Clinical History:

A 16-year-old boy was hospitalized because of one-week history of headache and repeated vomiting after having a head injury. Examination showed no abnormalities.

Imaging Findings:

Unenhanced CT revealed that there was a hyperdense appearance like intracerebral hematoma on the right occipital region with an ipsilateral occipital fracture.

An injection with contrast media followed, and objectified a thrombosis of the transverse sinus. There was also a small hyperdense region in the left frontal lobe, which was most likely a haemorrhagic venous infarction.

This focal haemorrhage can be misinterpreted as traumatic parenchymal contusion, especially if extraaxial haemorrhage is reported instead of CVT, leading to a misdiagnosis of trauma as the cause of the blood products.

Discussion:

The first case of blunt head injury associated with Dural Sino thrombosis (DST) was described by Ecker In 1946. Since then, other trauma-induced DSTs have been reported [1].

The pathogenesis of DST has not been well established yet in head injury. Various hypotheses for the development of DST imply intramural haemorrhages caused by the rupture of small sinusoids, injury to the endothelial lining, extension of the thrombus from injured emissary veins and compression of the sinuses from intracranial oedema in the development of DST in closed head injury patients [2-6].

In addition, abnormalities in the clotting mechanism, disturbances in the blood flow, alteration in the coagulation after head injury, or lesion the capillary endothelium may induce thrombosis [5].

Clinically, DST manifests commonly by increased intracranial pressure signs such as nausea, vomiting and headache. The compensatory function of the venous collateral system is the main factor that determines the DST diagnosis and also affects prognosis [6].

In children, incomplete growth of venous collaterals may facilitate the diagnosis of DST. This explain the relatively high frequency in children.

The confirmation of the diagnosis implies the demonstration of thrombus by neuroimaging [7-10]. CT may show the thrombus itself in case of acute thrombosis, or a high density in the affected sinus region. After injection of contrast media we may have a specific delta sign [11]. However, MRI in combination with MRA is more sensitive.

If the diagnosis is still uncertain, DSA may be used and provides better details of the cerebral veins [8, 10, 12].

There is no consensus on the overall strategy concerning surgical, radiosurgical, or conservative therapy in DST [6,
If there is any compression to the dural sinus by depressed fracture or hematoma, it should be removed [5, 15, 16]. If these pathologies are not present, the priority of treatment in the acute phase is to stabilize the patient’s condition (hydration, anticonvulsants, craniectomy for decreasing intracranial pressure...).

Anticoagulation therapy is the first choice although it remains controversial in traumatic cases [11, 13-15, 17]. However, since the patients have a haemorrhagic lesion related to head injury, anticoagulant therapy should be applied carefully with adequate monitoring for complications such as new bleeding.

The mortality varies between 4.3 and 30%, and furthermore survival cases may have permanent neurological deficits [10, 18, 19]. In the monitored posttraumatic DST cases, better recovery has been observed in right-localized sinus thrombosis (generally the left hemisphere is dominant in the population).

**Differential Diagnosis List:** Post traumatic cerebral venous thrombosis, Extra axial haemorrhage, Parenchymal contusions

**Final Diagnosis:** Post traumatic cerebral venous thrombosis

**References:**


Description: Unenhanced CT revealed that there was a hyperdense appearance like extra axial hematoma on right occipital region. Origin: Ammor H, Department of radiology, Hôpital Moulay El Hassan Ben El. Mehdi, Laayoune, Morocco.
**Description:** cerebral CT: bone window: fracture in the right occipital bone  
**Origin:** Ammor H, Department of radiology, Hôpital Moulay El Hassan Ben El. Mehdi, Laayoune, Morocco
Description: cerebral CT scan after injection of contrast media; axial view: thrombosis of the right transverse sinus

Origin: Ammor H, Department of radiology, Hôpital Moulay El Hassan Ben El. Mehdi, Laayoune, Morocco
Description: Unenhanced cerebral CT scan: Small hyperdense region in left frontal lobe is most likely hemorrhagic venous infarction. Origin: Ammor H, Department of radiology, Hôpital Moulay El Hassan Ben El. Mehdi, Laayoune, Morocco