

## Postpartum Paraparesis Due to Aggressive Vertebral Hemangioma Causing Spinal Cord Compression Presenting for Emergency Cesarean Section

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### About the Author



**Dr. Chitta Ranjan Mohanty** has passed his MD from SCB Medical college, Cuttack and then went to pursue his Senior Residency from the prestigious Postgraduate Institute (PGIMER) at Chandigarh. He has been a voracious reader and academician whose interests lie in teaching and training the younger anesthetist. From there, he moved to his home state Odisha and kept working in Kalinga Institute of Medical Sciences at Bhubaneswar to keep his fire burning. Having exposure in all fields of anesthesia and critical care, he developed a special liking to trauma care and emergency management, and finally, he got affiliated to the prestigious All India Institute of Medical Sciences at Bhubaneswar in the desired branch. Since 2016, he is working as Assistant Professor in the Department of Trauma and Emergency at AIIMS and rendering his services both as anesthetist and as a teacher.

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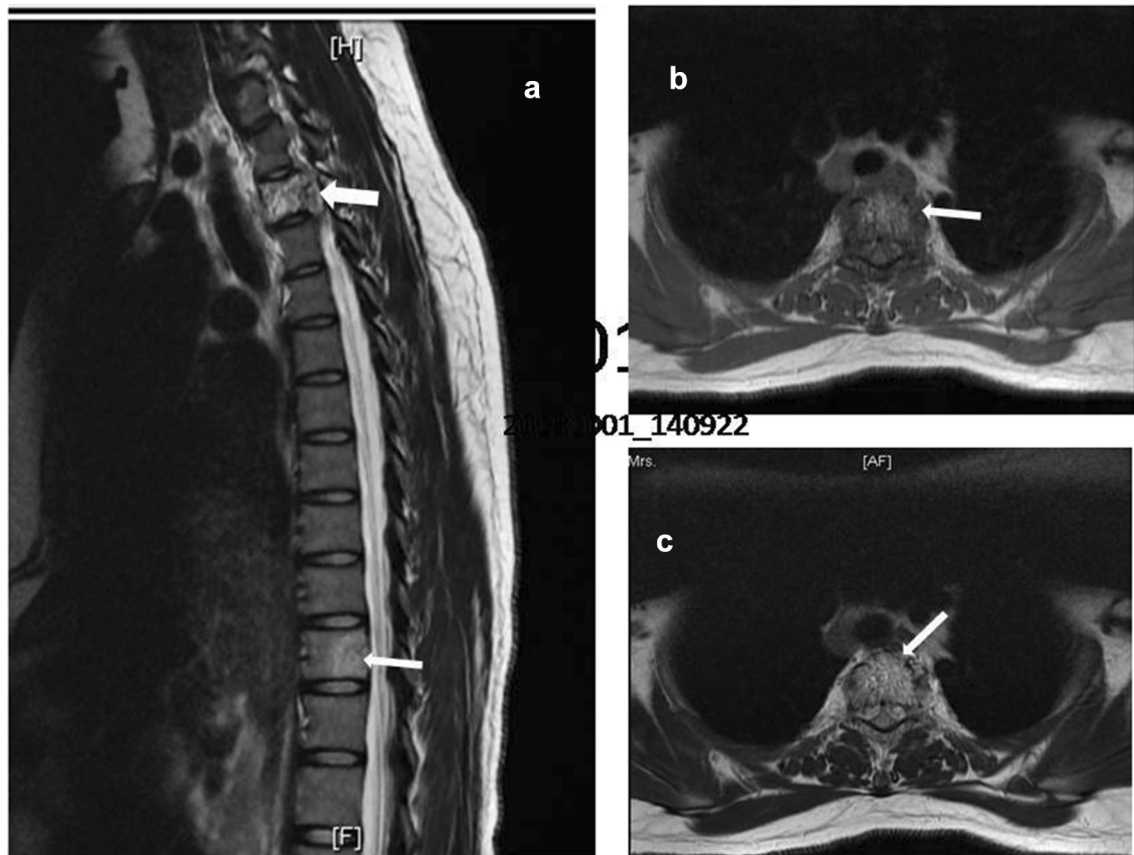
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### Introduction

Vertebral hemangiomas are common benign vascular tumors of the spine occurring in 10–12% of population that largely remain asymptomatic. Only in less than 1% of cases, they behave aggressively and become symptomatic [1]. Pregnancy is a known risk factor due to altered physiological changes (hemodynamic and hormonal changes). The management of these symptomatic vertebral hemangiomas during pregnancy is challenging and controversial [2]. We report a case of management of sudden onset of paraparesis, admitted for emergency cesarean in our hospital.

*Case A* 29-year-old primigravida patient with full term pregnancy was referred for fetal distress to our hospital. She didn't have regular ANC visits. On pre-anesthetic evaluation, she gave history of back pain for the last 5 days



**Fig. 1** T2 sagittal image (a) shows an aggressive hemangioma in D2 (thick arrow) vertebral body and a benign hemangioma in D10 (thin arrow) vertebral body. T1 (b) and T2 (c) axial images at D2 level

show the aggressive lesion to be heterogeneously hyperintense with surrounding soft tissue component (arrow in b) and break in the cortical margins (arrow in c)

and mild weakness of both lower limbs for the last 2 days. In view of fetal distress, a thorough neurological examination could not be done and patient was taken up for cesarean section under general anesthesia. Postoperative evaluation of her neurologic status revealed spastic paraparesis Frankel C (power 3/5 in lower limb, extensor plantar response, exaggerated knee jerk and intact sensory function and paresthesia from the level of nipple line without bowel bladder involvement). Intravenous dexamethasone, 4 mg IV 8 hourly, was started. A bedside X ray was taken which was unremarkable, and hence, further investigation with a magnetic resonance imaging (MRI) was planned for following morning. The MRI showed altered marrow signal intensity appearing heterogeneously hyperintense–hypointense on T1-weighted and T2-weighted images noted in the D2 vertebral body with abnormal anterior epidural soft tissue with similar signal intensity causing mild–moderate cord compression (Fig. 1). There was no diffusion restriction or significant vertebral body collapse, and the disc adjoining disc space was normal.

There was focal T2/STIR hyperintensity in the cord at same level. Similar T1w/T2w heterogeneous hyperintensity was also noted in the D10 vertebra level. The above findings correlated with multiple non-contiguous vertebral hemangiomas with an aggressive lesion at D2. The patient was advised for spinal decompressive surgery at the aforesaid level, but she refused to give consent for same. Hence, we continued giving steroids for next 5 days and provided with deep vein thromboprophylaxis in the form of mechanical pump. There was no increase in weakness till the time she was hospitalized, and the patient had disappearance of paresthesia at the time of discharge after 7 days. The attendants were advised to continue with passive movements of joints, 2 hourly side turning, use of air mattress, oil massage of the limbs religiously and explained to return for emergency surgery should she have neurological deterioration. On successive follow-up at 1 month, she had an improvement of one grade MRC, and by the end of 3 months, she had complete neurological recovery.

## Discussion

Symptomatic vertebral hemangiomas are managed by decompressive surgery, radiotherapy, embolization and with the recent technique of vertebroplasty [3]. However, both radiotherapy and embolization are contraindicated in pregnancy. As such the timing of surgery during antepartum period remains controversial since many patients show spontaneous improvement post-delivery. The practiced norm is to delay the surgery till a viable fetus can be delivered. Sometimes in acute manifestations preterm delivery is required. The algorithm provided by Chi et al. is based on neurology of patients and the gestational age. Post-36 weeks in patients with severe neurologic manifestations, labor induction and decompressive surgery post-delivery can be done. Prior to that an observant approach is generally contemplated till fetal maturity and surgery is reserved for dense neurologic manifestations only [1]. Reduction in intra-abdominal pressure which in turn reduces the venous obstruction and also falling hormonal level postpartum (decreased progesterone, relaxin and endothelial growth-promoting factors) can explain spontaneous regression in our patient. However, risk of recurrence is a threat, and patient may require complete anterior corpectomy and fusion in case the recurrence is not pregnancy-associated. But more dramatically subsequent pregnancy can also have recurrence with myelopathic worsening [4]. Hence, it may be safe to suggest a repeat MRI of the lesion post-6 months and treat the dormant hemangioma (which was aggressive initially) with vertebroplasty.

The usual location of vertebral hemangiomas is the lower thoracic and lumbar vertebrae, but the symptomatic pregnancy-related vertebral hemangiomas are seen frequently in the upper thoracic levels [4]. Multiple vertebral involvement in upper thoracic spine has also been reported in the literature which is continuous [2]. Our case is unique

that there is a coexistent skip lesion at upper (D2) and lower (D10) levels. Yet, characteristic to its behavior the higher level (i.e., upper dorsal) behaved aggressively as documented clinically and radiologically. In addition, the patient presented in the nick of time with fetal distress in contrast to the literature where surgeons have discussed their strategy of management with ante-partum diagnosis.

**Authors' Contributions** CM and CD first saw the patient. SSB was the operating surgeon, while CM was the anesthetist. MJ was the involved spine surgeon along with CD. SSB and CD followed up the patient. MJ and CM wrote up the paper. All authors read and approved the manuscript

### Compliance with Ethical Standards

**Conflict of interest** All authors declare that they have no conflict of interest, financial or otherwise.

**Informed Consent** Informed consent was obtained from this patient in this report.

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