

# A woman with a postpartum severe headache

Mustafa Mahmood Eid\*

Emergency Department, Al Ain Hospital, Al Ain, United Arab Emirates



**Received:** 9 May 2020  
**Accepted:** 29 August 2020  
**Published online:** 13 September 2020

**\*Corresponding author:** Mustafa Mahmood Eid, Al Ain Hospital, Shakboot Bin Sultan Street Al Ain, UAE. P.O.Box 1006. Tel: 00971505848181, Email: Dr.mustafa191982@gmail.com

**Competing interests:** None.

**Funding information:** None.

## Abstract

**Objective:** Epidural anesthesia is one of the famous, generally safe, and most requested pain relief measures in labor. Nevertheless, it can have some complications though pneumocephalus and subdural effusion are very rare complications.

**Case Presentation:** A 32-year-old woman presented with a severe persistent headache after a vaginal delivery, where epidural anesthesia was used for pain control. Her brain computerized tomography (CT) scan confirmed pneumocephalus and subdural effusion as a complication of the procedure.

**Conclusion:** Although headache can be present in many women post-delivery, investigations should run in susceptible women with alerting signs.

**Keywords:** Anesthesia, Epidural, Pneumocephalus, Subdural effusion, Headache

**Citation:** Mahmood Eid M. A woman with a postpartum severe headache. Journal of Emergency Practice and Trauma 2021; 7(1): 77-79. doi: 10.34172/jept.2020.29.

## Introduction

Epidural anesthesia is one of the famous and most requested pain relief measures in labor. It is generally safe and effective and can be contraindicated in certain circumstances like infection at the puncture site, severe coagulopathies, or lack of experience (1). Nevertheless, it can lead to side effects and complications like all other procedures. These include but are not limited to headache, infection, hypotension, and nerve damage (1,2). The frequency of headache post epidural anesthesia is much less when compared with lumbar puncture due to the use of technology where the fluid is injected in and not removed in the latter (3). Thus, it is uncommon to have headache post epidural anesthesia due to accidental dural injury. Also, it is very rare to have pneumocephalus complicating epidural anesthesia. Besides, it is unlikely to have bilateral subdural effusion following epidural anesthesia. Further, it is odd to have both these cases after epidural anesthesia. This case reports a woman who developed pneumocephalus and subdural effusion following epidural anesthesia for labor pain.

## Case Presentation

A 32-year-old multiparous woman presented to the emergency department (ED) complaining of severe headache for five days which had started after her last vaginal delivery. The headache started in the frontal area and radiated to the occipital area interrupting her sleep. It was associated with intermittent nausea and generalized

fatigue. The headache was not affected by the postural component.

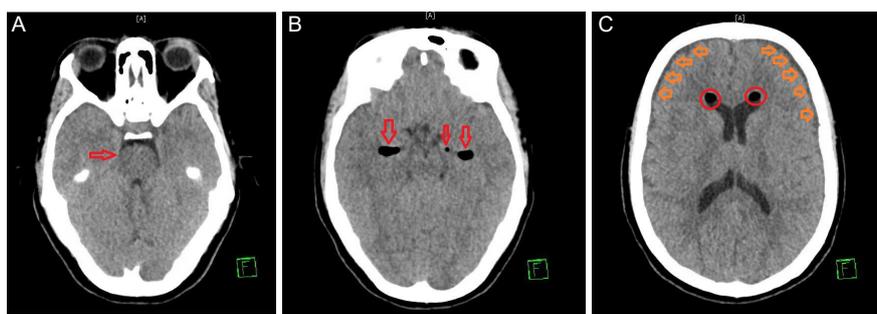
She went to an ED of another hospital where she was not satisfied with analgesia. Then, she visited a neurologist who reassured her that it is expected after epidural anesthesia and it will resolve with analgesia and rest. Nevertheless, her condition did not improve, and consequently, she came to our ED.

The patient was in stress due to severe headache, which she described as the worst in her life. She claimed that she had an uneventful pregnancy and normal vaginal delivery. Her vital signs were within normal limits. Her examination, including a neurological examination, was unremarkable. Consequently, a set of blood tests and a computerized tomography (CT) scan of the brain were arranged. Also, intravenous analgesia was commenced. The blood tests came within normal limits; however, the CT scan revealed intraventricular pneumocephalus with subdural effusion and subtle effacement of the basal cistern (Figures 1A, B and C). As a consequence, the neurosurgeon was consulted who reviewed the patient and admitted her. During hospitalization, the patient was treated with analgesia, hydration, and close observation. Fortunately, the patient's condition improved without the need for surgical intervention, and she was discharged to follow with the neurosurgery clinic.

## Discussion

Headache in the postpartum period is extremely common,





**Figure 1.** (A) CT brain showed subtle effacement of basal cistern (red arrow). (B) CT brain showed Intraventricular pneumocephalus (red arrows). (C). Intraventricular pneumocephalus (red circles) and bilateral mild frontoparietal subdural effusion (orange arrows).

which may occur up to 80% in women. While tension headache and migraine continue as the leading causes, other precipitating factors should be investigated in highly suspicious patients (4).

Pneumocephalus is defined as the presence of gas or air within brain parenchyma or ventricular cavities (5). Different factors are implanted to cause it like tumors or neurosurgical interventions; however, the trauma continues to be the leading precipitating factor (6). The affected patients can be asymptomatic or can present with headache, nausea and vomiting, dizziness, visual alteration, or confusion. Although it is difficult to be diagnosed clinically, some patients experience splashing sounds with the movement of the head (7). Various imaging modalities can be used to identify the air like an x-ray, CT scan, or magnetic resonance imaging (MRI). However, the CT scan is considered the gold standard for the diagnosis (8). The management approach depends on a patient's condition, which can be conservative or surgical interventions. The conservative modalities include rest, analgesia, or positioning (9).

Due to the ball-valve mechanism during the epidural procedure, which allows input but no output, pneumocephalus rarely developed post epidural anesthesia. However, if there were a puncture of the dura during epidural anesthesia, this would lead to air entrapment and suckle upward. This explanation was declared by a meta-analysis showing that 1.5% of patients with epidural insertion will suffer from an accidental dural puncture, and post puncture headache will develop in 52% of these patients (10). It was also revealed that 0.32% and 0.38% of patients developed an accidental dural puncture and post puncture headache, respectively, in another major study. Furthermore, it had been noticed that the higher number of attempts, the greater the injury percentage (11).

Subdural effusion is defined as an accumulation of cerebrospinal fluid (CSF) between the brain's dura matter and surface. Typically, it can occur as a rare complication of meningitis in infants or secondary to head trauma (12). The affected patients may present with headache, seizures, or symptoms of complications like fever, vomiting, or

focal neurological defect. It is usually detected by a CT scan, MRI, or ultrasound of the brain. Subdural effusion management often follows a conservative approach unless complications like infection or hemorrhage occur, requiring a surgical intervention (13).

Subdural effusion may rarely complicate with epidural anesthesia. This complication occurs probably due to the excessive loss of CSF from a dural leak lower in the spinal canal following an accidental dural puncture (14).

To the best of my knowledge, there was no previous report of the two conditions happening simultaneously following epidural anesthesia, although each condition was reported separately on a few occasions.

### Conclusion

In patients presenting with severe headache post vaginal delivery, a detailed history should be taken with specific questions about the anesthesia mode that the patient received. Additionally, in patients who experience worrisome signs or symptoms, thorough examination and prompt investigation should be carried.

### Ethical issues

Informed consent was obtained from the patient for publication of the report.

### References

1. Silva M, Halpern SH. Epidural analgesia for labor: current techniques. *Local Reg Anesth* 2010; 3: 143-53. doi: 10.2147/lra.s10237.
2. Pan PH, Bogard TD, Owen MD. Incidence and characteristics of failures in obstetric neuraxial analgesia and anesthesia: a retrospective analysis of 19,259 deliveries. *Int J Obstet Anesth* 2004; 13(4): 227-33. doi: 10.1016/j.ijoa.2004.04.008.
3. Ahmed SV, Jayawarna C, Jude E. Post lumbar puncture headache: diagnosis and management. *Postgrad Med J* 2006; 82(973): 713-6. doi: 10.1136/pgmj.2006.044792.
4. Goldszmidt E, Kern R, Chaput A, Macarthur A. The incidence and etiology of postpartum headaches: a prospective cohort study. *Can J Anaesth* 2005; 52(9): 971-7. doi: 10.1007/bf03022061.
5. Álvarez-Holzapfel MJ, Aibar Durán J, Brió Sanagustin S, de Quintana-Schmidt C. (Diffuse pneumocephalus after

- lumbar stab wound). *An Pediatr (Barc)* 2019; 90(1): 63-4. doi: 10.1016/j.anpedi.2018.04.012.
6. Pillai P, Sharma R, MacKenzie L, Reilly EF, Beery PR 2nd, Papadimos TJ, et al. Traumatic tension pneumocephalus - Two cases and comprehensive review of literature. *Int J Crit Illn Inj Sci* 2017; 7(1): 58-64. doi: 10.4103/ijciis.ijciis\_8\_17.
  7. Zasler ND, Katz DI, Zafonte RD. *Brain Injury Medicine: Principles and Practice*. Demos Medical Publishing; 2007.
  8. Karavelioglu E, Eser O, Haktanir A. Pneumocephalus and pneumorrhachis after spinal surgery: case report and review of the literature. *Neurol Med Chir (Tokyo)* 2014; 54(5): 405-7. doi: 10.2176/nmc.cr2013-0118.
  9. Kaye AH. Head injuries. In: *Essential Neurosurgery*, vol 4. 3rd ed. Hoboken: Blackwell Publishing; 2005. p. 40-55.
  10. Choi PT, Galinski SE, Takeuchi L, Lucas S, Tamayo C, Jadad AR. PDPH is a common complication of neuraxial blockade in parturients: a meta-analysis of obstetrical studies. *Can J Anaesth* 2003; 50(5): 460-9. doi: 10.1007/bf03021057.
  11. Van de Velde M, Schepers R, Berends N, Vandermeersch E, De Buck F. Ten years of experience with accidental dural puncture and post-dural puncture headache in a tertiary obstetric anaesthesia department. *Int J Obstet Anesth* 2008; 17(4): 329-35. doi: 10.1016/j.ijoa.2007.04.009.
  12. Lee KS, Bae WK, Park YT, Yun IG. The pathogenesis and fate of traumatic subdural hygroma. *Br J Neurosurg* 1994; 8(5): 551-8. doi: 10.3109/02688699409002947.
  13. Heegaard WG, Biros MH. Head injury. In: Marx JA, Hockberger RS, Walls RM, eds. *Rosen's Emergency Medicine: Concepts and Clinical Practice*. 8th ed. Philadelphia, PA: Elsevier Saunders; 2014.
  14. Pannullo SC, Reich JB, Krol G, Deck MD, Posner JB. MRI changes in intracranial hypotension. *Neurology* 1993; 43(5): 919-26. doi: 10.1212/wnl.43.5.919.