **B** and **C**), left optic nerve (*open arrows*, **A** and **C**), and opacified normal right optic nerve sheath (*curved arrows*, **B** and **C**).