

## Paravertebral parosteal lipoma.

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**Section:** Musculoskeletal system

**Imaging Technique:** MR

**Imaging Technique:** CT

**Case Type:** Clinical Cases

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**Patient:** 44 years, male

### Clinical History:

A case is presented of a large, incidental, paravertebral fat containing tumour in a patient with recurrent symptoms following spinal surgery

### Imaging Findings:

A 44 year-old male, who had a previous L5/S1 spinal fusion for degenerative spondylolisthesis, presented with recurrent low back pain and MRI was performed. This showed a large soft-tissue mass on the left side of, and adjacent to, the spinous process of L2 which had the same signal characteristics as subcutaneous fat on all sequences (fig. 1). Linear areas of low signal on both T1 and T2 weighted images, which were in continuity with the spinous process, extended into the mass. The cauda equina was normal and the L5/S1 fusion had consolidated (not shown). Review of radiographs showed hyperostosis of the L2 spinous process (fig. 2). CT confirmed the presence of a large fatty tumour closely applied to the L2 spinous process with associated hyperostosis traversing the tumour (fig. 3). Further non-ossified linear areas of soft-tissue streaking within the tumour visible on CT were interpreted as fibrovascular septa. The imaging features were typical for a parosteal lipoma and a biopsy was not performed.

### Discussion:

Lipomas are common, benign tumours containing adipose tissue. They are most commonly found in the subcutaneous tissues but also occur in intra-muscular, intra-osseous and parosteal locations. Parosteal lipomas are rare and account for 0.3% of all lipomas (1). The term parosteal implies that they are adherent to the periosteum although it is debatable if they originate from the periosteum itself. In addition to fat, variable amounts of fibrous tissue and bone are present within the tumour, resulting either from metaplasia in fibrofatty tissue or from "stimulation" of the adjacent periosteum (2). They can be classified according to the pattern of these non-fatty elements. Typically a parosteal lipoma presents as a large, painless, immobile mass in a middle-aged patient. Males and females are affected equally and the femur and radius are the commonest sites of involvement. The spine is rarely involved. Radiographs typically show a clearly marginated, radiolucent soft-tissue mass adjacent to the cortical surface. Spicules of bone extend from the cortex into and around the fatty component producing a characteristic appearance. Other bone changes may include bowing deformity or cortical erosion. CT clearly demonstrates both the fatty and osseous elements. Fibrovascular septa within the tumour may be visible as soft-tissue-density strands. CT is helpful in confirming the presence of fat in areas which are difficult to image radiographically, for example the hip and spine, and in confirming the parosteal location distinguishing it from a deeply located soft-tissue lipoma which is separated from the cortical surface by normal tissues (3). At MRI the fat component has the same signal characteristics as subcutaneous fat on all sequences and contains areas of low signal intensity which correspond to the fibro-osseous elements (4). The multiplanar imaging capability of MRI is a considerable advantage over CT in the pre-operative planning of large or complex lesions (1). The diagnosis of parosteal lipoma is important in distinguishing it from other proliferative and more aggressive periosteal lesions, for

example parosteal sarcoma(2). Surgical resection is often difficult because they are usually firmly adherent to the periosteum and may require the use of an osteotome or segmental resection of the underlying bone (1).

**Differential Diagnosis List:** Paravertebral parosteal lipoma.

**Final Diagnosis:** Paravertebral parosteal lipoma.

**References:**

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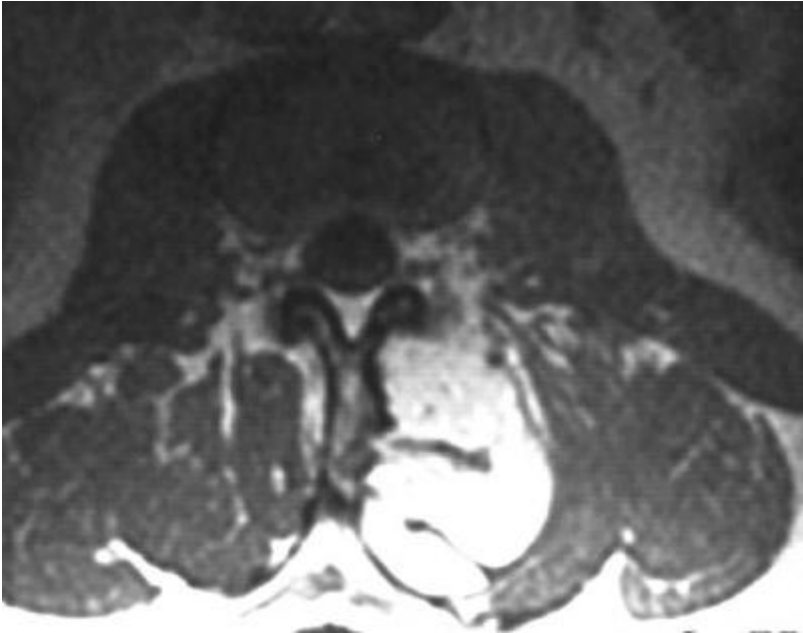
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**Figure 1**

**a**



**Description:** T1W axial image demonstrating a large, soft tissue, high signal paravertebral mass containing linear areas of low signal intensity. **Origin:**

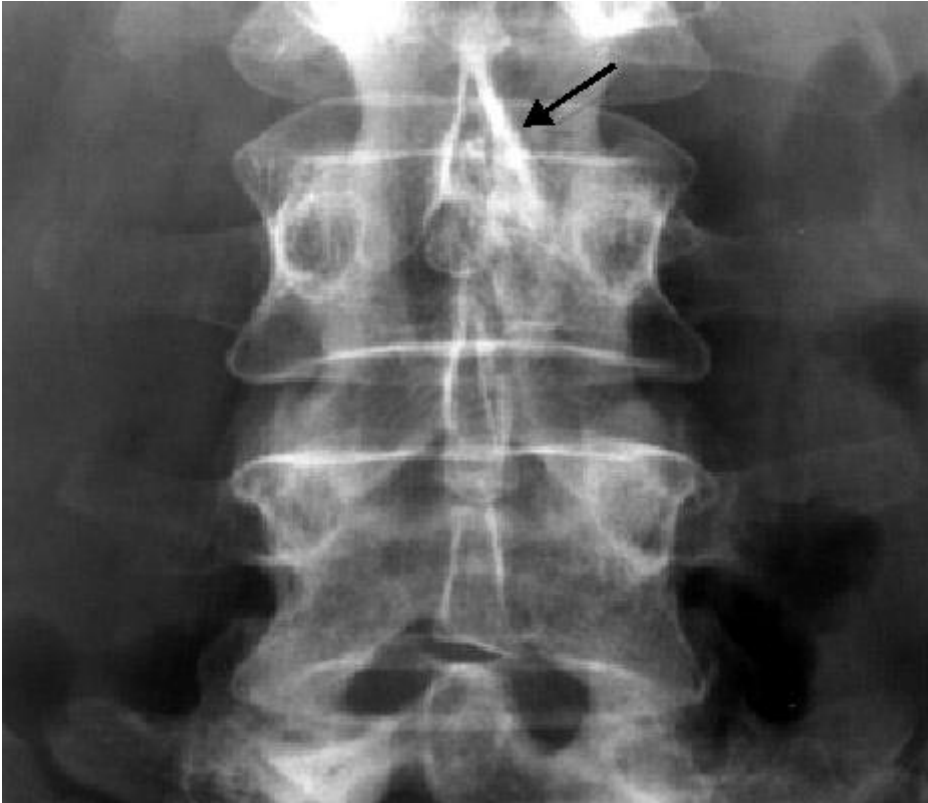
**b**



**Description:** T1W sagittal image showing the tumour extending between the posterior elements of adjacent vertebrae. **Origin:**

**Figure 2**

**a**



**Description:** AP radiograph showing hyperostosis of the spinous process of L2 (arrow). **Origin:**

**Figure 3**

**a**



**Description:** Axial CT image showing hyperostosis and a large fatty tumour containing fibrovascular septa. **Origin:**