

A rare cause of thunderclap headache

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Thunderclap headache (TCH) is an excruciating headache characterized by a very sudden onset mimicking a clap of thunder, with maximum intensity within 1 min or less of onset. TCH has an incidence of 43 cases/100000 adults/year. There are many causes for TCH. Common causes are subarachnoid hemorrhage and reversible cerebral vasoconstriction syndrome [1]. Retroclival hematoma (RCH) is a very rare cause of TCH [2] (Table 1). RCH is a rare condition characterized by intracranial bleeding along the posterior aspect of the clivus within the anatomical space anterior to the brainstem [3]. RCHs may be either epidural (rcEDH), subdural (rcSDH), or subarachnoid [4]. It can be traumatic or spontaneous. Here, we describe an elderly man who presented with TCH and evaluation showed retroclival subdural hematoma and he recovered with conservative management.

A 78-year-old man came to the neurology outpatient department with a headache of 3 days duration. His symptoms started as sudden onset excruciating headache with multiple episodes of vomiting at 4 am, when he was on bed. His visual analog scale pain score was 9–10/10. He had continuous, non-throbbing headaches since then, but the intensity has reduced and vomiting subsided. There was no history of blurring of vision, diplopia, or any other cranial nerve symptoms. There was no history of fever. There was no history of any trauma in the recent past. On examination, he was conscious and oriented, and there were no focal neurological deficits. There was no papilledema. There were no signs of meningeal irritation. His blood pressure was 130/80 mm of Hg, and computerized tomography (CT) brain showed RCH (Fig. 1). Basal cisterns and cortical subarachnoid spaces did not show any evidence of blood. Magnetic resonance (MR) imaging of the brain showed retroclival subdural hematoma lying anterior to the basilar artery (Fig. 2). In addition, he had a streak of blood in the right cerebellar subarachnoid space. There was no evidence of blood anterior to tectorial membrane or any evidence of a pituitary tumor. MR angiography did not show any aneurysms. Repeat CT head after 5 days near complete resolution of RCH.


RCHs are uncommon and rarely reported in adult age groups. In the retroclival area, epidural and subdural spaces are separated

Table 1: Causes of TCH [1]

Most common causes of TCH	Less common causes of thunderclap headache
Subarachnoid hemorrhage	Cerebral infection
Reversible cerebral vasoconstriction syndrome	Cerebral venous sinus thrombosis
Uncommon causes of thunderclap headache	Cervical artery dissection
Aqueduct stenosis	Complicated sinusitis
Brain tumor	Hypertensive crisis
Cardiac cephalgia	Intracerebral hemorrhage
Giant cell arteritis	Ischemic stroke
Pituitary apoplexy	Spontaneous intracranial hypotension
Pheochromocytoma	Subdural hematoma
Retroclival hematoma	
Spontaneous spinal epidural hematoma	
Third ventricle colloid cyst	

TCH: Thunderclap headache

by a tectorial membrane which is firmly attached to the body of the axis posteriorly. rcEDH is ventral to the membrane, and rcSDH is dorsal to the membrane. Unlike epidural hematoma, subdural hematoma is not bounded by a tectorial membrane and its ability to disperse through subdural space through the spinal canal usually prevents it from accumulating in one region and exerting a mass effect on the brainstem. A retroclival epidural hematoma is a hemorrhage confined between the periosteum of the cranial surface of the clivus and the adjacent dura mater. rcEDH is primarily found in pediatric patients in the setting of trauma or child abuse. Apart from trauma, it may occur due to rupture of an aneurysm, pituitary apoplexy, following posterior fossa decompression surgery, and even spontaneously. Retroclival hemorrhage was seen in 56% of cases of pituitary apoplexy [5]. Retroclival epidural hematoma is restricted by membrane boundaries from midclivus to mid-axis. When an RCH occurs in the epidural space, it is more likely to result in cranial nerve palsies and is often associated with craniocervical instability. Atlanto-occipital dislocation should be considered in all pediatric cases of rcEDH [6]. Often, it has a benign prognosis. rcSDH usually presents with acute onset severe headache and/or cranial nerve palsies, especially abducens nerve. It is frequently reported in the setting of trauma, but other causes exist [4,7]. rcSDH is not restricted and can spread to the subdural space of the spinal cord. Conservative treatment is enough in most cases. Surgery may be

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Figure 1: Computerized tomography brain axial image showing blood in the retroclival region

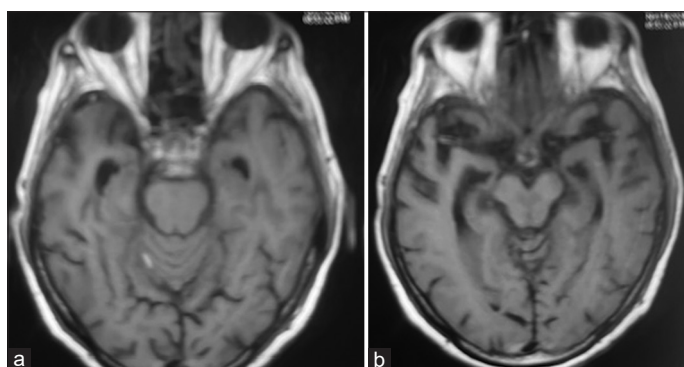


Figure 2: (a) Axial T1 weighted magnetic resonance imaging (MRI) brain image showing hyperintensity over retroclival region. There is mild subarachnoid hemorrhage over right cerebellar folia; (b) MRI brain T1 weighted image showing normal peri-mesencephalic and suprasellar cisterns

indicated in patients with brainstem compression, hydrocephalus, or craniocervical instability. rcEDHs are usually associated with trauma, whereas rcSDHs are more frequently associated with spontaneous bleeding. RCH has been reported in pituitary apoplexy, aneurysmal rupture, thrombocytopenia, hemophilia, oral anticoagulant overdose, posterior fossa decompressive craniectomy, and spontaneous intracranial hypotension. Epidural hematomas of the posterior cranial fossa are relatively rare, and the majority of these cases are present in childhood. The most frequent cause is trauma with hyperflexion or hyperextension of the neck. Retroclival subdural hematoma (rcSDH) has been reported less often than epidural hematoma (rcEDH). However, both can co-exist, particularly in violent injuries.

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