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Research Paper

Intracranial Subdural Hematoma Following Labour Epidural Anesthesia-a case series

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ABSTRACT
Background
Intracranial subdural hematoma is one of the commonest pathologies in neurosurgical practice. However, its occurrence after labour epidural anesthesia has been rarely documented.
Case report
We present two cases of intracranial subdural hematoma in 30 year and 33 year old multipara who developed a new-onset headache within three days after labour epidural anesthesia. A brain imaging was done for each which revealed intracranial subdural hematoma. They had emergency evacuation of the hematoma with satisfactory immediate post-operative conditions. They were respectively discharged three days later in satisfactory condition. Follow-up visit to the clinic six weeks later, revealed patients and their children in good condition.
Conclusion
A high index of suspicion is required when a new-onset headache or a change in headache pattern occurs after labour epidural analgesia. Prompt brain imaging and appropriate referral is of utmost importance in minimising complications.

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I. INTRODUCTION

Intracranial subdural hematoma is a collection of blood below the inner layer of the dura, (the subdural space), located in-between the dura and arachnoid layers of the brain. It represents one of the most common intracranial mass lesions following trauma. It has acute, subacute and chronic presentations among other mixed subtypes with slightly differing pathophysiological and treatment considerations. Most commonly, it arises from stretching and tearing of cortical bridging veins in the subdural space. It may also result from lacerated brain or torn cortical artery. The bridging veins rupture as a result of rotational movement of the brain due to trauma as the veins drain into the dural sinuses [1]. The trauma may be very minimal or even trivial in the elderly, due to fragile veins and cerebral atrophy; in patients with coagulopathies, or from use of anti-coagulants and in alcoholism. It is also a complication of ventricular shunts [2].

Epidural anesthesia is commonly used in regional anesthesia and is considered standard practice for obstetric anesthesiology for both vaginal births and caesarean delivery. It is effective in eliminating pain, while avoiding the cumbersome nature of general anesthesia. Complications of epidural anesthesia in obstetric practice are not common [3]. Post-dural Puncture Headache (PDPH) however has been reported as the most frequent complication [4]. However, the occurrence of an intracranial subdural haematoma after epidural anesthesia is a rare event and to the author's knowledge, has less than a hundred cases reported worldwide [5,6].

II. CASE REPORT

Case1

A 30-year-old multipara, who presented through the obstetrics and gynecology department of a tertiary institution with complaint of persistent headache and altered sensorium of two months duration, preceded five days post-elective caesarean section under repeated spinal epidural anesthesia. A new onset pan-cranial severely

throbbing headache, non-radiating, worsened by coughing and straining and relieved intermittently by taking analgesics. It is Associated with nausea and vomiting. Headache stopped for about days after which patient developed dizziness, blurring of vision and gait abnormalities but no history of seizure. Three days to presentation she lapsed into unconsciousness, no history of fever, trauma, body swelling, drug or substance abuse or abnormal menstrual bleeding.The pregnancy was uneventful as well as her previous pregnancy and delivery. She was unconscious, hemodynamically unstable, anisochoeria was noted with right sided wider pupillary size, no cranial never neuropathies with power of grade 4-globally.

The urgent brain CT scan showed bihemispheric subdural hematoma which lead to prompt optimization and surgical evacuation of crank oil like altered blood via bilateral fronto-parietal burr hole under general anesthesia. She was discharged by three days postoperative with no residual symptoms and on follow up six weeks thereafter, remained stable.

Case2

A 33-year-old multipara presented to the referral hospital with a six-week history of sudden onset headache noticed three days post-elective caesarean section which involved the use of epidural anesthesia. Headache was pan-cranial, throbbing in nature, worsened with coughing and straining, and associated with nausea and vomiting. It progressively worsened and in the following two weeks, became severe with a visual analogue score of 8-9/10 and was not relieved with paracetamol. There was associated blurry vision, photophobia and gait abnormalities. There was no seizure, loss of consciousness nor focal weakness of any part of her body. There was no antecedent history of trauma, use of blood thinners, easy bruising or abnormal menstrual bleeding. The pregnancy was uneventful as well as her previous pregnancies and deliveries.

On examination, she was alert with good orientation. Blood pressure and other vital signs were essentially normal. Memory and language functions were intact. Pupils were 4mm bilaterally and actively reactive to light. There were no cranial neuropathies or motor system deficits.
An urgent Brain MRI revealed findings in figure 1 below.

Figure 1: T1 Brain MRI images all showing a hyper-intense crescentric lesion on the right cerebral hemisphere spanning from the frontal to the occipital lobe but majorly involving the parietal lobe, with effacement of the right lateral ventricle and midline shift to the left. A diagnosis of subacute right subdural haematoma was made.

The patient was counselled and worked-up for an emergency evacuation. She subsequently had a right fronto-temporo-parietal craniotomy and evacuation of the intracranial hematoma. Intra-operative findings revealed approximately 50mls of altered blood in the subdural space and brain re-expansion after evacuation. Pre-operative diagnosis was sustained, and immediate post-operative condition was satisfactory. She was discharged three days later in satisfactory condition and headache subsided. On follow-up visit to the clinic six weeks later, the patient and her child were in good condition.

III. DISCUSSION

Intracranial subdural hematoma is a common finding in neurosurgical practice, with headache as its predominant symptom. However, the occurrence of this condition after labour epidural anesthesia is infrequently reported in literature. Post-dural puncture is thought to be the precursor of intracranial subdural hematoma. Headache is a common presentation of both conditions and occurs in about a third of affected patients [7].

The International Classification of Headache Disorders [8] defines the clinical characteristics of Postdural Puncture Headache as "that which is postural - significantly worsens soon after sitting upright or standing and/or improves after lying horizontally, occurring within 5 days of a lumbar puncture and spontaneously resolving within 2 weeks, usually accompanied by neck stiffness and subjective hearing symptoms" [8]. Female gender, and age between 31 and 50 years have been identified as important risk factors [8]. The headache is thought to be caused by leakage of cerebrospinal fluid from the dural puncture site for several days, causing reduction in cerebrospinal fluid volume [9]. This leads to lower intra-spinal and intracranial pressure [5] or intracranial hypotension syndrome [9], leading to ventricular collapse and downward movement of the brain and spinal cord. As a result, the pain-sensitive structures are stretched as well as the dura and subdural bridging veins, leading to headache and subsequently, subdural hematoma [5,10].

Non-resolution of the headache experienced by our patient after a duration of two weeks prompted a differential of a more hostile and possibly more severe underlying cause, and prompted an MRI investigation, which revealed a subdural hematoma.

Intracranial subdural hematoma from epidural anesthesia, however rare, is most common among obstetric patients, but with rates as low as 0.026% documented [4,11–15]. Susceptibility of obstetric patients may be

due to the increased intracranial pressure associated with valsalva maneuvers like bearing down, and changes in blood coagulability during pregnancy [13]. Most cases are diagnosed between 1-7 days post dural puncture [15].

As in the index case, the headache of acute non-traumatic subdural haematoma is often described as sudden, non-postural, persistent for more than seven days, and unresponsive to analgesics. It is often accompanied by signs of raised intracranial pressure or mass effect on the brain [8,16].

Some cases of post-partum subdural haematoma with headache of similar pattern to that of our patient including occipital and frontal headache [5,12,17,18], with associated neck pain, photophobia [14] and vomiting [19–21], have been reported. Asymptomatic cases have been documented [13], as well as fatal cases, including seizures [17,22], loss of consciousness [22–24] and death [22,23,25].

Most cases reported were initially diagnosed as post-dural puncture headache, which shares similar mechanism with subdural haematoma, and thought to be its precursor. Prolonged untreated post-dural puncture headache may lead to bleeding in the subdural space [16]. A change in character of a postdural puncture headache from postural to non-postural, and the development of neurological signs or symptoms could be pointers to subdural haematoma [9,26]. This may be due to a change in mechanism, as the headache is now due to raised intracranial pressure, rather than intracranial hypotension [9]. A high index of suspicion therefore, must be maintained in order to make an early distinction and institute proper treatment.

Management of intracranial subdural haematoma could be conservative or surgical. Choice of management depends on size of haematoma and clinical signs. Generally, conservative management is recommended for haematoma of less than 5mm in diameter, in the absence of acute clinical signs with neuroimaging modalities especially CT scan in severe case and MRI in much stable cases being overwhelmingly imperative. Neurosurgical management constituting craniotomy and evacuation is instituted in patients with intracranial haematoma greater than 5mm or in patients who have developed acute clinical signs of deterioration [9,24].

IV. CONCLUSION

Subdural hematoma following epidural anesthesia is a rare occurrence and requires a high index of suspicion. Good history taking, proper examination and appropriate referral of a non-resolving headache as well as brain imaging is important for prompt management and prevention of fatal complications. Prompt intervention with CT scan imaging in unconscious patients with high index of suspicion is absolutely needful and life saving.

REFERENCES

[1]. Rincon S, Gupta R, Ptak T. Imaging of head trauma. In: Handbook of Clinical Neurology. 2016. p. 447–77.
[2]. Goldstein MA, Price BH. Non-Alzheimer Dementias. In: Office Practice of Neurology. 2nd ed. 2003. p. 873–86.
[3]. Barbara DW, Smith BC, Arendt KW. Images in anesthesiology: Spinal subdural hematoma after labor epidural placement. Anesthesiology. 2012;117(1):178.
[4]. Nepomuceno R, Herd A. Bilateral subdural hematoma after inadvertent dural puncture during epidural analgesia. J Emerg Med [Internet]. 2013;44(2):e227–30. Available from: http://dx.doi.org/10.1016/j.jemermed.2012.06.025
[5]. Szeto V, Kosirog J, Eilbert W. Intracranial subdural hematoma after epidural anesthesia: A case report and review of the literature. Int J Emerg Med. 2018;11(1):18–21.
[6]. Saridogan E. Postpartum subdural hematoma following neuraxial anesthesia: A case report and review of literature. Med Sci Int Med J. 2019;
[7]. Alemohammad S, Bouzarth WF. Intracranial subdural hematoma following lumbar myelography: case report. J Neurosurg. 1980;52(2):256–8.
[8]. Olesen J. The International Classification of Headache Disorders. 3rd ed. Vol. 38, International Headache Society. 2018. 1–211 p.
[9]. Amorim JA, Remígio DSC dos A, Damázio Filho O, Barros MAG de, Carvalho VN, Valença MM. Intracranial Subdural Hematoma Post-Spinal Anesthesia: Report of Two Cases and Review of 33 Cases in the Literature. Brazilian J Anesthesiol [Internet]. 2010;60(6):620–9. Available from: http://dx.doi.org/10.1016/S0034-7094(10)70077-5
[10]. Acharya R, Chhabra SS, Ratra M, Sehgal AD. Cranial subdural haematoma after spinal anaesthesia. Br J Anaesth. 2001;86(6):893–5.
[11]. Liu G, Lee A, Withanawasam N, Tara S. Subdural hemorrhage post obstetric epidural: An MRI Case Report. Radiol Case Reports [Internet]. 2020;15(9):1584–6. Available from: https://www.sciencedirect.com/science/article/pii/S1930043320302624
[12]. Richa F, Chalhoub V, El-Hage C, Dagher C, Yazbeck P. Subdural hematoma with cranial nerve palsies after obstetric epidural analgesia. Int J Obstet Anesth [Internet]. 2015;24(4):390–1. Available from: http://dx.doi.org/10.1016/j.ijoa.2015.05.006
[13]. Domoto S, Suzuki M, Suzuki S, Bito H. Subdural hematoma after cesarean delivery without symptoms: a case report. JA Clin Reports [Internet]. 2018;4(1):18. Available from: https://doi.org/10.1186/s40981-018-0151-8
[14]. Bishop TM, Elsayed KS, Kane KE. Subdural Hematoma as a Consequence of Epidural Anesthesia. Case Rep Emerg Med. 2015;2015:1–2.
[15]. Lim G, Zorn JM, Dong YJ, DeRenzo JS, Waters JH. Subdural Hematoma Associated With Labor Epidural Analgesia: A Case Series. Reg Anesth Pain Med [Internet]. 2016 Sep 1;41(5):628 LP – 631. Available from: http://rapm.bmj.com/content/41/5/628.abstract
[16]. Mokri B. Headaches caused by decreased intracranial pressure: diagnosis and management. Curr Opin Neurol. 2003;16(3):319–26.
[17]. Whalen-Browne A, Onizuka K, Tiboni M, Srinivasan R. Post-partum Seizure from Subdural Hematoma Secondary to Cerebrospinal Fluid Leak Following Epidural Anesthesia. Can J Gen Intern Med. 2019;14(3):44–7.
[18]. Gargari SS, Saleh M, Esmaeili S. Cerebral subdural hematoma following spinal anesthesia; A Case report. Int J Med Res Heal Sci. 2016;5(8):170–4.
[19]. Kale A, Emmez H, Pişkin Ö, Durdağ E. Postdural puncture subdural hematoma or postdural puncture headache?: two cases report. Korean J Anesthesiol [Internet]. 2015/09/30. 2015 Oct;68(5):509–12. Available from: https://pubmed.ncbi.nlm.nih.gov/26495064

[20]. Vien C, Marovic P, Ingram B. Epidural Anesthesia Complicated by Subdural Hygromas and a Subdural Hematoma. Farag E, editor. Case Rep Anesthesiol [Internet]. 2016;2016:5789504. Available from: https://doi.org/10.1155/2016/5789504
[21]. Moorthy NLN, Sachidanand R, Rao MV, Padmaja S, Reddy H. Acute Subdural Hematoma in the Post Partum Period–A Case Report. J Med Sci Clin Res. 2017;5(12):32014–7.
[22]. Yildirim GB, Colakoglu S, Atakan TY, Büyükkirli H. Intracranial subdural hematoma after spinal anesthesia. Int J Obstet Anesth [Internet]. 2005;14(2):159–62. Available from: https://www.sciencedirect.com/science/article/pii/S0959289X04001712
[23]. Gioia S, Mirtella D, Lancia M, Suadoni F, Cingolani M. Fatal Acute Intracranial Subdural Hematoma After Spinal Anesthesia for Cesarean Delivery: Case Report and Review of the Literature. Am J Forensic Med Pathol [Internet]. 2019;40(4). Available from: https://journals.lww.com/amjforensicmedicine/Fulltext/2019/12000/Fatal_Acute_Intracranial_Subdural_Hematoma_After.14.aspx
[24]. Martín-Lázaro JF, Eduardo O, Jiménez B, Navarro MA, Calatayud JB. Successful treatment of chronic subdural haematoma after epidural anaesthesia for labour. Indian J Neurotrauma. 2012;9(1):70–1.
[25]. Demetriades AK, Sheikh MF, Minhas PS. Fatal bilateral subdural haematoma after epidural anaesthesia for pregnancy. Arch Gynecol Obstet [Internet]. 2011;284(6):1597–8. Available from: https://doi.org/10.1007/s00404-011-2070-z
[26]. Zeidan A, Farhat O, Maaliki H, Baraka A. Does postdural puncture headache left untreated lead to subdural hematoma? Case report and review of the literature. Int J Obstet Anesth. 2006;15(1):50–8.