

Available online at www.sciencedirect.com

ScienceDirect

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

Case Report

Subdural hemorrhage post obstetric epidural: An MRI Case Report ☆,☆☆

Geoffrey Liu, M.B.B.S.^{a,*}, Allan Lee, M.B.B.S., B.Med.Sci.^b,
Neoma Withanawasam, M.B.B.S.^a, Sanyogita Tara, FRANZCOG^a

^a Eastern Health, 5 Arnold St Box Hill, VIC 3128 Australia

^b Imaging Associates Eastern, Level 1, 116-118 Thames Street Box Hill, VIC 3128 Australia

ARTICLE INFO

Article history:

Received 21 May 2020

Revised 3 June 2020

Accepted 3 June 2020

Keywords:

Subdural hemorrhage

Post-partum

Obstetric

Epidural

ABSTRACT

Epidural and spinal anesthesia is a routine anesthetic procedure and considered the standard of care for intrapartum analgesia. Complications of epidurals vary greatly from temporary hypotension to meningitis and intracranial bleeds. Intracranial subdural hemorrhages are considered a rare but serious complication that may have significant long-term morbidity, particularly for postpartum women. The most common complication is a postdural puncture headache and patients with intracranial subdural hemorrhage present with similar symptoms.¹ Imaging may be necessary to differentiate the 2 conditions and ensure patients are treated correctly.

© 2020 The Authors. Published by Elsevier Inc. on behalf of University of Washington.

This is an open access article under the CC BY-NC-ND license.

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

Case presentation

A 30-year-old female patient called the maternity ward at night after spontaneously rupturing her membranes with clear liquor and not in active labor. This is her first pregnancy and thus far is uncomplicated apart from testing positive on the routine group G streptococcus screening. As such, it was decided to induce her labor with syntocinon and commence her on IV antibiotics when she presented to the hospital 2 hours later (Figs. 1 and 2).

Four hours later, the patient requested for epidural anesthesia to alleviate the increasing pain secondary to strengthening contractions. The anesthetics team attended and successfully inserted an 18-gauge spinal needle after the sec-

ond attempt. The patient went on to progress well through her labor, delivering a well baby 10 hours after the insertion of the epidural. Her birth was complicated by a postpartum hemorrhage in the context of an episiotomy and trauma.

The epidural was removed 90 minutes after the delivery. Promptly that evening, the patient began to complain of a worsening headache. On anesthetics review, it was noted that the headache was postural and fronto-occipital in nature, radiating down her neck. There were no other features to suggest meningitis nor spinal cord compromise.

Her pain, initially attributed to postdural puncture headache (PDPH), did not improve with conservative management (analgesia including opioids, IV hydration and oral caffeine). An epidural blood patch was subsequently per-

☆ Declaration of Competing Interest: All authors declare there are no conflicts of interest.

☆☆ Ethics approval: The patient has provided informed consent for the publication of this case report.

* Corresponding author.

E-mail address: geoffrey.liu@live.com.au (G. Liu).

<https://doi.org/10.1016/j.radcr.2020.06.030>

1930-0433/© 2020 The Authors. Published by Elsevier Inc. on behalf of University of Washington. This is an open access article under the CC BY-NC-ND license. (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)



Fig. 1 – MRI lumbar spine (sagittal STIR sequence) demonstrating a small posterior epidural collection at L3/4 (arrow).

formed by the anesthetic team to alleviate her worsening symptoms. The procedure was uncomplicated and routine post procedural instructions were given. Her headache settled and she was discharged the following day, 3 days postpartum.

The patient presented back to the emergency department the next day with a worsening postural headache. The headache is now localized to the left fronto-temporal region

and radiated down her neck with associated photophobia and neck stiffness. The patient did not exhibit any infective or neurological symptoms. The neurological examination was unremarkable. On further questioning, it was noted that the patient had strained on the toilet 2 hours prior to the onset of the headache. It was suspected that her straining caused her blood patch to dislodge and therefore, a recurrence of her symptoms.

Upon review by the anesthetist, a decision was made to repeat the blood patch. Her symptoms improved following the procedure; however, she reported a lingering baseline mild headache for the next 2 days. She was otherwise well without neurological deficit, was discharged and advised to re-present to the emergency department if her symptoms worsen. A semiurgent magnetic resonance imaging (MRI) of the brain and whole spine was performed as an outpatient within a week.

The MRI day 12 postpartum demonstrated a shallow subdural hemorrhage along the left cerebral convexity measuring 3.1 mm in depth. MRI of her spine demonstrated an extradural collection consistent with the blood patch for suspected cerebrospinal fluid (CSF) leak. The patient was called with the result and she presented to the emergency department for urgent assessment. Her exam was unremarkable and the case was discussed with the neurosurgical team at a tertiary referral center. The plan was made to manage this patient conservatively and to repeat MRI in 1 month to monitor the subdural hemorrhage.

Discussion

There is a 1.5% risk of puncturing of the dura mater during the placement of an epidural needle and more than half of

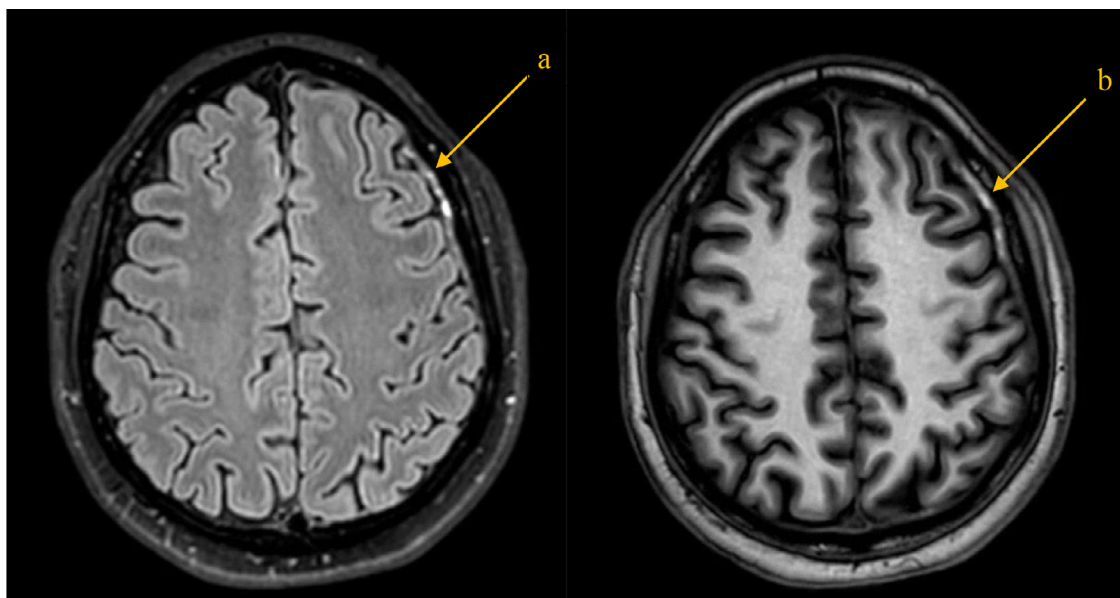


Fig. 2 – MRI brain with FLAIR (a) and T1 (b) sequences demonstrating shallow subacute subdural hemorrhage along the left cerebral convexity.

these patients go on to develop a PDPH [1]. Although PDPH is a known complication of epidural and spinal anesthesia since 1898, its pathophysiology is still poorly understood. PDPH may have a delayed presentation, between 12- and 48 hours post-dural puncture, as well as being bilateral, severe and postural [2].

It is speculated that the PDPH is secondary to the loss of CSF through the accidental dural puncture. Following a dural puncture the patient can develop a CSF leak from the subarachnoid space into the epidural space. As the CSF normally cushions and supports the brain, the loss of CSF is suspected to increase the shear force on the meninges and the venous circulation. This may rarely cause a subdural hemorrhage [3].

Subdural hemorrhages are significantly rarer than PDPH, with less than 100 cases documented or reported. The incidence of an intracranial subdural hemorrhage post obstetric epidural is quoted to be 1 in 500,000 [3]. The most commonly reported symptom in patients who suffered from a subdural hemorrhage postepidural was a PDPH (91%) or a persistent, nonpostural headache (85%) [4]. This was associated with dizziness, nausea and vomiting (41%), changes in vision (26%), and disorientation (23%). Rare presentations including coma, seizures, and paresis have also been documented.

Conclusion

A subdural hemorrhage is a very rare complication following a routine obstetric epidural anesthesia but may lead to sig-

nificant morbidity. Patients who suffer an ongoing headache despite treatment, develop a change in the nature of their headache or neurological symptoms should be investigated further with imaging to rule out an intracranial bleed.

REFERENCES

- [1] 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;50:460–9.
- [2] NYSORA. Postdural puncture headache, New York School of Regional Anesthesia. Available from: <https://www.nysora.com/foundations-of-regional-anesthesia/complications/postdural-puncture-headache/>.
- [3] Szeto V, Kosirog J, Eilbert W. Intracranial subdural hematoma after epidural analgesia: a case report and review of literature. *Int J Emerg Med* 2018;11:36.
- [4] Cuypers V, Van de Velde M, Devroe S. Intracranial subdural hematoma following neuraxial anesthesia in the obstetric population: a literature review with analysis of 56 reported cases. *Int J Obstetr Anesth* 2016;25:58–65.