Case Report

ANNALS OF MEDICINE & SURGERY

OPEN

Idiopathic intracranial hypertension following childbirth: a case report and management strategies

Abdiwahid Ahmed Ibrahim, MD[a,*], Mohamed Sheikh Hassan, MD[a,c], Abdirisak Abdikarin Ahmed, MD[b], Nor Osman Sidow, MD[a], Mohamed Farah Osman Hidig, MD[a], Mohamed Salad Kadiye, MD[b], Bakar Ali Adam, MD[a]

Introduction: A postpartum headache, also known as pseudotumor cerebri, is defined as a headache and shoulder or neck pain that occur in the first 6 weeks following childbirth. Common causes of headaches during puerperium include pre-eclampsia, subarachnoid hemorrhage, cerebral venous thrombosis, meningitis, brain tumors, cerebrovascular diseases, and posterior reversible encephalopathy syndrome. Pseudotumor cerebri is an extremely rare cause of postpartum severe headache with visual disturbance with or without papilledema.

Case presentation: Here, the authors present a 32-year-old postpartum female patient who presented with a severe headache and visual disturbance for 10 days. Neurological examination did not show any focal or lateralizing deficit. However, a fundus examination showed severe bilateral papilledema. A contrast-enhanced brain MRI did not reveal a space-occupying mass lesion. MRV excluded venous occlusion. A lumbar puncture demonstrated a high opening pressure of 75 cmH_2O with a normal cell count and protein and glucose levels. The patient was diagnosed with idiopathic intracranial hypertension. After 8 weeks of treatment with diazomid and topiramate, the patient improved clinically, and her papilledema regressed.

Clinical discussion: The occurrence of IIH is very rare among postpartum females. To our knowledge, very few cases of postpartum IIH have been reported in the medical literature. Although rare, patients with postpartum headache with visual disturbances should have a fundoscopic examination. The patient was diagnosed and managed in time, which led to significant clinical improvement and salvage of her vision.

Conclusion: As described in this case, idiopathic intracranial hypertension can cause severe headaches with and without visual disturbance during the postpartum period (despite being rare in this period), so it should be considered in the differential diagnosis.

Keywords: headache, idiopathic intracranial hypertension, papilledema, postpartum

Introduction

Postpartum headache (PH) is defined as a headache that is experienced within the first 6 weeks following delivery, and it might accompany neck or shoulder pain[1]. The incidence of postpartum headache is reported to be 39% in the first week after delivery[2]. On the other hand, secondary causes of postpartum headache (PH) include meningitis, brain tumors, cerebral ischemia, posterior reversible leukoencephalopathy syndrome, cortical vein thrombo sis, arterial dissection, subarachnoid hemorrhage, and pre-eclampsia/eclampsia[3,4]. A postpartum headache may be the presenting symptom of idiopathic intracranial hypertension (IIH). It is often characterized by a headache with or without papilledema and elevated CSF pressure, with no localized neurologic abnormalities. The IIH is more prevalent in obese women in the reproductive years but is infrequent during pregnancy (19.3/100 000)[5]. Obesity raises intra-abdominal pressure, pleural pressure, and cardiac filling pressures. This impairs venous return from the brain and increases intracranial and intracerebral venous pressure[6]. This syndrome has different signs and symptoms, but the most prevalent is

HIGHLIGHTS

- The occurrence of pseudotumor cerebri is very rare among postpartum females.
- Although rare, patients with postpartum headache with visual disturbances should have a fundoscopic examination.
- The present case illustrates a postpartum female patient who was diagnosed and managed in time, which led to significant clinical improvement and salvage of her vision.

[a]Department of Neurology, Mogadishu Somalia Turkish Training and Research Hospital, [b]Department of Ophthalmology, Mogadishu Somali Turkish Training and Research Hospital and [c]Faculty of Medicine and Surgery, Mogadishu University, Somalia

Sponsorships or competing interests that may be relevant to content are disclosed at the end of this articles.

*Corresponding author. Address: Mogadishu Somalia Turkish Training and Research Hospital, Somalia. Tel.: +252 615 681 600. E-mail: drabdiwahid00@gmail.com (A.A. Ibrahim).

Annals of Medicine & Surgery (2024) 86:6784–6787

Received 28 June 2024; Accepted 5 September 2024

Published online 18 September 2024

http://dx.doi.org/10.1097/MS9.0000000000002575

headache and other associated symptoms such as visual disturbance with or without papilledema, so it can cause serious complications if left untreated[7,8]. The most popular standard used for diagnosis of IIH is the Modified Dandy Criteria, reviewed and updated by Friedman and Jacobson[9].

Management should be focused on preserving visual function. Medical treatment includes diuretics (mainly acetazolamide), topiramate, and serial lumbar punctures[10]. Here, we report a young female with normal uncomplicated vaginal delivery who presented with severe postpartum headache and was diagnosed with IIH and successfully treated with acetazolamide and topiramate.

Case presentation

A 32-year-old at 1-month postpartum patient with normal uncomplicated vaginal delivery came to the neurology clinic complaining of a severe headache associated with blurred vision, and nausea for 10 days but not associated with vomiting. Headache was increased by supine position and relieved by getting up. There is no recent drug history like vitamin A, tetracycline, steroid or hormonal drugs, or episodes of arterial or venous thromboembolism. She denied having ever experienced depression or stress, and there was no family history of migraines. On examination, she had normal body temperature, blood pressure was 130/80 and oxygen saturation was in the normal limit. There were no signs of anemia, lymphadenopathy, skin rash, polyarthritis, nasal sinus tenderness, pericranial tenderness, otitis media, mastoiditis, significant pedal edema, or calf tenderness.

On neurological examination, she was fully conscious, alert, and oriented to time, place, and person. No focal neurological deficit was seen. Deep tendon reflexes of both upper and lower limbs were normal. No signs of meningeal irritation were seen. Cranial nerve examination, including ocular movement and pupillary reflexes were normal. On ophthalmological examination, severe bilateral papilledema was observed on the oculi fundi. Her visual field, color vision, and extraocular movements were all within normal limits. Her visual acuity was 6/9 in both her right and left eyes. Laboratory investigations, including complete blood counts, serum urea, creatinine, electrolytes, uric acid, liver function tests, and C-reactive protein, were all within the normal reference range. A contrast-enhanced brain MRI revealed no intracranial lesion (see Fig. 1). Major dural sinuses and cerebral

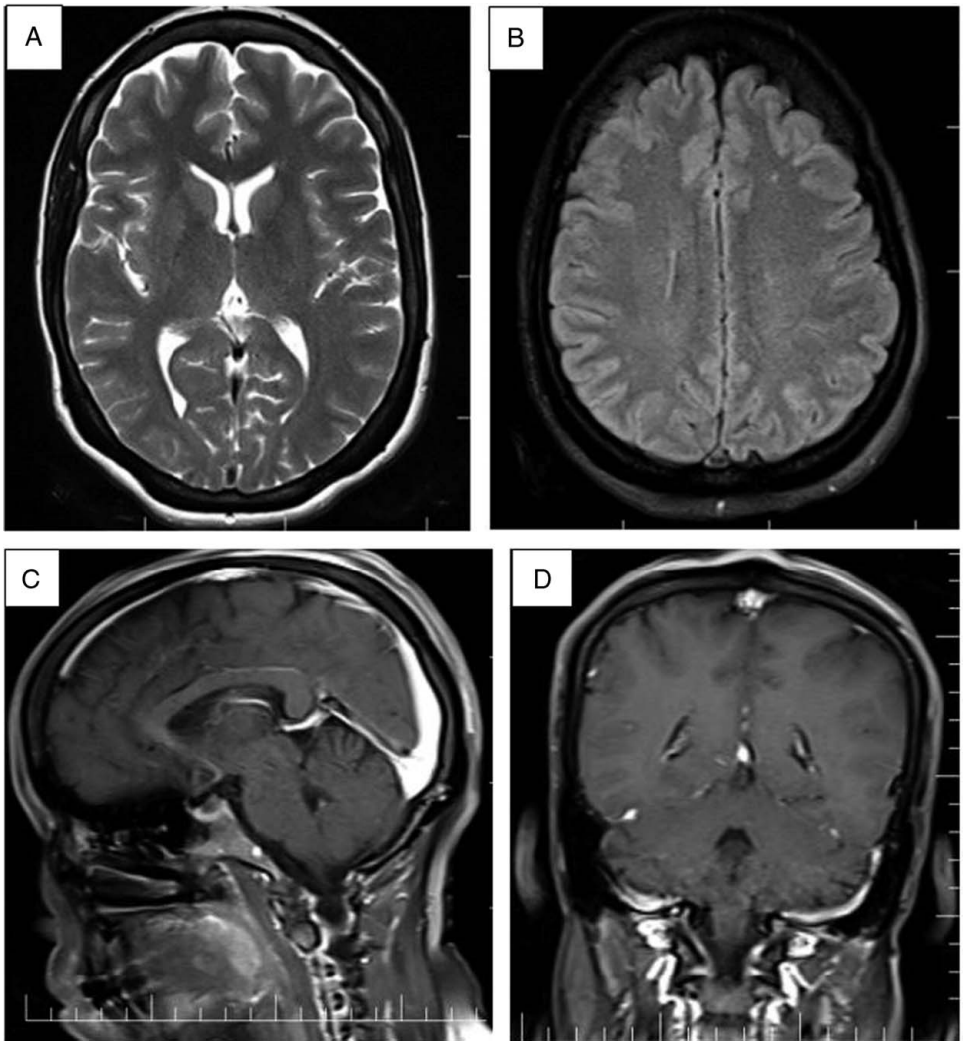

Figure 1. A–D: Contrast-enhanced brain MRI showed normal parenchyma findings.

veins were patent per MR venogram. A lumbar puncture was performed after receiving her consent, and the results revealed clear CSF with an elevated opening pressure of 75 cm of water; glucose and protein levels and cell count were within the normal range. Gram stain, bacterial cultures were all negative.

A diagnosis of postpartum idiopathic intracranial hypertension was made based on the clinical symptoms of a severe headache with severe papilledema and increased CSF opening pressure, as well as a normal CSF finding, cerebral venous system, and normal brain parenchyma on neuroimaging. She was treated with oral acetazolamide 250 mg TID, topiramate 50 mg BID, and a salt-restricted diet. After a 2-month follow-up in the neurology outpatient department, she had massive improvement. Her headache intensity massively decreased. Her papilledema completely disappeared. This case has been reported in line with the Surgical CAse REport (SCARE) 2020 criteria[11].

Discussion

One of the most common complaints during the postpartum period is headache[12]. Typically, the postpartum phase is marked by a range of changes in lifestyles, including lack of sleep, unusual eating patterns, and dehydration. Each of these elements may have some connection to headache. Hormonal changes, especially in estrogen levels, and primary headaches, especially migraine tend to recur in the postpartum period[2,13]. There is a reported range of 11–80% for postpartum headache occurrences[14]. According to Goldszmidt *et al*.,[2] about 39% of women in the first 7 days following birth had headaches. In a retrospective study, Stein[12] found that 64% of patients with a history of migraine headaches and 61% of individuals with a familial history had a recurrence in the postpartum period.

Postpartum headache has been associated with both hormonal (higher levels of oxytocin, prolactin, and estrogen) and neurological (autonomic nerve system control of orgasm) aspects[15]. After excluding all other possible causes of postpartum head aches, idiopathic intracranial hypertension could be the cause of headache 2–3 weeks after the postpartum period. Although it is idiopathic, the pathogenesis of pseudotumor cerebri is best explained by the concept that venous perfusion anomalies and drainage may cause increased intracranial hypertension[1]. Research evidence supports two primary pathways for the devel opment of elevated CSF pressure in IIH: poor permeability of CSF outflow at the arachnoid villi and vasogenic extracellular brain edema[16,17]. Female sex and obesity are major risk factors for pseudotumor cerebri[18]. Obesity increases pleural, cardiac, and intra-abdominal pressure, which in turn obstructs venous drainage from the brain and increases cerebral venous pressure[6].

It is believed that females have the major risk factor of idiopathic intracranial hypertension due to elevated levels of estrogen, both exogenous and exogenous[19]. Our patient did not mention symptoms of headache during pregnancy. There are no reported instances of fetal abnormalities among pregnancies with IIH, despite the literature showing an increased rate of recurrence.[18]. The goal of treatment is to minimize pain and protect vision because up to 10% of women with IIH become blind[5]. Acetazolamide is the standard of therapy[18]. Because it promotes diuresis, which allows the amount of CSF to be decreased, and since the adverse effects are limited to paresthesias of the mouth or limbs. Our patient responded well to acetazolamide 250 mg TID and topiramate 50 mg BID. The patient's headache decreased dramatically within 2 months of medical treatment. The papilledema regressed after 1 month. A 1-month later follow-up examination revealed visual acuities of 20/20 in the right eye (OD) and 20/20 in the left eye (OS).

Conclusion

One of the differential diagnoses for postpartum headache should include idiopathic intracranial hypertension. For any woman in the postpartum period complaining of a newly developed headache without an obvious biological explanation, a fundoscopic examination should be performed. Our patient presented with postpartum headaches and visual disturbances. Delay in recognizing the diagnosis can lead to permanent visual loss.

Ethical approval

Not applicable. Our institution does not require ethical approval for reporting individual case report or case series.

Consent

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Source of funding

Not applicable.

Author contribution

A.A.I., M.S.H., and A.A.A.: wrote the original manuscript; N.O.S. and M.F.O.: reviewed the relevant literature; M.S.K. and B.A.A. reviewed and edited the original manuscript. All authors gave final approval of the version to be published; have agreed on this journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Conflicts of interest disclosure

The authors declare no conflict of interest.

Research registration unique identifying number (UIN)

Not applicable.

Guarantor

Abdiwahid Ahmed Ibrahim.

Data availability statement

All the required information is within the manuscript itself.

Provenance and peer review

Not commissioned, externally peer-reviewed.

References

[1] Mathew M, Salahuddin A, Mathew NR, *et al*. Idiopathic intracranial hypertension presenting as postpartum headache. Neurosci J 2016;21:52–5.

[2] Goldszmidt E, Kern R, Chaput A, *et al*. The incidence and etiology of postpartum headaches: a prospective cohort study. Canad J Anaesthes 2005;52:971–7.

[3] Stella CL, Jodicke CD, How HY, *et al*. Postpartum headache: is your work-up complete? Am J Obstet Gynecol 2007;196:318–e1.

[4] Hassan MS, Yücel Y. Central neurocytoma presenting headache and papilledema: a case report. Turk J Neurol 2021;27:451–3.

[5] Huna-Baron R, Kupersmith MJ. Idiopathic intracranial hypertension in pregnancy. J Neurol 2002;249:1078–81.

[6] Gafoor VA, Smita B, Jose J. Obesity, ethnicity and idiopathic intracranial hypertension. Ann Indian Acad Neurol 2019;22:352.

[7] Smith SV, Friedman DI. The idiopathic intracranial hypertension treatment trial: a review of the outcomes. Headache 2017;57:1303–10.

[8] Corbett JJ, Savino PJ, Thompson HS, *et al*. Visual loss in pseudotumor cerebri: follow-up of 57 patients from five to 41 years and a profile of 14 patients with permanent severe visual loss. Arch Neurol 1982;39:461–74.

[9] Friedman DI, Jacobson DM. Diagnostic criteria for idiopathic intracranial hypertension. Neurology 2002;59:1492–5.

[10] Karmaniolou I, Petropoulos G, Theodoraki K. Management of idiopathic intracranial hypertension in parturients: anesthetic considerations. Canad J Anesthes 2011;58:650–7.

[11] Agha RA, Franchi T, Sohrabi C, *et al*. The SCARE 2020 guideline: updating consensus surgical CAse REport (SCARE) guidelines. Int J Surg 2020;84:226–30.

[12] Stein GS. Headaches in the first post partum week and their relationship to migraine. Headache 1981;21:201–5.

[13] Stein G, Morton J, Marsh A, *et al*. Headaches after childbirth. Acta Neurol Scand 1984;69:74–9.

[14] Scharff L, Marcus DA, Turk DC. Headache during pregnancy in the postpartum: a prospective study. Headache 1997;37:203–10.

[15] Adinma JI. Acute puerperal coital headache and hypertension. Austral N Zeal J Obstetr Gynaecol 1994;34:487–8.

[16] Radhakrishnan K, Ahlskog JE, Garrity JA, *et al*. Idiopathic intracranial hypertension. InMayo Clin Proc 1994;69:169–80; Elsevier.

[17] Wall M. Idiopathic intracranial hypertension. Neurol Clin 2010;28:593–617.

[18] Chen J, Wall M. Epidemiology and risk factors for idiopathic intracranial hypertension. Int Ophthalmol Clin 2014;54:1–11.

[19] Tuță S. Cerebral venous outflow implications in idiopathic intracranial hypertension—from physiopathology to treatment. Life 2022;12:854.