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Sonographic demonstration of cerebral sinus thrombosis.

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AJNR Am J Neuroradiol 1987, 8 (6) 1153-1155

<http://www.ajnr.org/content/8/6/1153.citation>

This information is current as
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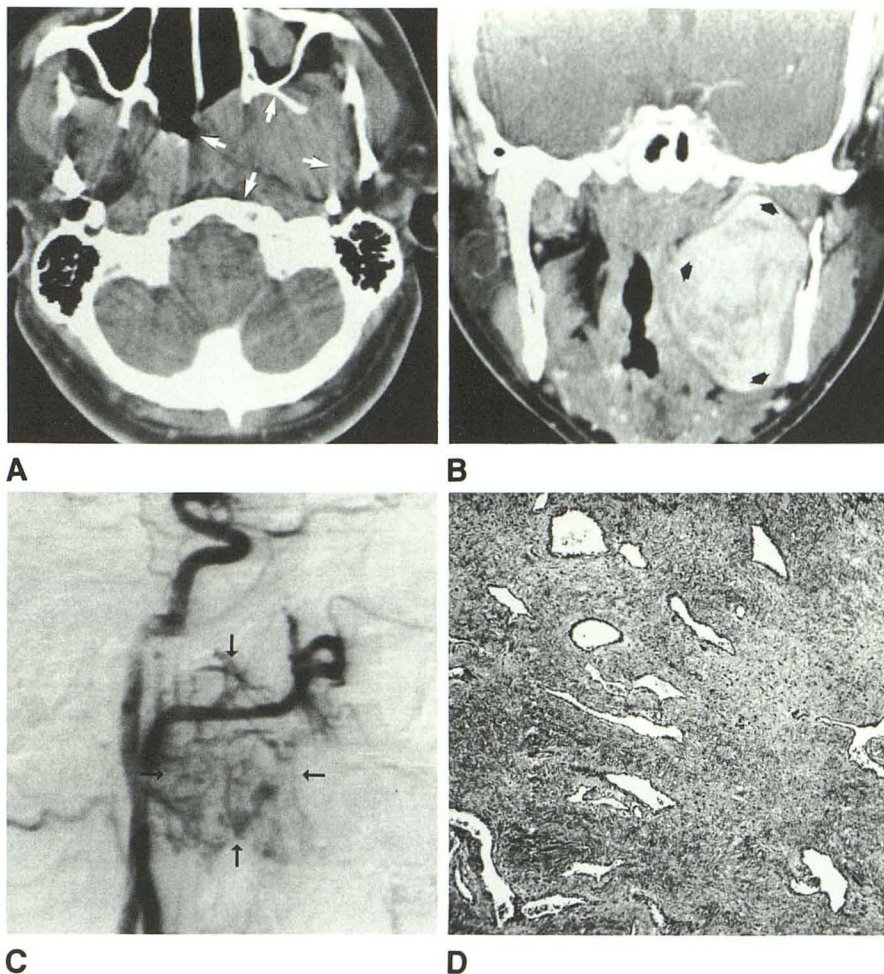
Fig. 1.—25-year-old man with parapharyngeal angiofibroma.

A, Unenhanced axial CT scan shows a mass (arrows) in parapharyngeal space, with anterior displacement and splaying of pterygoid plates.

B, Enhanced coronal CT scan shows an enhancing left-sided parapharyngeal mass (arrows) displacing pharynx toward right.

C, Angiogram of left common carotid artery shows a hypervascular mass (arrows) supplied by internal maxillary artery.

D, Histologic section shows elongated vascular spaces and wavy collagen bundles. (H and E $\times 60$)



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Sonographic Demonstration of Cerebral Sinus Thrombosis

Thrombosis of the cerebral venous sinuses is a frequent complication in the sick newborn; it is detected in 3.7% of cerebral angiograms in infants and children [1]. Several conditions predispose infants to sinus thrombosis, including dehydration, infection, congenital heart disease, and blood dyscrasias [2, 3]. Many infants with these conditions are in the critical care facility of the hospital, where real-time sonography is the most convenient and least traumatic

imaging method of screening for intracranial disease [4]. We present two cases of superior sagittal sinus thrombosis detected by sonography.

Case Reports

Case 1

A newborn boy (42 weeks gestation) was evaluated for hypotonia with marked respiratory distress after delivery with meconium-stained amniotic fluid. The infant was treated with a course of ampicillin and gentamicin for sepsis. A sonographic examination showed a focal echogenic, distended, and clearly marginated structure in the midline adjacent to the inner table of the skull that was thought to be thrombosis of the torcula (Fig. 1A). CT (Fig. 1B) and MR (Fig. 1C) confirmed the thrombus of the torcula and showed involvement of the transverse sinus as well.

Case 2

A baby girl (36 weeks gestation) was delivered by cesarean section because of fetal distress. She became apneic, mottled, and hypotensive at 6 hr of age. Blood cultures were positive for gram-negative β -hemolytic streptococci. A sonogram showed a distended superior sagittal sinus and torcula with faint but definite internal echos, thought to be thrombus (Fig. 2A). A CT scan (Fig. 2B) confirmed the thrombus and showed additional involvement of the straight sinus.

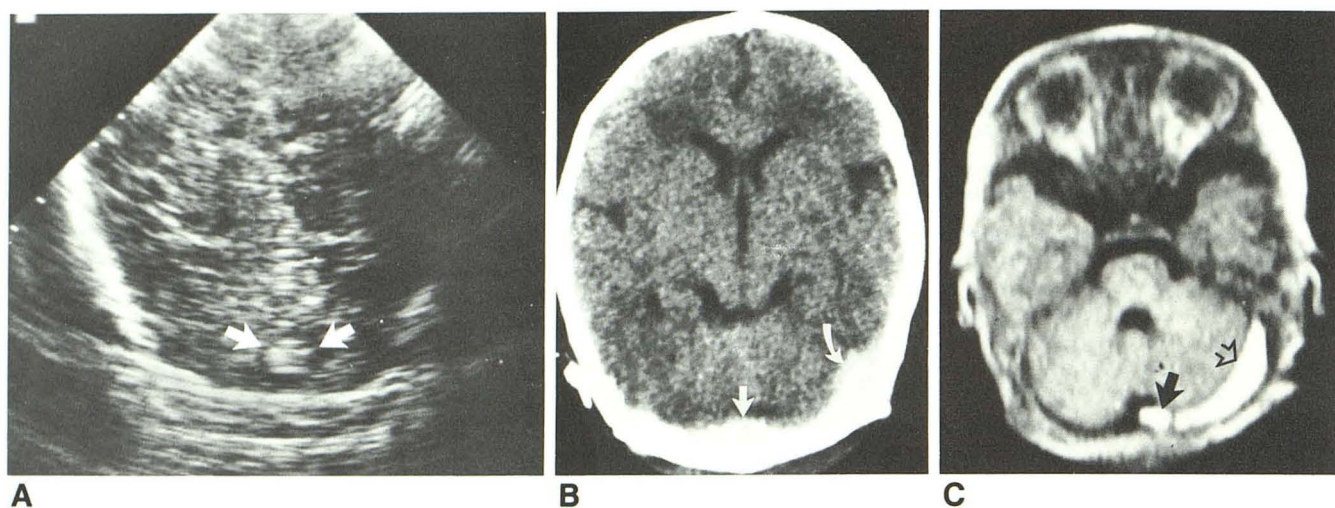


Fig. 1.—Case 1.

A, Coronal sonogram angled posteriorly shows round echogenic mass adjacent to skull (arrows).

B, Nonenhanced CT scan shows distended torcula (straight arrow) and left transverse sinus (curved arrow).

C, MR image (TR = 2000; TE = 120) shows thrombosis of torcula (solid arrow) and transverse sinus (open arrow).

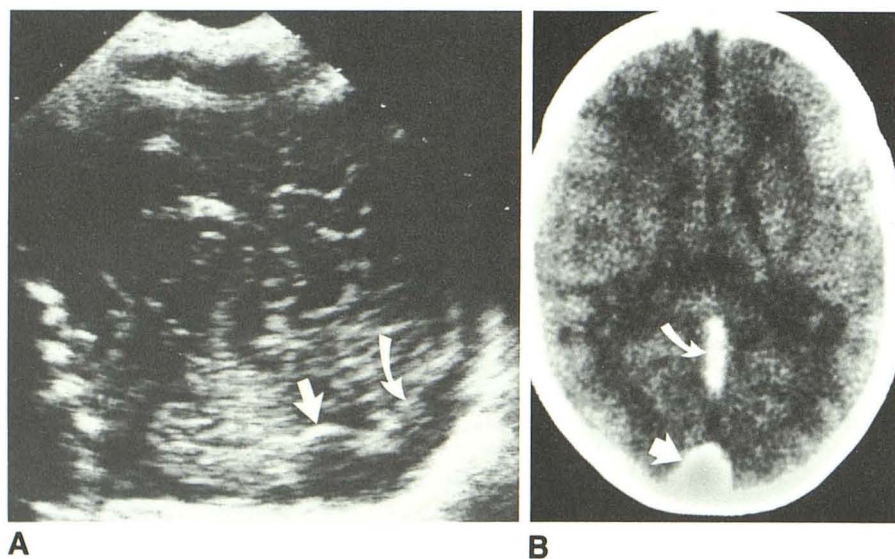


Fig. 2.—Case 2.

A, Sagittal sonogram shows dilated echogenic torcula (straight arrow) and superior sagittal sinus (curved arrow).

B, CT scan without contrast shows dilated, thrombosed torcula (straight arrow) and straight sinus (curved arrow).

Discussion

To our knowledge, no previous reports have described the sonographic detection of sinus thrombosis. Extra time and more than usual posterior angulation of the transducer are required to show the torcula [5, 6]. In older infants, the anterior fontanelle is usually too small to permit this exaggerated posterior angulation. Despite these difficulties, the sonographer probably should attempt to visualize the torcula in the critically ill infant because of the increased risk of sinus thrombosis. If a dilated or echogenic sinus is found, additional studies such as CT or MR can help confirm the diagnosis [7, 8] and may

provide additional information about the extent of the thrombosis or infarction.

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Aneurysm of the Occipital Artery: Development After Surgical Ligation of the Internal Carotid Artery

Aneurysms of the external carotid artery circulation are extremely rare. The authors report a case of interval development of an occipital artery aneurysm following ligation of the internal carotid artery.

Case Report

A 9-year-old girl originally presented at the age of 4 years with a gradual onset of headache, nausea, and vomiting. Physical exami-

nation at that time revealed complete ophthalmoplegia and visual loss in the left eye. Contrast-enhanced CT and subsequent angiography showed the presence of bilateral intrapetrous aneurysms of the internal carotid arteries. The external carotid arterial circulation, including the occipital artery, was normal (Fig. 1A). The left internal carotid artery was then occluded by means of a Crutchfield clamp.

The patient experienced an uneventful clinical course without an intervening episode of documented cerebral trauma. Four years later she had loss of direct and consensual pupillary response to light in the right eye. We suspected that the patient's right carotid aneurysm was enlarging, and elective cerebral angiography was performed. A slight interval increase in the size of the right intrapetrous aneurysm was seen. Interval development of a saccular aneurysm also was shown to involve the distal branch of the left occipital artery (Fig. 1B).

Five months later, the patient complained of severe occipital headaches and postprandial nausea and vomiting. A repeat angiogram showed slight interval enlargement of the occipital artery aneurysm and a bilobed configuration suggestive of partial thrombosis (Fig. 1C). These findings, in conjunction with the clinical picture, prompted surgical removal of the aneurysm. The pathologic specimen is shown in Figure 2. The wall of the aneurysm consisted of reduplicated fibrous tissue. Marked intimal proliferation was also present.

Discussion

Most aneurysms of the external carotid artery are seen in the superficial branches of the temporal artery. Aneurysms rarely are seen in the lingual, superior thyroid, and middle meningeal branches of the external carotid artery [1-3]. Most develop after blunt trauma; other etiologic factors include infection, arthritis, congenital wall weakness, and neoplastic diseases. Balsys and Cross [4] described a

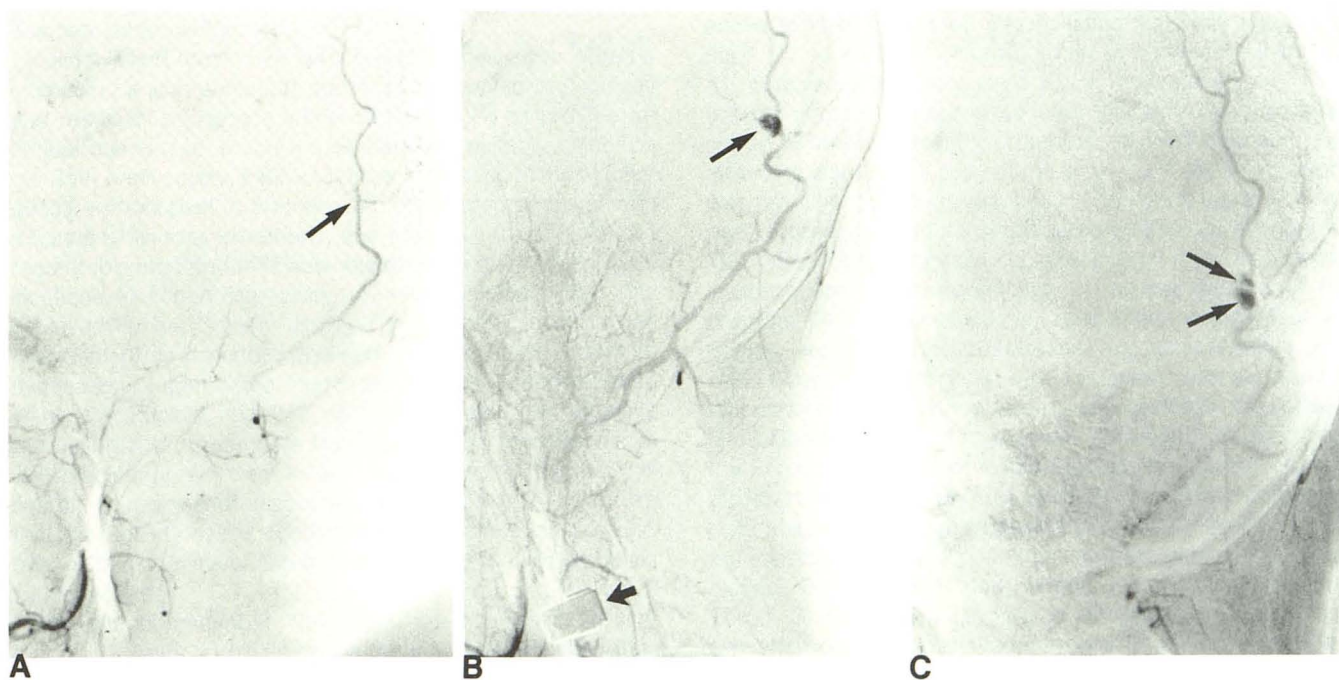


Fig. 1.—Left external carotid arteriogram, lateral projections.
 A, Normal occipital artery circulation (arrow).
 B, 4 years later, a saccular aneurysm has developed in distal portion of same occipital artery (thin arrow). Crutchfield clamp is noted to occlude left carotid artery (thick arrow).
 C, 5 months later, there has been slight enlargement of aneurysm showing bilobed configuration (arrows).