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Aneurysmal bone cyst of dorsal spine presenting with paraparesis in a pediatric patient: a case report

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Introduction: Aneurysmal bone cyst (ABC) are rare benign tumours of spine. They most commonly presents with backache. However neurological deficit in spinal ABCs are not uncommon. Magnetic resonance imaging of ABC may sometimes be confused with osteosarcoma or Giant cell tumours. Treatment options are varied but complete excision of tumour with spine stabilisation should be the goal.

Clinical case: Here we presented the case of a 13 year old girl presenting with spastic paraparesis and bladder incontinence with MRI dorsal spine suggestive of an expansile lesion of D5 body. She underwent subtotal corpectomy with fixation of spine . Biopsy was suggestive of aneurysmal bone cyst. Post operative neurological outcome was excellent and followup scans over 2 year period suggest complete remission.

Discussion: ABC are non neoplastic expansile bone lesion consisting of blood filled spaces separated by connective tissue septa of bony trabeculation and osteoclastic giant cells. Similar to our case it is seen more commonly in young females. Lumbar spine has higher incidence of ABC as compared to dorsal and cervical spine. Most common presentation is backache. Surgical options for ABC include intralesional curettage, en bloc resection followed by fixation. Vertebroplasty is also a treatment option to reinforce spinal stability. Post operative radiotherapy also can be considered in partially resected cases. Although ABC have high recurrence rate of 10-44% which has been reported with 2 years following surgery. However our patients continue to have no radiological evidence of recurrence on 2 year follow up.

Conclusion: ABCs are benign tumour which may present with neurological deficit. Although treatment of ABC remains controversial but early surgery with complete removal of tumour in patients with neurological deficit provides excellent recovery. However due to high recurrence rate regular follow up is necessary.

Key words: aneurysmal bone cyst; dorsal spine; pediatric patient

Introduction

Aneurysmal bone cysts are rare benign tumours of spine comprising 15% of primary spinal tumours [1]. They are more common below 20 years of age with a female preponderance [2]. Location wise they are more common in lumbar spine than thoracic spine [3]. Patients usually presents with back pain [4] however limb weakness and gait ataxia are not uncommon [5]. Treatment options of ABC is still controversial ranging from conservative management with analgesic, intra lesional steroid injection, calcitonin nasal spray to arterial embolisation , surgical curettage , resection and radiotherapy [6, 7, 8].

Case Report

Here we present the case of a 13 year old female who presented with progressive weakness of bilateral lower limb and bladder incontinence. On examination her tone in bilateral lower limb was Grade II and Power 3/5 with pan sensory loss of 50% below D10 level. She had features of UMN bladder with normal anal tone and sacral sensation. Clinically lesion was localised to mid dorsal spine. Contrast Magnetic Imaging of Dorsal Spine

showed an expansile lesion in D5 with right posterior paravertebral and epidural extension causing significant neural compression (**Fig. 1, 2**).

Rest of her spine did not showed any abnormality and her blood parameters were within normal limit. She underwent Posterolateral D5 corpectomy with insertion of Titanium cage and pedicle screw fixation D4 to D6. Intraoperatively D5 vertebral body was found eroded however posterior elements were intact. The lesion contained blood clots. Epidural collection were evacuated. Post operatively patient showed significant improvement in her lower limb tone and power. With physiotherapy and bladder exercises she was able to walk without support and regained her bladder continence. Histiopathological examination of the sample showed bony trabeculae with intertrabecular marrow spaces containing hemotopoietic substances suggestive of Aneurysmal bone cyst (**Fig. 3**).

Her post operative Contrast MRI showed complete removal of the epidural and paravertebral collection with maintained D5 vertebral body height and correction of kyphotic deformity (**Fig. 4, 5**).

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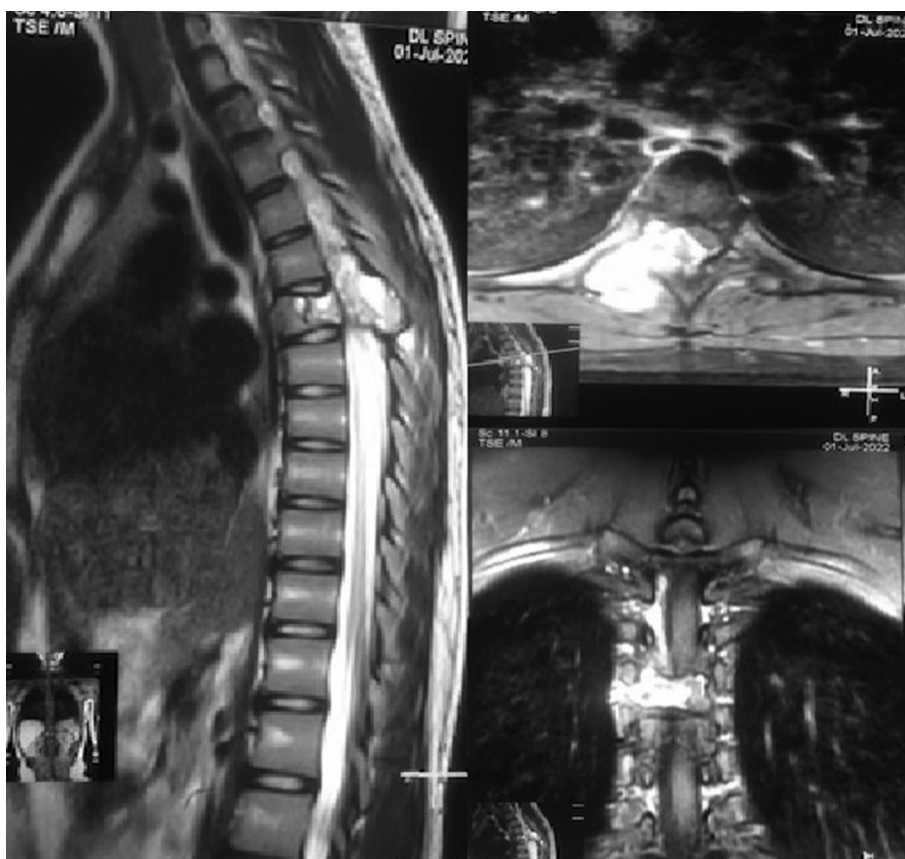


Figure 1. Contrast MRI spine showing expansile lesion of D5 body extending to Right paravertebral and epidural space



Figure 2. CT spine showing lytic lesion of D5 body

This article contains some figures that are displayed in color online but in black and white in the print edition

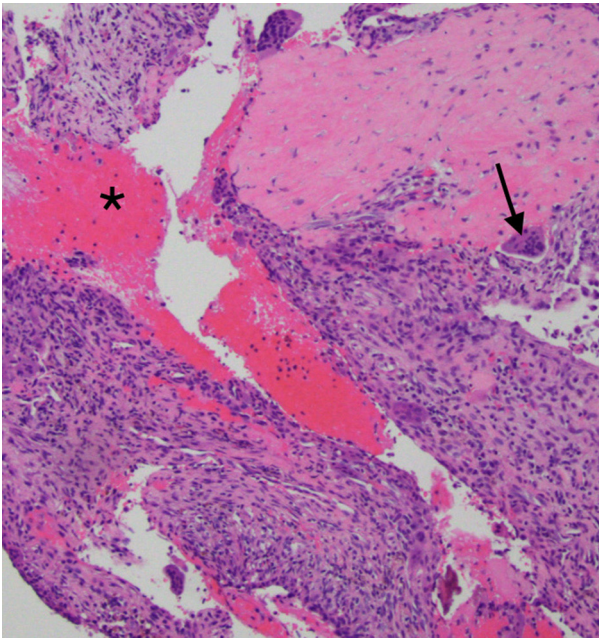


Figure 3. Hematoxylin & eosin stain (200x) showing bony trabecula with giant cell (marked arrow) interpreted with blood filled spaces (marked *)

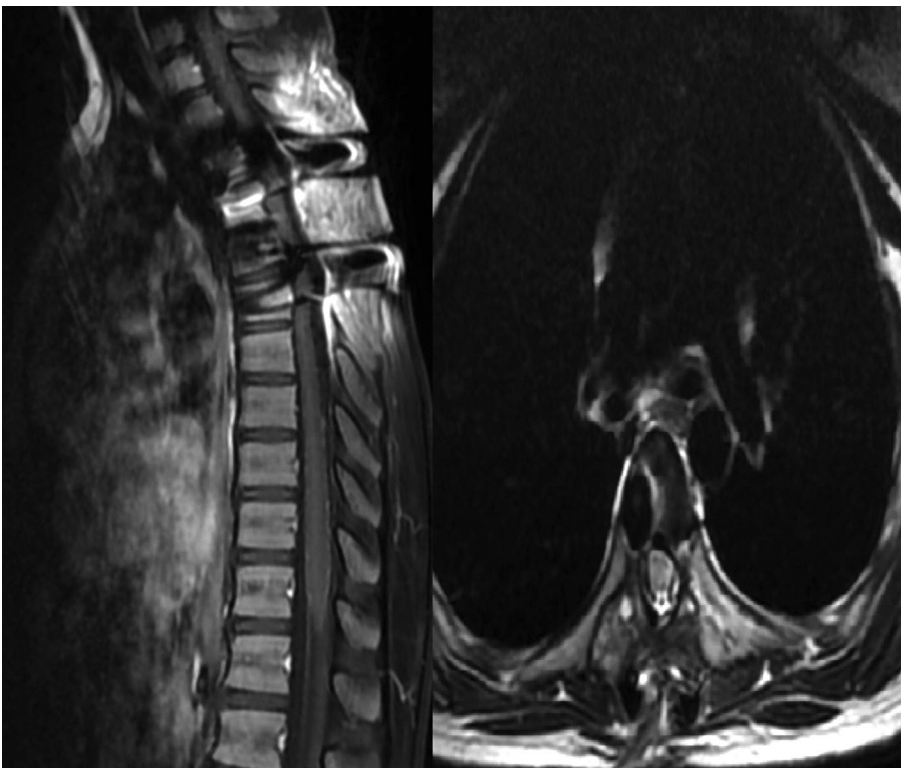


Figure 4. Post operative Contrast MRI spine showing complete excision of the lesion and decompression of spinal cord

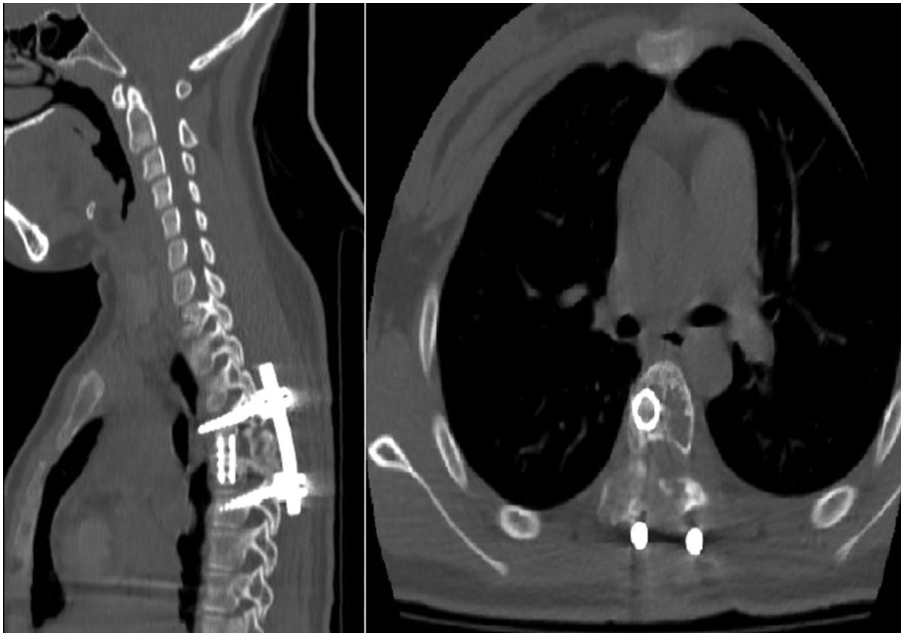


Figure 5. Post operative CT spine showing Inter body cage, pedicle screw and rods in situ with no kyphotic deformity

Patient has been on followup for last 1 year with no clinical and radiological evidence of recurrence.

Discussion

ABC are non neoplastic expansile bone lesion consisting of blood filled spaces separated by connective tissue septa of bony trabeculation and osteoclastic giant cells [6]. Similar to our case it is seen more commonly in young females. Lumbar spine has higher incidence of ABC as compared to dorsal and cervical spine [7]. However our case had a mid dorsal spine ABC. Most common presentation is backache [4]. But our case presented with lower limb weakness and bladder incontinence which may be due to delayed presentation of patients at our institute. MRI findings shows well defined cystic lesions which may confuse with osteosarcoma or giant cell tumour [9]. Surgical options for ABC include intralesional curettage, en bloc resection followed by fixation [7, 8]. Vertebroplasty is also a treatment option to reinforce spinal stability [10]. We did partial corpectomy and fixation of spine as the patient was in her growth phase. Post operative radiotherapy also can be considered in partially resected cases [11]. Post operative follow up of our case showed complete resection of the lesion. Although ABC have high recurrence rate of 10-44% which has been reported with 2 years following surgery [7, 12]. However our patients continue to have no radiological evidence of recurrence on 2 year follow up.

Conclusion

ABCs are benign tumour which may present with neurological deficit. ABCs in spine can mimic osteosarcoma or Giant cell tumours. Although treatment of ABC remains controversial but early surgery with complete removal of tumour in patients with neurological deficit provides excellent recovery. However due to high recurrence rate regular follow up is necessary.

Information disclosure

Conflict of interest

The authors declare no conflict of interest.

Informed consent

Informed consent was obtained from the patient.

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