

Spontaneous Cervical Epidural Hematoma during Pregnancy

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ABSTRACT

Spontaneous spinal epidural hematoma (SSEH) is rare in pregnancy and only few cases have been reported in literature. Herein, author presents a case of a 26-year-old female with 17 weeks of gestation who developed progressive descending quadriparesis (tetraparesis) and numbness below the level of C4. Magnetic resonance imaging (MRI) of the cervical spine demonstrated an epidural hematoma extending from C3 to C7 vertebrae. Posterior decompressive laminectomy was performed with removal of the epidural hematoma. The patient's neurological function subsequently improved.

The diagnosis and management of spontaneous epidural hematoma in pregnancy is presented with a review of literature.

Keywords: Cervical epidural hematoma, Complications, Pregnancy, Spontaneous.

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INTRODUCTION

Spontaneous spinal epidural hematoma (SSEH) is a rare entity. Its exact incidence is not known but it account for less than 1% of all epidural compressive pathologies.¹ Spontaneous spinal epidural hematoma is associated with coagulopathies, anticoagulant therapy, tumors, vascular malformations, infection, and rarely seen in pregnancy.¹

Spontaneous spinal epidural hematoma during pregnancy is commonly found in thoracic spine and rarely in cervical spine.² Only seven cases of cervical SSEH during pregnancy have been reported so far.²

Herein, we described a case of SSEH of cervical spine during pregnancy and review of literature.

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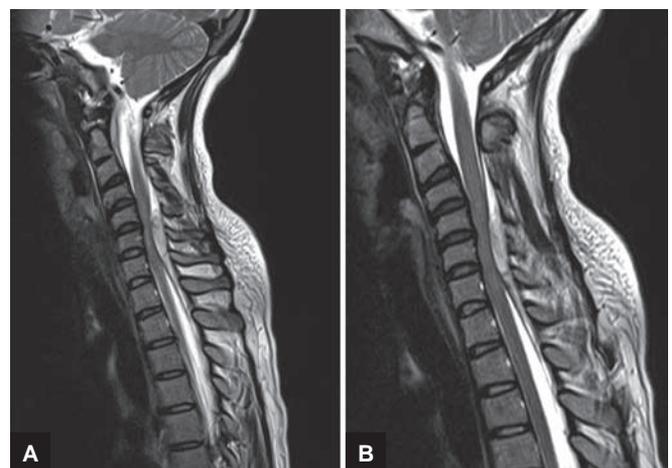
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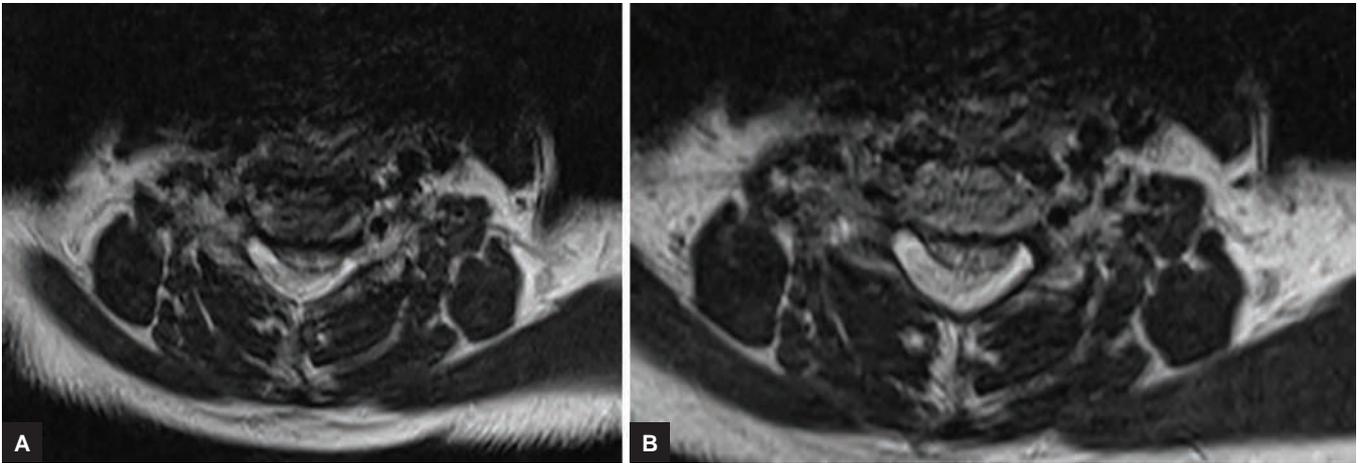
CASE REPORT

A 26-year-old female with 17 weeks of gestation who admitted in neurology department with sudden onset of neck pain and quadriparesis for 3 days. Patient also gave history of urinary retention (ischuria). There was no history of trauma/fall or anticoagulation therapy. On examination, patient had 4/5 power in both upper limbs and 0/5 in both lower limbs. All sensations were decreased below C4 dermatome. Hypertonia was present in all four limbs with all exaggerated reflexes and bilateral extensor plantar response. There was mild tenderness over the lower cervical spine. Fetal heart sounds were present. Her coagulation profile was normal. Magnetic resonance imaging (MRI) of cervical spine revealed epidural hematoma extending from C3 to C7 levels with cord compression (Figs 1 and 2). Patient was referred to our department for surgery. We decided to operate the patient in view of her acute presentation.

Intraoperatively we found large epidural hematoma extending from C3 to C7 which was compressing the cord severely. We also encountered a leash of abnormal epidural venous channels proximal to epidural hematoma which may be the possible source of bleeding (Fig. 3). We coagulated the abnormal venous plexus and performed decompressive laminectomy from C2 to C7 with evacuation of the epidural hematoma (Figs 4A and B). Postoperatively she showed minor improvement in bilateral lower limb power to 2/5 in immediate postoperative period.



Figs 1A and B: T2W MRI cervical spine sagittal section revealed epidural hematoma extending from C3 to C7 levels with cord compression



Figs 2A and B: T2W MRI axial section showing extradural hematoma compressing the cord

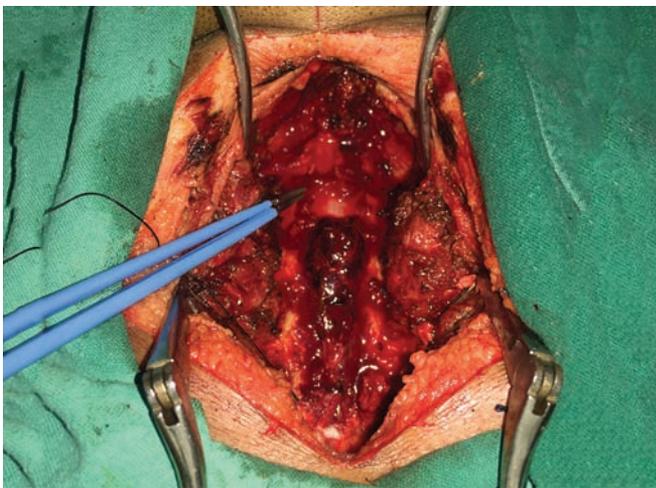


Fig. 3: Large epidural hematoma extending from C3 to C7 with a leash of abnormal epidural venous channels proximal to epidural hematoma

Histopathological examination revealed fibrocollagenous tissue with blood clots and irregular congested vascular channels (Fig. 5). There was no evidence of a arteriovenous malformation (AVM). Patient had further improvement in

motor power to 3/5 in both lower limbs. Her pregnancy continued till term. At 38 weeks she delivered a healthy child via cesarean section.

DISCUSSION

Spontaneous spinal epidural hematoma during pregnancy is a rare pathology accounting for less than 1% of all epidural compressive pathologies.¹ It is associated with coagulopathies, anticoagulant therapy, tumors, vascular malformations, infection, following prolonged valsalva maneuvers and idiopathic conditions.² All these possible causes of an epidural hematoma were ruled out in our patient. Yonekawa et al hypothesized that pregnancy increases abdominal pressure, which may lead to a rise in the epidural venous pressure and rupture of abnormal thin wall venous channels.³ Beatty et al hypothesized that altered hormonal milieu of the pregnancy was responsible for changes in the vessel wall and ligaments leading to the hematoma formation in epidural space.⁴ In our patient, this could be the possible cause for epidural hematoma.

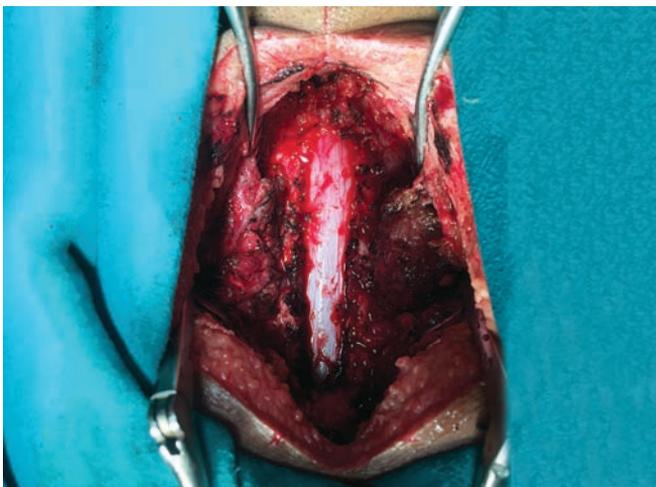


Fig. 4: Decompressed cervical cord after evacuation of hematoma

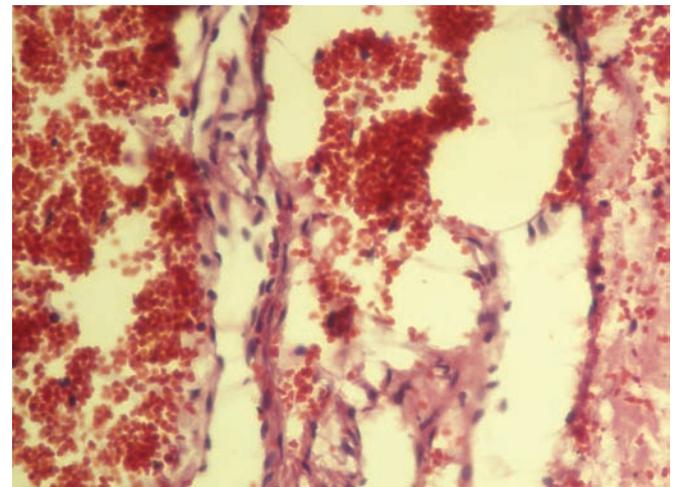


Fig. 5: Histopathology fibrocollagenous tissue with blood clots and irregular congested vascular channels

Usually these patients present with acute onset spinal pain followed by neurological deficit occurring within hours.^{1,5} Spontaneous spinal epidural hematoma during pregnancy is commonly found at thoracic spine level and rarely in cervical spine. There is adherence of thecal sac to the posterior longitudinal ligament anteriorly, whereas there is a potential space between the lamina and the dura which is filled by the epidural fat posteriorly.^{2,5} In our case, hematoma was found on dorsal aspect of cervical cord.

Magnetic resonance imaging is the investigation of choice. It delineates the exact location of the clot and also identifies cord signal changes which help in predicting the neurological improvement.⁵

Urgent spinal decompression with gentle clot evacuation within 12 hours of the symptom onset is the generally recommended treatment. Neurological recovery is determined by the extent of preoperative neurological deficit and time elapsed from onset of neurological symptoms to surgery. Longer the duration, poorer the outcome.^{6,7} Rehabilitation after surgery or expectant management is also important for good neurological recovery. Pregnant patients should provide specific attention because it may lead to premature uterine contractions.^{6,7} Our patient presented 3 days after the onset of symptoms with presence of altered cord signal intensity changes on MRI. These factors probably contributed to our patients neurological deficit and led to an incomplete recovery.

The issue of continuation of pregnancy is a matter of concern. Majority of patients described in literature presented in third-trimester (mean gestational age 33.2 weeks), where fetal maturity was not an issue and underwent emergency cesarean section followed by clot evacuation.⁷

This has an advantage of decreasing the intraabdominal pressure, resulting in decreased epidural venous distention and lesser intraoperative bleeding. Spine surgery can be performed in prone position which is sometimes not possible in third-trimester.^{2,7} When fetal maturity is a problem, steroids have been recommended to increase lung maturation. Also steroid has beneficial effect on cord when there is cord edema. To prevent risk of precipitate labor, uterine relaxants is recommended.

Our patient presented in second-trimester with normal fetal activity. Patient was positioned prone during surgery over doughnut shaped bolster with constant monitoring of fetal heart sounds. Our patient was administered uterine relaxants preoperatively to prevent risk of precipitate labor. Patient was also administered steroids preoperatively and intraoperatively in view of cord edema.

CONCLUSION

The SSEH during pregnancy is an acute neurologic emergency which requires prompt attention and treatment. The diagnosis of SSEH should be suspected in the setting of acute neck pain with progressive neurological deficit in pregnant females.

Neurological recovery in such patients is inversely proportional to the interval between onset of symptoms and surgical decompression. Emergent surgical decompression should be performed. We require a multidisciplinary approach with involvement of neurosurgeons, obstetricians, and physiotherapist for optimal postoperative outcome.

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