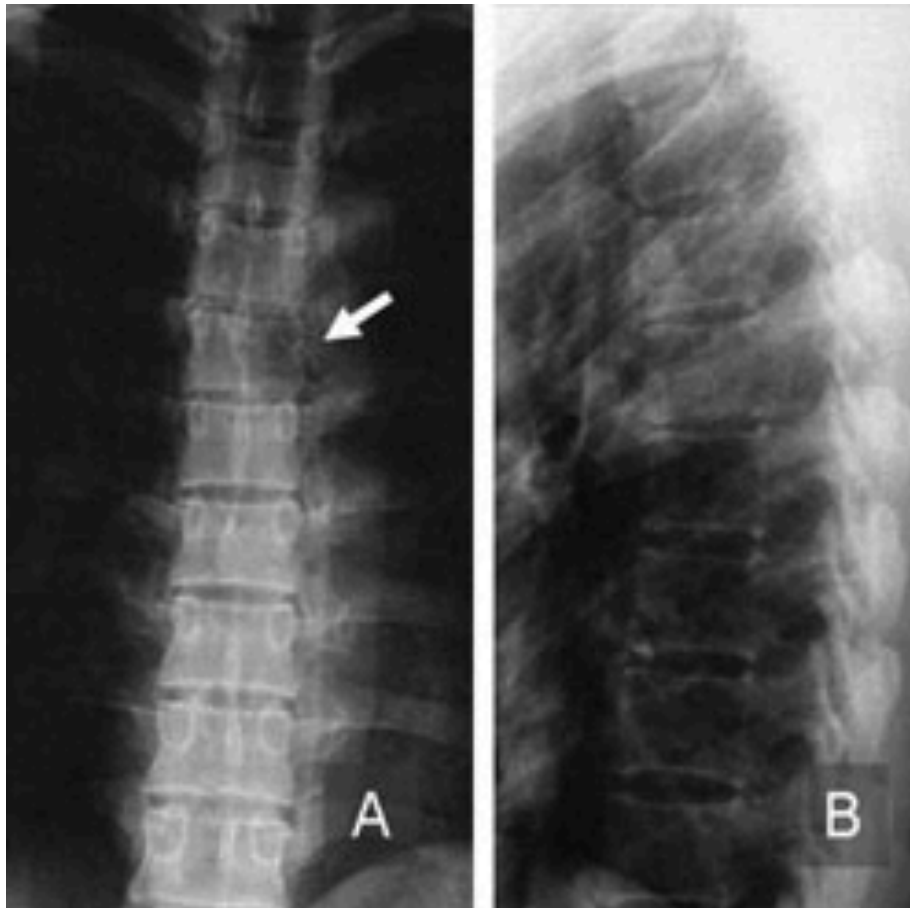


## Case 8: Thoracic Pain

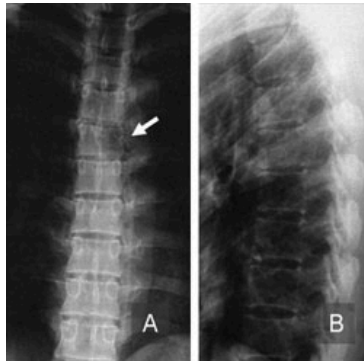
A 45-year-old male who is an orthotician presented with intermittent back pain for 4 months with no response to Chiropractor treatment. The pain was in the midthoracic with intercostal radiation. He had no numbness but had subtle neurology in his lower limb with a positive Babinski and early ankle clonus.



**Your Diagnosis?**

## Diagnosis: Aneurysmal Bone Cyst

1. **X ray:** Osteolytic; Eccentric; with indistinct border



D/D: Metastasis  
Myeloma

Cysts: Aneurysmal bone cysts  
GCT  
Aggressive Hemangioma  
Histiocytosis

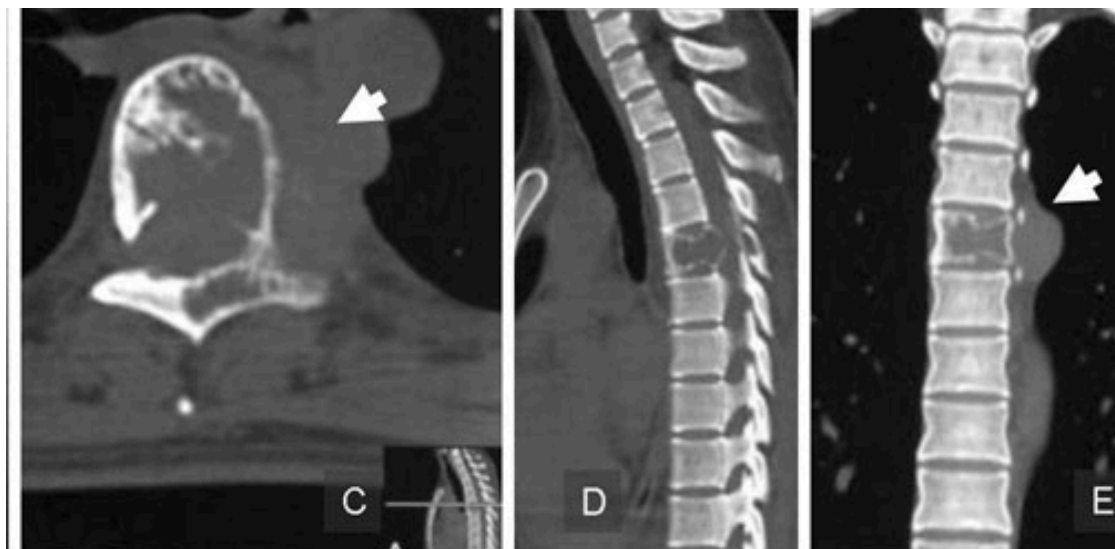
2. **Blood** were within normal limits

ESR/CRP: For infection and Metastasis

Ca, Phosphate, Alkaline Phosphatase: For Hyperparathyroidism

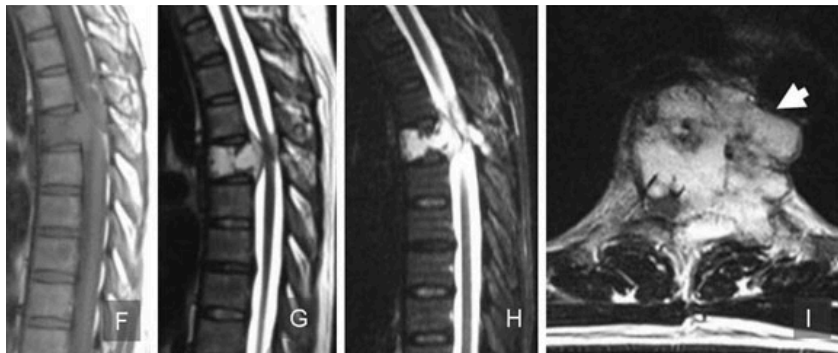
Immunoglobulins/ BJ proteins: For multiple myeloma

3. **CT Scan:** Disc space normal; Blown out appearance in the posterior cortex;  
Destructive lesion. [D/D: Metastasis, Myeloma, Aneurysmal bone cyst]



CT scan revealed an osteolytic lesion in the vertebral body, left pedicles and lamina of T5.

**4. MR scan** showed the tumor occupying the entire T5 vertebral body and invaded the spinal canal and paravertebral region. It was heterogeneously hypointense on T1-weighted image and hyperintense on T2-weighted image. Significant increase in signal intensity was shown by MRI scan after gadolinium contrast enhancement. Compression of the dural sac by the epidural extension of the tumor was evident on axial MR imaging.



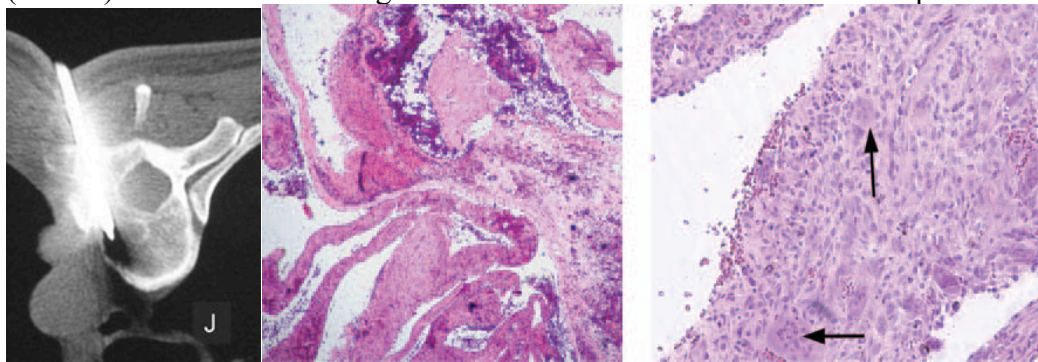
**5. Bone scan:** Increase uptake at T5; Rest of the skeleton normal uptake.

In 90% of myeloma, bone scan is negative. In secondaries usually multiple secondaries. However, in Renal or Thyroid secondaries, lesion may be solitary and may give blown out appearance.

### **5. Biopsy: CT guided biopsy**

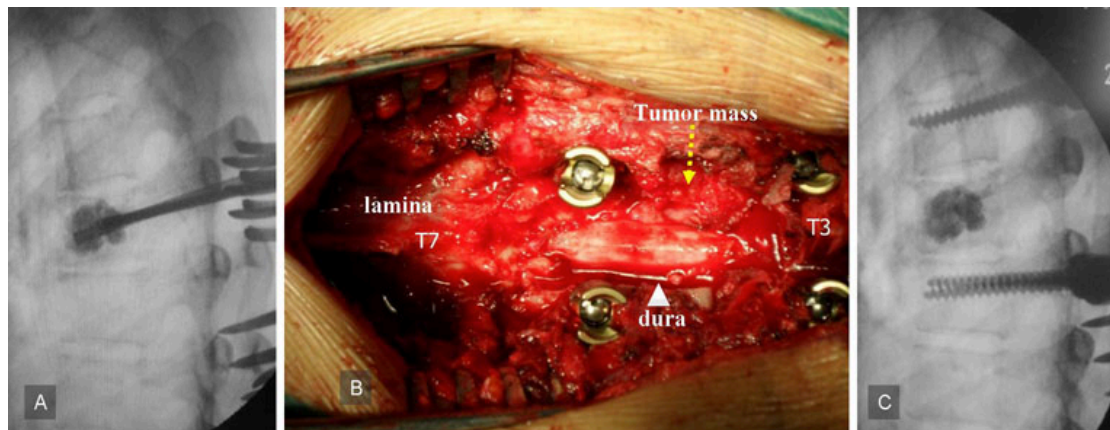
Low-power image demonstrating numerous blood-filled cystic spaces lined and separated by fibrous septa, confirming the diagnosis of ABC

High-power image: demonstrating abundant multinucleated osteoclast-type giant cells (arrows) within a dense background of bland fibroblastic cells in the septae



Based on the patients' lesion and symptoms: this lesion can be under following categories .Enneking type IV aggressive symptomatic lesion with epidural and/or soft tissue with early neurological deficit.

## Treatment



Reported treatments include radiotherapy, vertebroplasty, direct alcohol injection, embolization of the feeding arteries, surgery, and a combination of these modalities.

Radiotherapy alone is only appropriate for patients with slight and slow progressive neurological deficit because of the concern that the effect of radiotherapy is not as prompt as desired for patients with progressive neurological deficits caused by cord compression.

Surgery is indicated if radiotherapy fails in 3 months' time.

Heyd and colleagues reported that neurological symptoms completely resolved in 79 % of their cases after radiotherapy.

Vertebroplasty is not suggested for type IV lesions, for it might exacerbate cord compression. Instead, it is safe to carry out an intraoperative vertebroplasty after laminectomy under direct visualization.

In some aggressive cases where both trabeculae and the cortex are destroyed, vertebroplasty can strengthen the vertebral bodies and prevent vertebral collapse. After radiotherapy, the radiological reossification rate was only 26 %.

Direct alcohol injection into the tumor is highly effective in achieving hemostasis. It causes intralesional thrombosis and destruction of the endothelium.

High successful rate was reported. More recently in India, direct injection has been carried out during decompressive surgery. The complications include transient neurological deterioration (including Brown–Sequard syndrome), pathologic fractures and recurrence.

Embolization of feeding vessel has been used widely as a presurgical adjuvant treatment for reducing intraoperative hemorrhage. Kawahara and colleagues had indicated. that the interruption of bilateral segmental arteries at three levels does not damage spinal cord function in either dog or human.

Operation is indicated in cases with rapid progressive and/or severe myelopathy. Sometimes, urgent surgical decompression is indicated. However, diagnostic failure can potentially lead to inappropriate surgical plan and serious complications, especially life-threatening hemorrhage.

In recent studies, however, neurological recovery rate is nearly 100 %, whereas the mortality is rarely mentioned.

The goals of surgery include bony decompression and excision of soft tissue components of the tumor that compress the neural elements. Different surgical techniques have been reported, namely, laminectomy, corpectomy, spondylectomy.

Laminectomy could be combined with intraoperative vertebroplasty or alcohol injection, which could shrink the lesion and lead to intra-lesional thrombosis. Our standard procedure is laminectomy and vertebroplasty with the excision of epidural soft tissue components and stabilization of the spine with pedicle system. Postoperative radiotherapy is indicated, only if residual lesion is confirmed by contrast enhanced CT.

En bloc resection has been associated with the lowest rate of recurrence after initial treatment compared with other management methods. Unfortunately,

this technique is not always feasible due to the location of the lesion and its proximity to other vital structures. In a study of 238 patients with ABC, Vergel De Dios found that none of the 16 patients who underwent wide excision of the lesion demonstrated a recurrence. Campanacci reviewed 198 cases of ABC and found no recurrence in the 47 cases treated with partial or total resection. Although en bloc resection has the lowest rate of recurrence compared with other management methods, this method is reserved for ABCs in expendable bone locations (eg, fibula, clavicle) and can be performed without negatively affecting cosmesis or function.

## **Summary**

- 75% patients are under 20 yrs; usually around the knee in the metaphyseal region
- In up to about 50% of cases, a preexisting lesion can be identified :? preexisting condition: GCT, Osteoblastoma, Chondromblastoma, Non ossifying fibroma
- ABC is diagnosed by exclusion

## **Presentation**

- Pain and swelling which may have been present for years
- Around knee, Hip, Vertebra [Usually, posterior element of the vertebra with extension into the body]
- Patients complain of pain and swelling of variable duration (weeks to years).
- In the spine, compression may cause radicular symptoms, neurologic deficits, or even paraplegia.
- Patients may present with a pathologic fracture through the cyst, but this is uncommon given the eccentric nature of the lesion.

## **Treatment**

- Our standard procedure is laminectomy and vertebroplasty with the excision of epidural soft tissue components and stabilization of the spine with pedicle system.