

Multiple dural arteriovenous fistulas involving the cavernous sinus, transverse sinus, sigmoid sinus and spinal drainage: CT angiography findings in 14-year-old boy

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Abstract. – Dural arteriovenous fistulas (DAVF) are rare and constitute 10% to 15% of all intracranial arteriovenous malformations. Only few cases of DAVFs are reported in children. Here is the first case report describing CT angiographic findings in a 14 year old child having multiple DAVFs involving spinal canal, both cavernous and cerebral sinuses.

Key Words:

Dural arteriovenous fistulas, CT angiography, Child.

A 14-year old boy presented with a 12 month history of swelling in the neck region. After physical examination, he was referred to computed tomography (CT) angiography for suspected vascular malformation. At CT angiography, there was evident varicous dilatation of the transvers sinus, sigmoid sinus and intracerebral vascular structures in addition to extensive intracranial abnormal vascular structures that pertaining to dural arteriovenous fistulas (DAVFs) and draining to these sinuses. Furthermore, DAVFs were revealed involving right cavernous sinus and intracranial ranging to the spinal canal (Figures 1, 2, 3).

Intracranial DAVFs are exclusive vascular malformations characterized by abnormal com-

munication between dural arteries and venous sinuses or meningeal veins. Although there is no proven etiological factor in the constitution of the disease, some Authors have reported a connection with venous sinus thrombosis¹. DAVFs are rare and constitute 10% to 15% of all intracranial arteriovenous malformations. Multiple lesions in general are rare and comprises 7% of all intracranial DAVFs². In the literature, only few cases of DAVFs are reported in children². Five types of intracranial DAVFs have been described: the type V defined as cerebral DAVFs with spinal drainage is very uncommon³. Moreover, the involvement of both the cavernous sinuses and the posterior cranial fossa presents with an even lower incidence.

Several imaging modalities can be used in the diagnosis of DAVFs. The current diagnostic capabilities of digital subtraction angiography allow it to exhibit unique anatomical details and hemodynamic features that are better than the formations provided by magnetic resonance imaging (MRI)⁴. In the recent years there has been an increase in the use of CT angiography for the diagnosis of DAVFs. According to one study, 86% sensitivity and 100% specificity of CT angiography was found⁵.

To the best of our knowledge, our case is the first that describes CT angiographic findings in a child having multiple DAVFs involving spinal canal, both cavernous and cerebral sinuses.



Figure 1. Three-dimensional, volume-rendered axial CT angiography image shows varicose dilatation of the transvers sinus, sigmoid sinus and intraserebral vascular structures with extensive intracranial abnormal vascular structures.

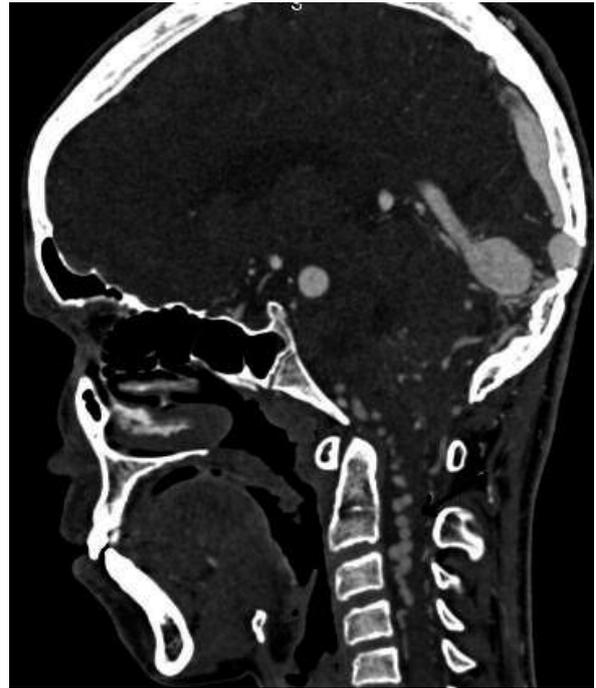


Figure 3. Sagittal CT angiography image shows dural arteriovenous fistulas (DAVFs) involving intracranial ranging to the spinal canal.



Figure 2. Axial CT angiography image shows dural arteriovenous fistulas (DAVFs) involving right cavernous sinus.

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