1-29-2024

Pseudotumoral hemicerebellitis in a young male sailor with complete recovery after steroid therapy

Khizer Masroor Anns
Aga Khan University, khizer.anns@scholar.aku.edu

Faheem Ullah Khan
Aga Khan University, faheemullah.khan@aku.edu

Muhammad Aman
Aga Khan University, muhammad.aman@aku.edu

Anwar Ahmad
Aga Khan University, anwar.ahmed@aku.edu

Kumail Khandwala
Aga Khan University, kumail.khandwala@aku.edu

See next page for additional authors

Authors

Khizer Masroor Anns, Faheem Ullah Khan, Muhammad Aman, Anwar Ahmad, Kumail Khandwala, Zainab Aslam Saeed Memon, Izaz Ahmad, and Muhammad Ismail Safi

1-29-2024

Pseudotumoral hemicerebellitis in a young male sailor with complete recovery after steroid therapy

Khizer Masroor Anns
Aga Khan University, khizer.anns@scholar.aku.edu

Faheem Ullah Khan
Aga Khan University, faheemullah.khan@aku.edu

Muhammad Aman
Aga Khan University, muhammad.aman@aku.edu

Anwar Ahmad
Aga Khan University, anwar.ahmed@aku.edu

Kumail Khandwala
Aga Khan University, kumail.khandwala@aku.edu

See next page for additional authors

Authors

Khizer Masroor Anns, Faheem Ullah Khan, Muhammad Aman, Anwar Ahmad, Kumail Khandwala, Zainab Aslam Saeed Memon, Izaz Ahmad, and Muhammad Ismail Safi

Radiology Case Reports 19 (2024) 89–91

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/radcr

Case Report

Pseudotumoral hemicerebellitis in a young male sailor with complete recovery after steroid therapy ☆

Khizer Masroor Anns[a], *Faheemullah Khan, MBBS, MD*[b], *Zainab Aslam Saeed Memon, MBBS*[c], *Muhammad Aman, MBBS*[b], *Anwar Ahmed, MBBS, FCPS*[b], *Kumail Khandwala, MBBS, FCPS*[b], *Izaz Ahmad*[d], *Muhammad Ismail Safi, MD*[e,*]

[a] *Medical College, The Aga Khan University, Karachi, Pakistan*
[b] *Department of Radiology, The Aga Khan University Hospital, Karachi, Pakistan*
[c] *Department of Neurology, The Aga Khan University Hospital, Karachi, Pakistan*
[d] *Pak International Medical College, Peshawar, Pakistan*
[e] *Nishtar National Kidney Hospital, Jalalabad, Afghanistan*

ARTICLE INFO

Article history:
Received 7 July 2023
Revised 19 September 2023
Accepted 25 September 2023

Keywords:
Acute hemicerebellitis
Case report
Cerebellum
Pseudotumoral cerebellitis
Tumor

ABSTRACT

Pseudotumoral hemicerebellitis is a rare presentation of acute cerebellitis, which involves the inflammation of a single cerebellar hemisphere and most commonly affects children. It mimics a tumor on imaging, hence given the name. In this report, we present a case of pseudotumoral hemicerebellitis in a 30-year-old male who presented to the emergency room (ER) with complaints of vertigo, vomiting, and a headache.

Introduction

Pseudotumoral hemicerebellitis is a rare and benign neurologic condition in which a patient experiences headache, nausea, vomiting, and an altered mental state which may develop because of an infection or postvaccination disorder [1,2]. It is associated with various infectious agents that may include varicella, mumps or measles and other viral pathologies that contribute to cerebellar inflammation and edema [3,4]. Only in 24% of the cases, the exact etiology which causes this condition was known [5]. We present a case of a 30-year-old male

☆ Competing Interests: The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

* Corresponding author.
E-mail address: ismailsafi0254@gmail.com (M.I. Safi).

https://doi.org/10.1016/j.radcr.2023.09.077

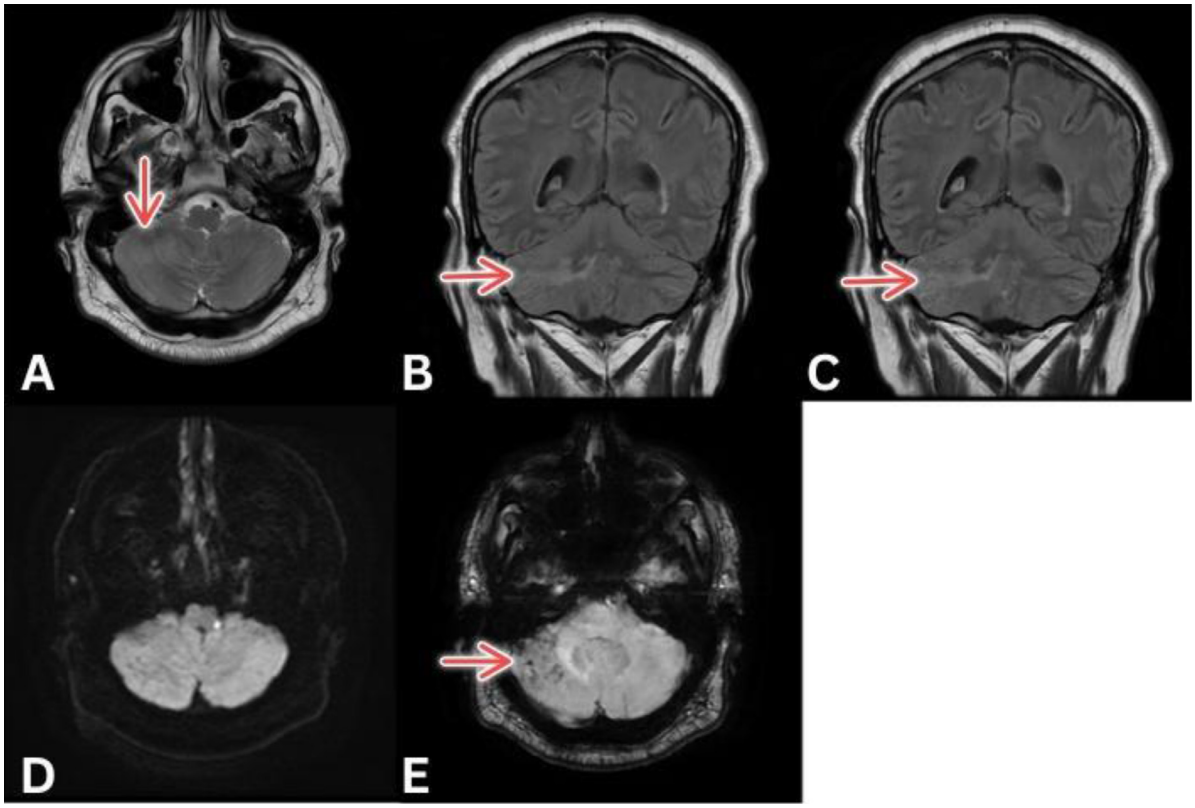

Fig 1 – (A) Axial T2-weighted image shows a swollen right cerebellar hemisphere with hyperintense signals (Arrow). (B) Coronal FLAIR image shows hyperintense signal in the affected cerebellar hemisphere (arrow). (C) Contrast-enhanced FLAIR image shows enhancement in the right cerebellar hemisphere and overlying leptomeninges (arrow). (D) Diffusion-weighted image shows no diffusion restriction. (E) Susceptibility-weighted image shows areas of blooming in right cerebellar hemisphere (arrow).

who presented to the emergency room (ER) with complaints of vertigo, vomiting, and a headache.

Case presentation

A 30-year-old male presented to the ER with complaints of vertigo, vomiting, and mild headache.

On physical examination, the patient had ataxia and vertigo but negative Romberg's sign. He had no positive history for neurologic disorder and his neurologic development was intact. He was mildly confused with Glasgow Coma scale of E4 V4 M6. He had normal vitals, electrolytes, and an unremarkable systemic examination. Rest of his motor and sensory examination was normal, and he had no cranial nerve abnormalities along with any visual or auditory symptoms.

History revealed that the patient had been suffering from episodes of vertigo for the last 3 days, which worsened on turning the head in any direction. These episodes lasted for 2 hours along with the patient having associated symptoms of constant and dull frontal headache and neck pain, with episodes of vomiting as well. Based on the patient's history, a preliminary diagnosis of benign paroxysmal positional vertigo (BPPV) was made. To achieve relief from symptoms, the patient was administered vestibular sedatives including betahistine and prochlorperazine and analgesics, and antiemetics along with an intravenous pulse dose of methylprednisolone. After showing improvement in symptoms, the patient was discharged from the ER and asked to follow-up in the neurology clinic after a week.

On follow-up after a week, his symptoms improved, and he was gradually removed from medications. After 6 weeks, he returned to the neurology clinic with recurring attacks of vertigo after which he was restarted on symptomatic therapy with several visits to the clinic. Based on the nonresolving nature of vertigo and headache, which persisted for about 4 weeks, an MRI scan of the brain was obtained.

MRI scan of the brain revealed geographical high intensity signals in the right hemi-cerebellum on T2-weighted and FLAIR imaging with postcontrast enhancement (Figs. 1A, B, C). Susceptibility-weighted imaging (SWI) showed punctate dropout signals suggestive of hemosiderosis while there was no diffusion restriction (Figs. 1D and E). The adjacent meninges had fine nodular leptomeningeal enhancement (Fig. 1C). Based on the MRI scan, a diagnosis of pseudotumoral hemicerebellitis was made.

The patient commenced steroid therapy again, including oral prednisone starting at a dose of 1 mg/kg with tapering into the next 2 weeks. However, he was then lost to follow-up in the clinic. On telephonic follow-up after 6 weeks, the patient

had recovered from the condition after multiple hospital visits and was currently symptom-free.

Discussion

Acute cerebellitis is a neurologic condition in which a patient experiences nausea, headache, loss of consciousness, and an altered mental state in addition to appearance of certain cerebellar symptoms [1]. It is benign condition which develops either as a primary infection, postinfection, or a postvaccination disorder [2]. Hemicerebellitis is a rare unilateral presentation of acute cerebellitis which involves the inflammation of a single cerebellar hemisphere. It occurs most commonly in young children. It is associated with various infectious agents that include varicella, measles, mumps, and rubella. In addition to that, several other viral pathologies also contribute to cerebellar inflammation and edema, which makes the exact cause of this disorder unknown [3,4]. Only in about 24% of the patients, the exact infectious agent causing the condition could be known [5]. Here, we report a case of hemicerebellitis in a 30-year-old male patient who presented with complaints of vertigo, vomiting, and headache.

While hemicerebellitis is rare, pseudotumoral hemicerebellitis is an extremely rare neurologic presentation of the cerebellum which mimics a tumor clinically or on imaging which was the case with our patient. It requires a high index of suspicion to prevent any surgical intervention that is not necessary [6]. Classically, pseudotumoral cerebellitis is presented with headache, ataxia, vomiting, and may lead to intracranial hypertension in children [4]. In some cases, it may also include disturbances in consciousness, ranging from somnolence to coma, with fever and a stiff neck. CSF analysis shows a variable protein concentration and white blood cells (WBCs) count that might be dependent on the severity and the clinical stage of infection [7]. This was consistent with our case in which the patient had also complained of neck pain and multiple episodes of vertigo which worsened on changing direction. However, no cerebellar signs were noticed in our patient.

Diagnosis of pseudotumoral cerebellitis is made by magnetic resonance imaging (MRI) scan due to limitations of computed tomography (CT) scans of the brain [3]. MRI is the key imaging method in diagnosing pseudotumoral cerebellitis as it shows a swollen cerebellar hemisphere appearing hyperintense on T2-weighted images which was also the case with our patient [6]. Moreover, T2-FLAIR hyperintense signaling is used in the differential diagnosis to show immune-related cerebellitis as compared to a downward herniation of the brain which is suggestive of an infective acute cerebellitis [8].

The first line of treatment for a case of pseudotumoral hemicerebellitis is antibiotics and corticosteroids to resolve symptoms [2]. In case of an infection by a specific microorganism, antiviral and antibiotic therapy should be started while the inflammation of the cerebellum should be treated with the use of mannitol or corticosteroids [7]. In our case, the patient was started on corticosteroid therapy as well which led to his complete recovery from the disease. In rare circumstances, a patient may require surgical depression for complications like tonsillar herniation, acute hydrocephalus, or brainstem compression [3].

In conclusion, this case also emphasizes the importance of clinical judgment and appropriate investigations to avoid any unnecessary interventions while not overlooking rare diagnoses like pseudotumoral hemicerebellitis. As in our case, prompt recognition based on clinical presentation and characteristic MRI findings allowed for the initiation of an appropriate treatment which led to the patient's complete recovery.

Patient consent

We obtained written, informed consent for publication of this case from the patient.

REFERENCES

[1] Horowitz MB, Pang D, Hirsch W. Acute cerebellitis: case report and review. Pediatr Neurosurg 1991;17(3):142–5. doi:10.1159/000120585.
[2] Singh P, Bhandal SK, Saggar K, Pooni PA, Jaswal RS. Pseudotumoral hemicerebellitis with hemorrhage. J Pediatr Neurosci 2012;7(1):49–51. doi:10.4103/1817-1745.97625.
[3] Oguz KK, Haliloglu G, Alehan D, Topcu M. Recurrent pseudotumoral hemicerebellitis: neuroimaging findings. Pediatr Radiol 2008;38(4):462–6. doi:10.1007/s00247-007-0725-5.
[4] Carceller Lechón F, Duat Rodríguez A, Sirvent Cerdá SI, Khabra K, de Prada I, García-Peñas JJ, et al. Hemicerebellitis: report of three paediatric cases and review of the literature. Eur J Paediatr Neurol 2014;18(3):273–81. doi:10.1016/j.ejpn.2013.12.004.
[5] De Bruecker Y, Claus F, Demaerel P, Ballaux F, Sciot R, Lagae L, et al. MRI findings in acute cerebellitis. Eur Radiol 2004;14(8):1478–83. doi:10.1007/s00330-004-2247-y.
[6] de Mendonca JLF, Barbosa H, Viana SL, Freitas FMO, Viana MACB, Ferreira ACL. Pseudotumoural hemicerebellitis: imaging findings in two cases. Br J Radiol 2005;78(935):1042–6. doi:10.1259/bjr/97374075.
[7] Sawaishi Y, Takada G. Acute cerebellitis. Cerebellum 2002;1(3):223–8. doi:10.1080/14734220260418457.
[8] Orman G, Kralik SF, Desai NK, Meoded A, Sangi-Haghpeykar H, Jallo G, et al. Can MRI differentiate between infectious and immune-related acute cerebellitis? A retrospective imaging study. Am J Neuroradiol 2021;42(12):2231–7. doi:10.3174/ajnr.A7301 type.