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Case Report

Pediatric jugular vein aneurysm (phlebectasia): report of two cases and review of the literature

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ABSTRACT

Jugular vein aneurysms are rare vascular abnormalities that are most commonly encountered in the pediatric population. We report two separate cases in infants, both of whom presented with enlarging neck masses and were found to have jugular vein aneurysms. Diagnosis was established with duplex ultrasonography, computed tomography angiography, digitally subtracted catheter venography, and magnetic resonance imaging in one case and magnetic resonance imaging with magnetic resonance angiography/magnetic resonance venography, gray scale ultrasonography, and digital subtraction catheter venography in the other case. Both aneurysms were treated by surgical resection.

Introduction

Arterial aneurysms are commonly encountered in adult clinical practice, arising from multifactorial vascular degeneration and typically presenting in sixth to eighth decades of life. Comparatively rare entities, venous aneurysms frequently result from congenital deficiencies of the vessel wall rather than degenerative processes, and more often come to attention in the pediatric population [1–3]. Anatomically, venous aneurysms most frequently occur in the upper extremity but are seldom reported since they are typically asymptomatic [4]. Furthermore, upper extremity and cervical venous aneurysms typically pose no significant risk to a patient's health with no serious sequelae reported. Incidental lower extremity venous aneurysms have been described in adults found during workup for pulmonary embolism (PE) [4], with the aneurysm most commonly involving the popliteal vein [4,5]. Venous aneurysms of the deep system tend to have higher morbidity than those involving the superficial system related to thromboembolic events and recurrent pulmonary emboli [4].

When encountered in children, neck masses can pose a diagnostic dilemma due to the relatively broad differential diagnosis in this age group. However, the differential diagnosis is limited when a neck mass enlarges when performing

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a Valsalva maneuver. Diagnostic considerations for a neck mass that enlarges with Valsalva maneuver include superior mediastinal tumor or cyst, laryngocele, or jugular phlebectasia [6].

Duplex ultrasonography scanning is usually sufficient for the diagnosis of a venous aneurysm, but three-dimensional ultrasonography, computed tomography, magnetic resonance imaging (MRI) with magnetic resonance angiography/magnetic resonance venography, and catheter-directed venography can also be performed to improve morphologic evaluation [7,8].

Case 1

A 3-month-old term male infant with no significant prenatal or perinatal complications presented with a left-sided neck mass. The mass was first noted at birth and continued to increase in size during the first 3 months of life. Physical examination revealed a firm, mobile mass deep to the left sternocleidomastoid muscle without tenderness or overlying skin changes. There was no history of trauma.

Ultrasound revealed a complex left cervical mass with a lamellated appearance centrally and no internal vascularity (Fig. 1). Contrast-enhanced MRI (Fig. 2) and computed tomography imaging (Figs. 3A and 3B) confirmed an ovoid lesion with peripheral enhancement and intralesional pooling of contrast. The differential diagnosis based on cross-sectional imaging favored low-flow vascular malformation, although the imaging characteristics of the central portion of the lesion made it difficult to exclude the possibility of a solid tumor such as teratoma or complex branchial cleft cyst. Catheter venography using a direct puncture technique helped clarify the diagnosis, revealing a large, irregular left internal jugular vein aneurysm with slow flow into collateral vessels, ultimately draining into the left brachiocephalic vein (Fig. 4). Outflow compression maneuvers failed to elicit reflux of contrast into the intracranial dural venous sinuses.

Due to concerns regarding growth of the aneurysm and intraluminal thrombus, the patient underwent surgical resection. A partially thrombosed venous aneurysm within the carotid sheath was confirmed intraoperatively. The abnormal vein and a small amount of normal adjacent internal jugular vein were excised from skull base superiorly to the facial vein confluence inferiorly, preserving the facial vein and normal caliber inferior aspects of the internal jugular vein. Intraoperative cranial nerve monitoring was performed due to the close proximity of the aneurysm to cranial nerves VII, XI, and XII.

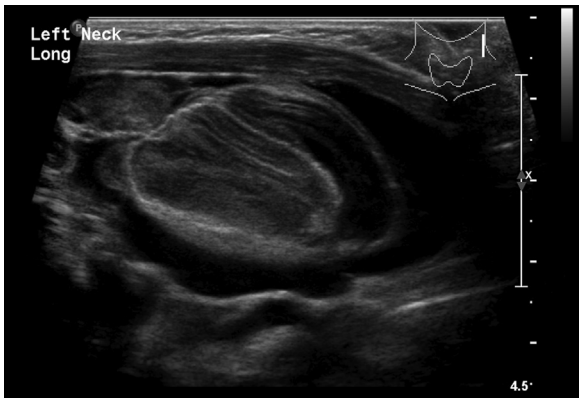

Fig. 1 – Longitudinal grayscale ultrasound image reveals a complex lamellated mass in the left neck with some peripheral flow but no internal vascularity on color Doppler (not shown).

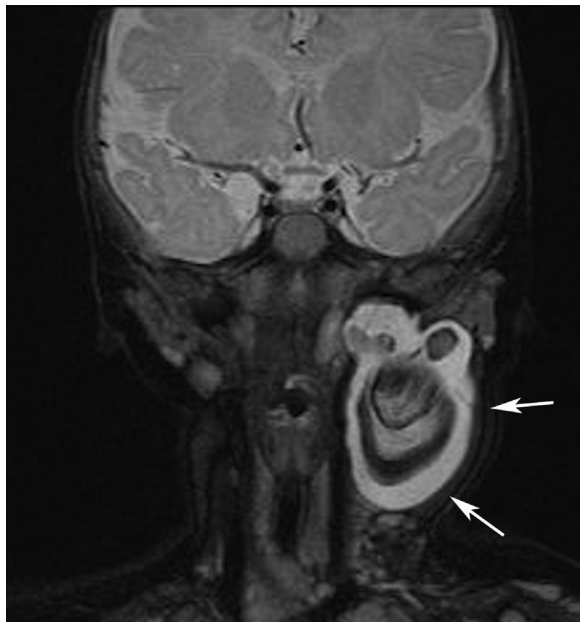

Fig. 2 – Coronal T2 MRI reveals an ovoid, lamellated mass with surrounding high T2 signal in the region of the left internal jugular vein (arrows). MRI, magnetic resonance imaging.

The postoperative recovery period was uneventful, and the patient was discharged on the second postoperative day. Contrast-enhanced MRI performed 8 months after resection revealed patency of the inferior internal jugular vein below the facial vein confluence and no recurrence of the venous aneurysm. Ultrasound performed 18 months postresection revealed no recurrent venous aneurysm. At the 18-month follow-up clinic visit, the patient was developing normally with no symptoms or physical examination evidence of lesion recurrence.

Case 2

A 6-month-old term female infant product of a twin gestation with no significant prenatal or perinatal complications presented with swelling in her left neck that increased with Valsalva. The mass was otherwise asymptomatic but continued to grow with the child. Initial physical examination revealed a compressible mass in the left supraclavicular fossa only appearing when the patient cried. The mass was nontender, and there was mild discoloration of the overlying skin. There was no history of trauma.