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Case Report

CASE REPORT: "THUNDERCLAP HEADACHE"- AN ATYPICAL PRESENTATION OF BACTERIAL MENINGITIS WITH REVIEW OF LITERATURE

Simran Kaur Bains[1], *Sourya Acharya[1] and Samarth Shukla[2]
1Department of Medicine, 2Department of Pathology, DMIMS University, JN Medical College, Wardha Maharashtra
**Author for Correspondence: souryaacharya74@gmail.com*

ABSTARCT
Thunderclap headache (TCH) is an acute catastrophic neurological emergency. Its onset is usually abrupt and it peaks to its maximum within few minutes. Differential diagnosis includes subarachanoid haemorrhage (SAH) and rarely atypical causes like encephalitis, meningitis and cerebral venous thrombosis.We report a case of a 42 year old male who presented to us with a thunderclap headache and later was diagnosed to be a case of acute bacterial meningitis.

Key words: *TCH, SAH, Meningitis, Encephalitis, Thrombosis*

INTRODUCTION

The term "Thunderclap headache" can be described as sudden onset headache resembling a clap of thunder which usually peaks very rapidly (Day *et al.,* 1986; Dilli *et al.,* 2014). It can reach to a severity of maximum within few minutes and can last for several minutes (Ducros *et al.,* 2013; Anonymous *et al.,* 2003). The incidence of TCH is around 43/1lakh per adults per year (Landtblom *et al.,* 2002). Subarachanoid haemorrhage is the most common cause attributed to it .TCH should be always considered as a medical emergency and exact cause should be sought for and treated immediately. In the absence of SAH, other conditions causing TCH should be kept in mind (Devenney *et al.,* 2014).

CASE

A forty-two year old male presented to us with a history of sudden onset severe headache of 2 hours duration, which he experienced before leaving for work in the morning. There was no history of vomiting, diplopia, photophobia, convulsions, slurred speech and blurring of vision. The headache peaked within 10 minutes of onset to its maximum 10/10 on a scale where 10 is the most severe form of headache.

On examination patient was irritable, restless and was in agony. Bilateral pupils were of normal size, reacting to light. There were no other cranial nerve deficits, no focal neurological deficits and bilateral plantar were flexors. Mild neck stiffness was present. Kernig's and Brudzinski's signs were absent.

The patient was sent for immediate neuroimaging (plain CT brain) which was normal. A lumbar puncture was done which revealed cerebrospinal fluid (CSF) pressure of 188cm of H2O, CSF total leukocyte count was1078/mm3, 85% were polymorphs, cerebrospinal fluid sugar was 18 mg/dl and protein was 90mg/dl. A clinical diagnosis of acute bacterial meningitis was made and empirical therapy with ceftriaxone and vancomycin was started .Gram staining of CSF revealed gram positive diplococci.

Complete blood count, serum electrolytes, liver function test, kidney function test were normal, blood culture did not reveal any organism. X-ray paranasal sinuses was normal. ENT examination was normal.

Antibiotic treatment was continued in the form of vancomycin 15mg/kg intravenous 12 hourly and ceftriaxone 2gm intravenous 12 hourly , which was continued for two weeks. Supportive treatment in the form of intravenous fluids, analgesics, intravenous mannitol was given.

The headache subsided after 12 hours of initiation of therapy. Repeat CSF study after 2 weeks was normal. Patient was discharged after 2 weeks and awaits follow up.

DISCUSSION

TCH is often described as the worst headache of life or the worst headache ever. Apart from SAH, neurological causes of TCH are expanding aneurysm or non aneurysmal peri-mesencephalic SAH. The classical presentation SAH can also be seizures, visual disturbances, delirium, neck stiffness and focal stroke (Linn *et al.,* 1998; Matharu *et al.,* 2007). Sometimes warning leaks may cause catastrophic headache (Gillingham *et al.,* 1958)

Table 1: Showing the basic clinical features of thunderclap headache in other neurological conditions

Reversible cerebral vasoconstriction syndrome (Velez *et al.,* 2013; Schwedt *et al.,* 2006; Ducros *et al.,* 2007; Singhal *et al.,* 2011)	• Presents as- • Recurrent TCH • Neurological signs may or may not be present • Occurs due reversible vasoconstriction of cerebral arteries due to transient dysfunction of cerebral arterial tone. • Females affected more than males. • Mean agegroupisaround 40 years. • Precipitating factors likedefecation, physical exertion, coitus, coughing and urination are reported in 79% patients. • Initial neuroimaging is usually normal. • Gold standard test is catheteral angiography. • In 90 % patients prognosis is good.
Posterior reversible encephalopathy syndrome. (Hinchey *et al.,* 1996; Morís *et al.,* 2007; Kur *et al.,* 2006; Bartynski *et al.,* 2008; Pande *et al.,* 2006).	• Occurs due to oedema affecting the posterior cerebral white matter . • Can occur in hypertension, eclampsia ,cancer chemotherapyandautoimmune diseases. • Cerebral oedema is vasogenic in nature. • Full recovery is usually expected.
Carotid and vertebral artery dissections (Giroud *et al.,* 1994; Schievink *et al.,* 1993 ; Dziewas *et al.,* 2003;Rubinstein *et al.,* 2005)	• Incidence is 2.523 per lakh. • Risk factors are trauma hypertension, diabetes, migraine and connective tissue disorders.
Ischemic stroke (Tentschert *et al.,* 2005; Moskowitz *et al.,* 1989)	• TCH can be present in 27% patients of stroke. • Mechanism is probably due to activation of trigemino-vascular system.

Cerebral venous thrombosis (Allroggen *et al.*, 2000; Ferro *et al.*, 2004; Agostoni *et al.*, 2004)	• Usually occurs in pregnancy, puerperium and females on OC pills. • TCH can be a presenting manifestation. • Other signs include seizures, paresis and mental status abnormalities. • Anticoagulants is the first line of management.
Pituitary apoplexy (Famini *et al.*, 2014;Bi W.L *et al.*, 2015; Sibal *et al.*, 2004)	• Caused by pituitary infarction and headache • Presents as TCH ,fever, visual disturbances and meningism. • 96% of all cases present sudden onset severe headache. • A pituitary mass is evident on neuroimaging. • Most cases require prompt surgical intervention.
Primary thunderclap headache (Anonymous *et al.*, 2013)	• Diagnosis is an exclusion. • Head pain is of severe and abrupt on onset . • It reaches maximum intensity with in 1minute and lasts for 5 minutes. • Neuroimaging is normal.

Acute bacterial meningitis usually presents with fever and headache. Several studies have been published where infections like rhinosinusitis leading to bacterial meningitis, aseptic meningitis, viral meningitis and encephalitis have been presented as thunderclap headache as one of the manifestations (Bo *et al.*, 2008; Linn *et al.*, 1994; Lledo *et al.*, 1994; Lamonte *et al.*, 1995; Hosley *et al.*, 2008). The peculiarity of our case was that apart from mild neck stiffness which could be attributed to non specific meningism, there were no other signs suggesting meningitis like fever, kernig's sign, brudzinski's sign and photophobia. TCH improved after initiation of therapy in our case.

CONCLUSION

TCH requires a meticulous assessment, prompt neuroimaging and lumbar puncture to rule out obvious causes. Rare causes like infections should be kept in mind even if no systemic signs are associated with the initial presentation.

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