

Spontaneous Spinal Epidural Hematoma in a Near-term Pregnant Patient

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Learning Point of the Article:

Spontaneous spinal epidural hematoma can be rarely seen in pregnancy and the patient presents with acute onset paraparesis. Clinical suspicion of this rare condition, early diagnosis and multidisciplinary approach for management are necessary for better outcome of both mother and baby.

Abstract

Introduction: Spontaneous development of spinal epidural hematoma (SEH) is rare condition with acute presentation and usually associated with some predisposing factors. Early diagnosis and management of SEH are very important because of the risk of permanent neurological deficit.

Case Report: Here, we report a rare case of SEH in young pregnant female at 35 week of gestation who presented with short history of paraplegia that was diagnosed on magnetic resonance imaging (MRI) and treated successfully with delivery of the baby by caesarean section and release of cord compression by laminectomy.

Conclusion: Spontaneous SEH can be rarely seen in pregnancy. MRI is the investigation of choice. Clinical suspicion is necessary for early management and better prognosis.

Keywords: Epidural hematoma, paraplegia, pregnancy.

Introduction

Non-traumatic paraplegia developing in pregnancy is rare phenomenon with only sporadic reports [1, 2, 3]. Spontaneous development of spinal epidural hematoma (SEH) without any predisposing factor is rare and even more sporadic in pregnancy. The etiologies of SEH include hypertension, vascular malformation, neoplasia, and use of anticoagulant medications [4]. High clinical suspicion of this rare condition is necessary for better outcome of both mother and baby. Usual clinical presentation includes neck pain, pain in the interscapular area or back pain that progresses to paraparesis or quadriparesis depending on the location of hematoma. Immediate diagnosis and treatment are of utmost importance for better outcome.

Standard treatment includes urgent operative decompression of the hematoma and conservative management and close monitoring for patients who show spontaneous recovery in short period of time. Delivery of the baby may be carried out in the same setting or at a later date depending of the gestational age. Here, we report a rare case of spontaneous SEH in a 35 weeks pregnant lady who presented with acute onset paraplegia.

Case Report

A 28-year pregnant female G1P0L0 presented with sudden onset upper back pain and associated weakness of bilateral lower limbs of 8 days duration. There was no history of trauma, fever, seizure,

Access this article online

Website:
www.jocr.co.in

DOI:
<https://doi.org/10.13107/jocr.2022.v12.i12>

Author's Photo Gallery



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Submitted: 22/08/2022; Review: 13/09/2022; Accepted: November 2022; Published: December 2022

DOI: <https://doi.org/10.13107/jocr.2022.v12.i12.3444>

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Figure 1: Sagittal T2WI (a) shows T2 heterogeneously hyperintense lesion in the posterior epidural space extending from D3 to D5 level compressing the dura and the spinal cord with increased cord signal intensity at this level (arrow). Sagittal T1 fat saturated image (b) shows the lesion is hyperintense (arrow). Axial T2WI (c) and axial T1FS (d) show that the cord is displaced anteriorly by the lesion (arrowheads).

or altered sensorium. There was no history of bleeding disorders since childhood or intake of any anticoagulant, or tuberculosis. On examination, she was afebrile, vitals were stable. BP 110/80 mm of Hg, pulse of 84/min., and the abdomen distended corresponding to the 35 weeks gestational age. Fetal heart rate was 140/min and fetal movement could be appreciated. The neurological examination showed complete paraplegia (MRC-0/5 in both limbs) with a sensory level of D6. The bladder was catheterized and perianal sensation was absent.

A magnetic resonance imaging (MRI) was done for further evaluation that showed elongated T2 and T1 hyperintense lesion (over a length of 3.5 cm and maximum thickness 8 mm) in posterior epidural region extending from D3 to D5 vertebral level. Signal of the lesion was not suppressed on fat suppressed image. The lesion was displacing the thecal sac and spinal cord anteriorly causing cord compression and increased T2 signal of the spinal cord at this level (Fig. 1). Vertebral bodies and intervertebral disc spaces appeared normal. Diagnosis of subacute posterior epidural hematoma causing compressive myelopathy was made based on MRI.

Routine biochemical investigations revealed Hb-12 g/mL, TLC of 11,400, sodium of 142 meq/l, potassium of 4.5 meq/l, and platelet of 2.5 lacs/cmm. The patient had a normal bleeding time, prothrombin time and was negative for Protein C, Protein S, or Antiphospholipid antibody. Her TSH was raised to 102 mIU/l at the time of admission. The mother was given steroids for lung maturation of the fetus and after 48 h, a caesarean

section (CS) was done and baby delivered. With escalating dose of thyroxine, laminectomy and decompression of spinal canal done and hematoma drained. The baby was normal while the mother was started on physiotherapy and electrical stimulation. At 6 months post-surgery, there is improvement in 2 grade MRC and one grade sensory. The patient is ambulatory on a wheel chair.

Discussion

SEH is a rare cause of spinal cord compression and spinal emergency seen in 0.3–0.9% of all epidural space-occupying lesions [5]. Post-traumatic SEH is common in men having ankylosing spondylitis or rheumatoid arthritis. Non-traumatic SEH is usually seen in patients having congenital or acquired bleeding disorders, spinal arteriovenous malformations, hemorrhagic tumors, and in hypertensive patients [4]. In patients without any predisposing factors, possible etiopathogenesis could be acute increase of the spinal epidural venous pressure. Epidural veins are more susceptible to congestion during pregnancy [6]. Krishnan and Kartikueyan reported a case in a 27 weeks gestation lady that was decompressed in lateral position with D3-7 laminectomy. Kaushal et al. reported a 35 weeks pregnant female with tuberculolysis leading to paraplegia that was managed with conservatively with medication. Eventually she had a normal labor and complete recovery of her paraplegia. Kulkarni et al. encountered a hypokalemia paraplegia in 45 weeks pregnant woman. She needed medical termination of pregnancy with correction of her electrolytes. Mohanty et al. found an aggressive hemangioma causing paraparesis in term pregnant lady presenting for CS. She recovered eventually without surgery [1, 2, 3, 7].

Clinical symptoms vary depending on the location and the severity of compression. Our case showed with typical MRI findings with T1 and T2 hyperintense hematoma extending from D3 to D5 that corresponded to the clinical localization. Most patients present with acute onset back pain depending on the site of hematoma. This symptom is present in 80 to 89% of SEH. Progressive motor weakness and sensory loss may be seen below the level of cord compression [8].

MRI is the diagnostic modality of choice for diagnosis of SEH. MRI can accurately localize the hematoma and its extent, stage of hematoma, cord compression, and myelopathic changes in the spinal cord if any. Acute hemorrhage appears hypointense on T2WI and isointense on T1WI and at times difficult to identify. But increased epidural space causing compression of thecal sac gives a clue. Subacute hemorrhage appears hyperintense on both T1 and T2WI due to the presence of methaemoglobin. Hyperintensity on T1 fat saturated image

Table 1: Clinical details, level of epidural hemorrhage and management of previously reported cases.

Author	Age of patient (years)	Gest age	Location of hematoma	Presentation	Management
Bidzinski [11]	26	24	T2–T5	Back pain, weakness of both lower limb	Laminectomy, vaginal delivery after 2.5 months
Yonekawa et al. [12]	20	37	C4–C6	Neck pain, weakness of bilateral upper and lower limbs	Laminectomy, vaginal delivery after 3 days
Carroll et al. [13]	26	35	T6–T7	Back pain, weakness of both lower limb	CS followed by laminectomy
Steinmetz et al. [14]	27	38	T1–T2	Back pain, weakness of both lower limb	CS followed by laminectomy
Masski et al. [15]	27	41	C7–T2	Neck pain, weakness of bilateral upper and lower limbs	CS followed by laminectomy
Cywinski et al. [16]	27	38	T1–T2	Back pain, weakness of both lower limb	CS followed by laminectomy
Szkup and Stoneham [6]	31	32	T1–T4	Back pain, weakness of both lower limb	CS followed by laminectomy
Kelly et al. [17]	31	32	T2–T4	Back pain, weakness of both lower limb	CS followed by laminectomy
Jea et al. [18]	24	20	T1–T2	Back pain, weakness of both lower limb	Laminectomy, Vaginal delivery at a later date
Doblar and Schumacher [19]	30	37	T6–T9	Back pain, paraplegia	CS followed by laminectomy
Case and Ramsey [20]	30	37	T6–T9	Back pain, weakness of both lower limb	CS followed by laminectomy
Wang et al. [21]	29	40	C5–C7	Neck pain, weakness of bilateral upper and lower limbs	CS followed by laminectomy
Jiang et al. [22]	24	37	T5–T6	Back pain, weakness of both lower limb	CS, methyl prednisolone therapy to reduce spinal edema.
Consolo et al. [23]	27	36	T8	Acute weakness of bilateral lower limb	CS, Laminectomy.
Forsnes et al. [24]	32	27	Dorsolumbar	Back pain, weakness of both lower limb	Evacuation of hematoma, CS done after 9 weeks
Badar et al. [25]	35	37	dorsal	Back pain, weakness of both lower limb	CS followed by laminectomy
Matsubara et al. [26]	36	16	Cervical	neck pain, quadriparesis	Laminectomy, delivery of twin baby at 29 weeks
Tada et al. Case 1 [27]	26	31	C4–T2	Back pain parasthesia	Laminectomy, delivery after 3 weeks
Tada et al. Case 2 [27]	21	39	C5–T2	Back pain, numbness of right upper and lower limbs	CS followed by laminectomy
Tada et al Case 3 [27]	25	36	T5 to T8	Back pain, numbness of both lower limbs	CS followed by laminectomy
Wang et al. [28]	26	26	Dorsal	Back pain, paraplegia	Laminectomy, CS done after 12 weeks
Krishnan and Kartikueyan [1]	25	27	T3 to T6	interscapular pain, paraparesis	Laminectomy, CS at term
Kong and To [29]	34	33	T4	Back pain, paraplegia	Laminectomy, NVD at term
Iwatsuki et al. [30]	27	37	C4–T1	Sudden left shoulder pain. No paralysis	Spontaneous resolution
Present case	28	35	D3 to D5	Back pain, paraplegia	CS followed by laminectomy

CS: Cesarean section, NVD: Normal vaginal delivery, Gest age: Gestational age in weeks

excludes any fat containing lesion [9]. Clinical presentation is also variable. In SEH, presentation is acute, however fat containing lesion such as lipoma or dermoid usually has an insidious onset of symptom. Epidural CSF leak may present with paraparesis and MRI can show increased epidural space. However, MRI shows CSF signal intensity in the increased epidural space [10].

Clinical details, level of epidural hemorrhage and management of previously reported cases are described in Table 1.

Early decompression is required to release compression over the spinal cord and to prevent permanent damage and its long-term sequelae. The management also depends on the gestational age of the fetus at the time of presentation. In term pregnancy, CS followed by laminectomy is preferred; whereas

laminectomy with evacuation of hemorrhage is done if the fetus is preterm. Furthermore, if the patient presents only with pain without weakness, close follow-up is necessary to look for spontaneous resolution or progression of hematoma [1, 6, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30]. Our patient was treated successfully by delivery of the baby by CS and release of cord compression by D3-D5 laminectomy.

Conclusion

Spontaneous SEH in pregnancy is a rare clinical condition with acute presentation. Clinical suspicion is necessary for early management. MRI is the investigation of choice. Early decompression is required to avoid complications.

Clinical Message

Diagnosis of a case of acute onset paraplegia is challenging. Most common cause for the same is dorsal cord compression. MRI is the investigation of choice to see the status of the spinal cord and extent of involvement. Also, it does not use ionizing radiation and thus relatively safe in pregnancy. Early diagnosis and management are necessary to avoid detrimental consequences.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

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Conflict of Interest: Nil

Source of Support: Nil

Consent: The authors confirm that informed consent was obtained from the patient for publication of this case report

How to Cite this Article

Naik S, Jain M, Sethi P, Mishra N, Bhoi SK. Spontaneous Spinal Epidural Hematoma in a Near-term Pregnant Patient. *Journal of Orthopaedic Case Reports* 2022 December;12(12):11-15.