

## Lumbo-sacral synovial cyst of the spine

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**Section:** Neuroradiology

**Area of Interest:** Musculoskeletal spine Neuroradiology  
spine Musculoskeletal soft tissue

**Procedure:** Diagnostic procedure

**Imaging Technique:** CT

**Imaging Technique:** MR

**Special Focus:** Cysts Case Type: Clinical Cases

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**Patient:** 80 years, female

### Clinical History:

80-year-old female patient came to the back clinic for stabbing and dull lower back pain radiating to left thigh and leg for last 6 months without much effect of pain killers. Tenderness on palpation over spinal process at L5/S1. Normal sensibility, power and plantar response.

### Imaging Findings:

CT scanning of lumbar spine shows around 20 x 15 mm large process with smooth borders and rim calcification in the spinal canal at L5/S1 level on the left side. The process had a compression effect on the posterior vertebral body of L5 on left side. An MRI with contrast was ordered.

MRI showed a 20 x 15 mm large rounded extradural process which was hypo-intense on T1 and had inhomogeneous intensity on inversion recovery (STIR) sequence. Process was in connection with the facet joint of L5/S1 on left side. There was compression on the posterior vertebral body of L5 on the left side and shifting of cauda equina to the right. There was no contrast uptake by the process.

The process was diagnosed to be a synovial cyst.

### Discussion:

#### BACKGROUND:

The term lumbar intraspinal synovial cysts (LISC) refers to cysts that arise from zygapophyseal joint-capsule of the lumbar spine [1]. Lumbar zygapophyseal joints are lined with synovium. Ganglion cysts are cystic alterations found near synovial lined joints, which explains the association with facet joints. Synovial and ganglion cysts may not be distinct, but rather specify points in a cycle of cyst formation and degeneration. These cysts are internally lined with pseudostratified columnar or cuboid epithelium and filled with clear/straw-colour fluid [2].

#### CLINICAL PERSPECTIVE:

The clinical presentation of a cyst depends on its volume, site, and relationship to the surrounding bony and neural structures. Cysts may be asymptomatic and found incidentally. Most of the symptomatic patients present with

radicular pain and neurologic deficits. A history of lower back pain invariably precedes the radicular pain. Clinical syndromes such as cauda equina, lateral recess, spinal stenosis syndromes have been described [3].

#### IMAGING PERSPECTIVE:

CT and MRI are the two neurodiagnostic imaging modalities recommended for characterisation of synovial cysts. The typical appearance of a cyst on CT can be altered by its content, for example gas, calcification, blood, inflammation, and osseous structure involvement. On MRI, synovial cysts appear as well circumscribed, smooth, extradural in location, and adjacent to facet joints. The proteinaceous content of the cyst can demonstrate greater signal intensity than the surrounding CSF on both T1- and T2-weighted images. MRI is considered to be the diagnostic imaging of choice in the workup of suspected synovial cysts [3]. It has a 90% sensitivity compared to 70% of CT scanning [1].

In the past, CT myelography has also been used in diagnosis of synovial cysts but is now only used when MR imaging is not available or cannot be performed (metallic prosthesis etc.) [1].

#### CLINICAL PERSPECTIVE:

The optimal treatment remains a matter of debate. Even though there have been reports of synovial cysts resolving spontaneously, they will usually require treatment. This can be either conservative or surgical. Conservative treatment consists of bed rest, analgesics and anti-inflammatory drugs, physical therapy, bracing, transcutaneous electrical stimulation, epidural or intra-articular steroid injections and cyst-aspiration [1].

The surgical technique to be used remains a matter of debate and varies depending on the cyst size, its adhesion to the dura and presence of concomitant local pathologies. Partial hemilaminectomy with medial facetectomy is usually sufficient. Microsurgical procedures are preferred in small cysts, as they allow satisfactory outcome with minimal surgical trauma [1].

**Differential Diagnosis List:** Lumbo-sacral synovial cyst of the spine at L5/S1 level, Ependymoma, Meningioma, Astrocytoma, Haemangioblastoma, Ganglion cysts

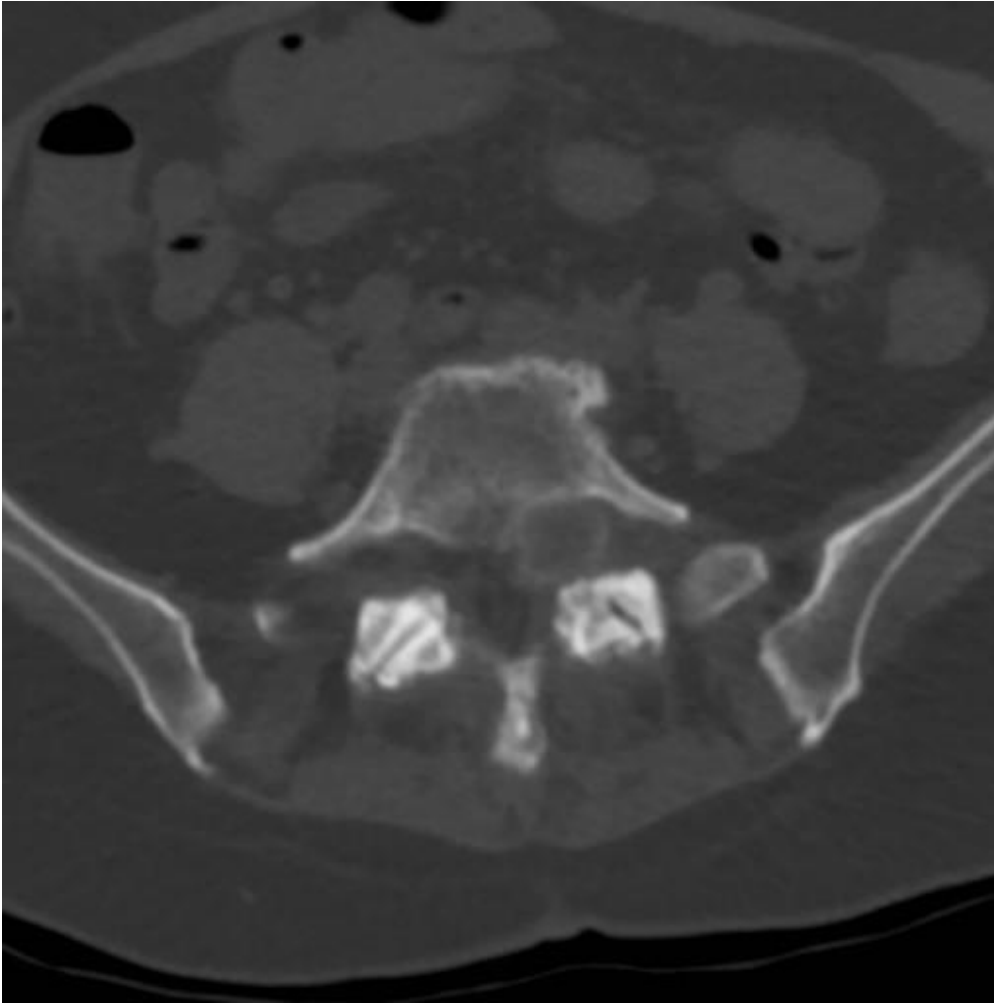
**Final Diagnosis:** Lumbo-sacral synovial cyst of the spine at L5/S1 level

#### References:

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- Shah RV, Lutz GE. Lumbar intraspinal synovial cysts: conservative management and review of the world's literature. Spine J 2003 Nov-Dec;3(6):479-88. (PMID: [14609693](#))
- Khan AM, Synnot K, Cammisa FP, Girardi FP. Lumbar synovial cysts of the spine: an evaluation of surgical outcome. J Spinal Disord Tech 2005 Apr;18(2):127-31. (PMID: [15800428](#))

**Figure 1**

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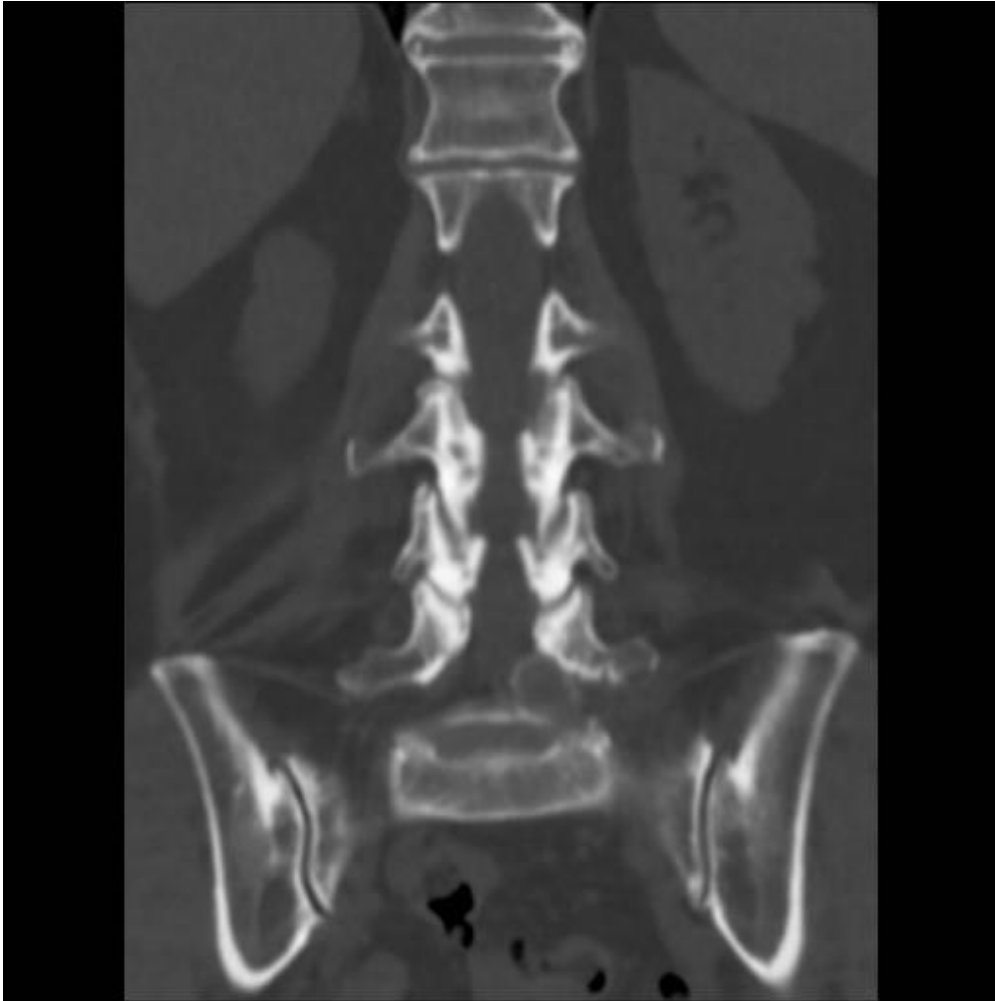


**Description:** Shows 20 x 15 mm large cystic process with peripheral calcification and pressure effect on posterior wall of L5 vertebra on left side.

Degenerative changes in left sided facet joint with vacuum phenomena can also be seen. **Origin:** Regionshospitalet Horsens

**Figure 2**

**a**



**Description:** 20 x 15 mm large cystic process with peripheral calcification lying in the spinal canal at L5/S1 level on left side. **Origin:** Regionshospitalet Horsens

**b**



**Description:** 20 x 15 mm large cystic process with peripheral calcification lying in the spinal canal at L5/S1 level on left side. **Origin:** Regionshospitalet Horsens

**c**



**Description:** Cystic process with peripheral calcification lying in the spinal canal at L5/S1 level on left side. **Origin:** Regionshospitalet Horsens

d



**Description:** Non-contrast CT examination of lumbo-sacral spine in bone window setting shows degenerative changes in the left sided facet joint of L5/S1 with vacuum phenomena. **Origin:** Regionshospitalet Horsens

e

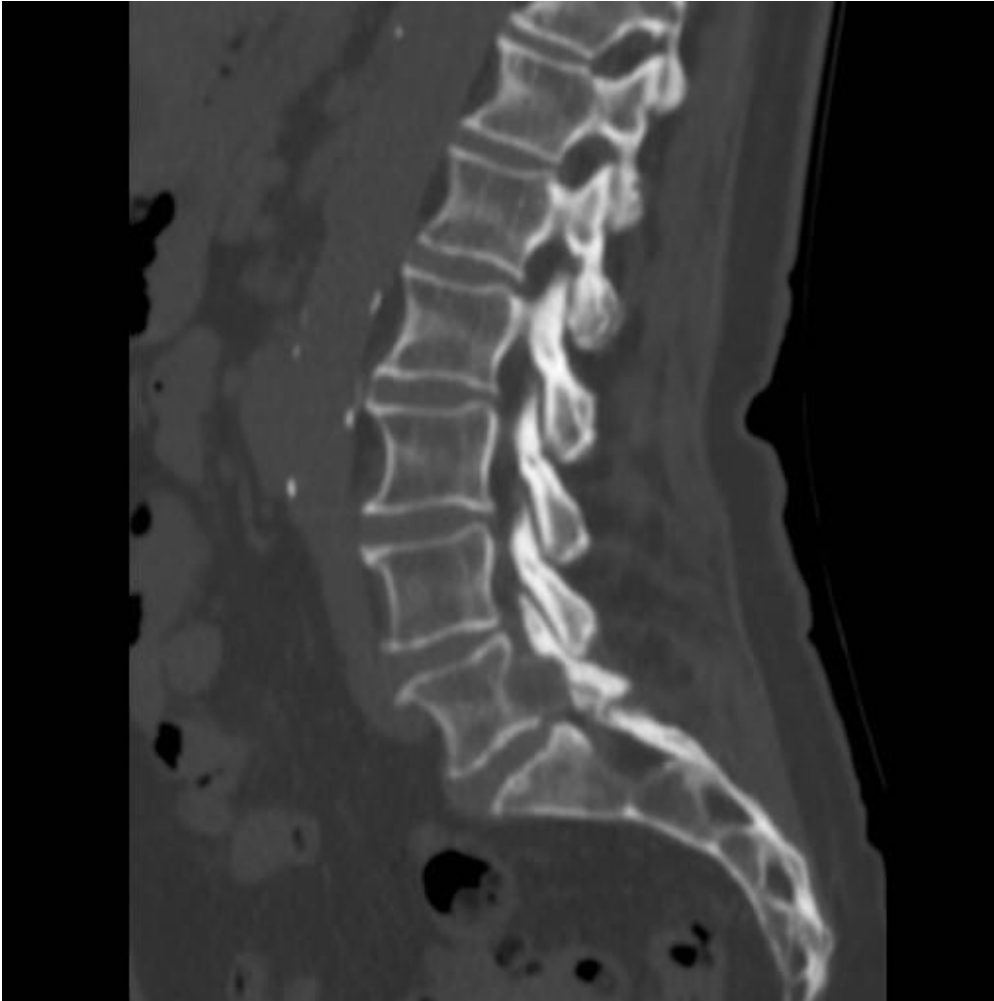


**Description:** Non-contrast CT examination of lumbo-sacral spine in bone window setting shows degenerative changes in the left sided facet joint of L5/S1 with vacuum phenomena. **Origin:** Regionshospitalet Horsens



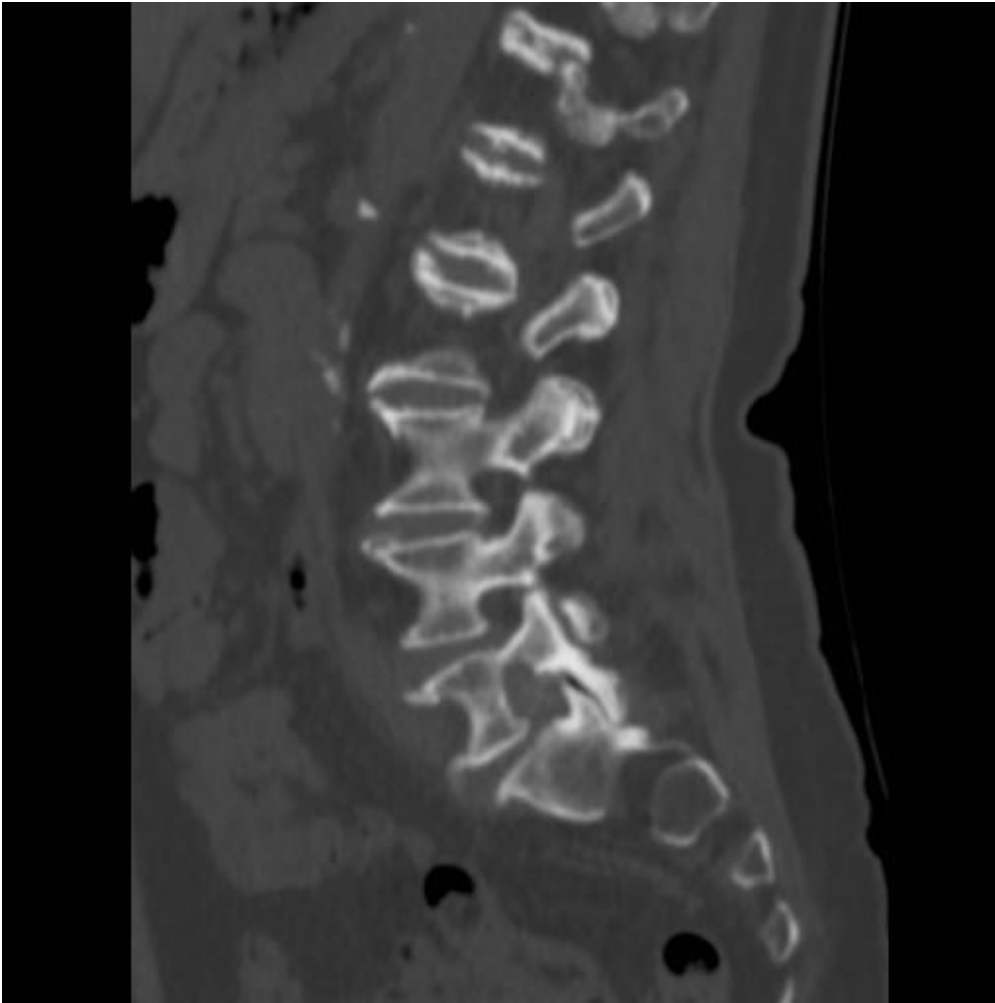
**Figure 3**

a



**Description:** Shows 20 x 15 mm large cystic process with peripheral rim calcification and pressure effect on posterior wall of L5 vertebrae on left side. **Origin:** Regionshospitalet Horsens

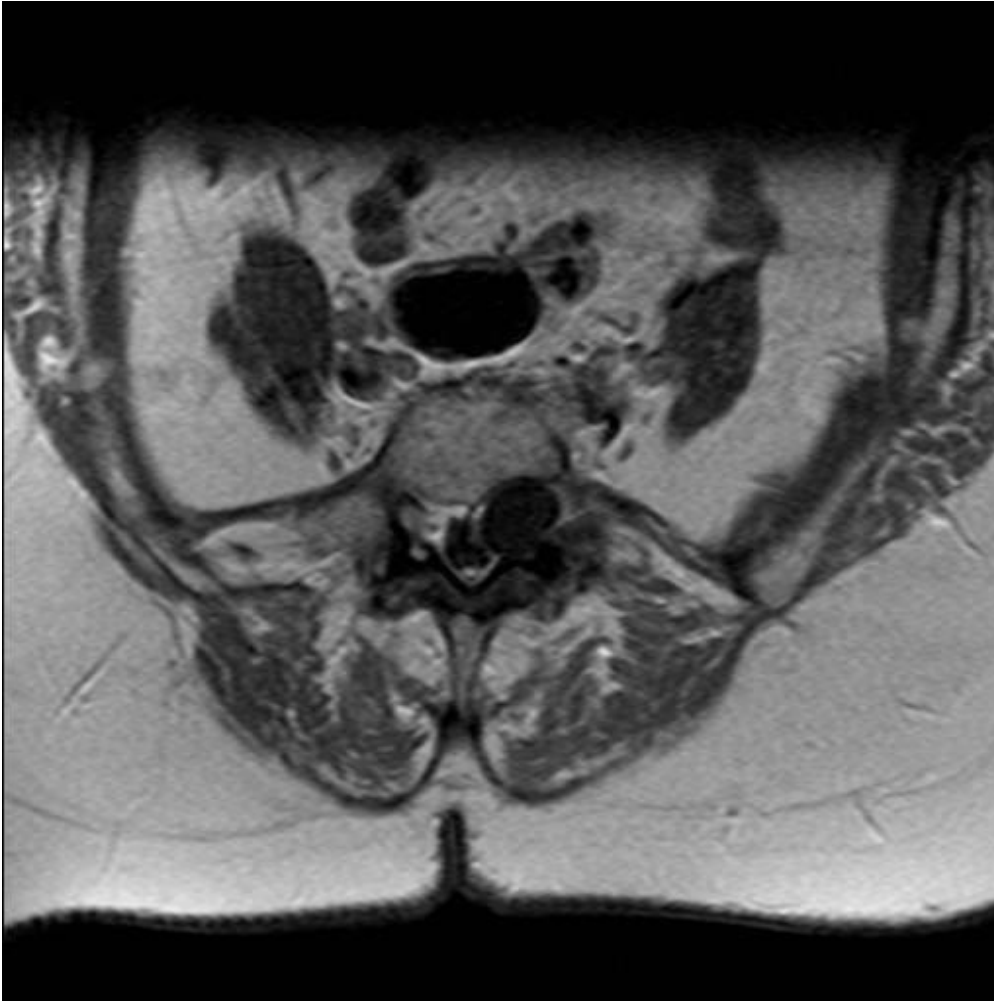
**b**



**Description:** Non-contrast CT examination of lumbosacral spine in bone setting shows degenerative changes in the left sided facet joint of L5/S1 with vacuum phenomenon. **Origin:** Regionshospitalet Horsens

**Figure 4**

a



**Description:** T1 weighted image without contrast shows well-defined hypointense round lesion at the level of L5 on left side. Lesion is extradural. Duramater is pushed medially. Compression on the vertebral body can be seen. **Origin:** Regionshospitalet Horsens

**Figure 5**

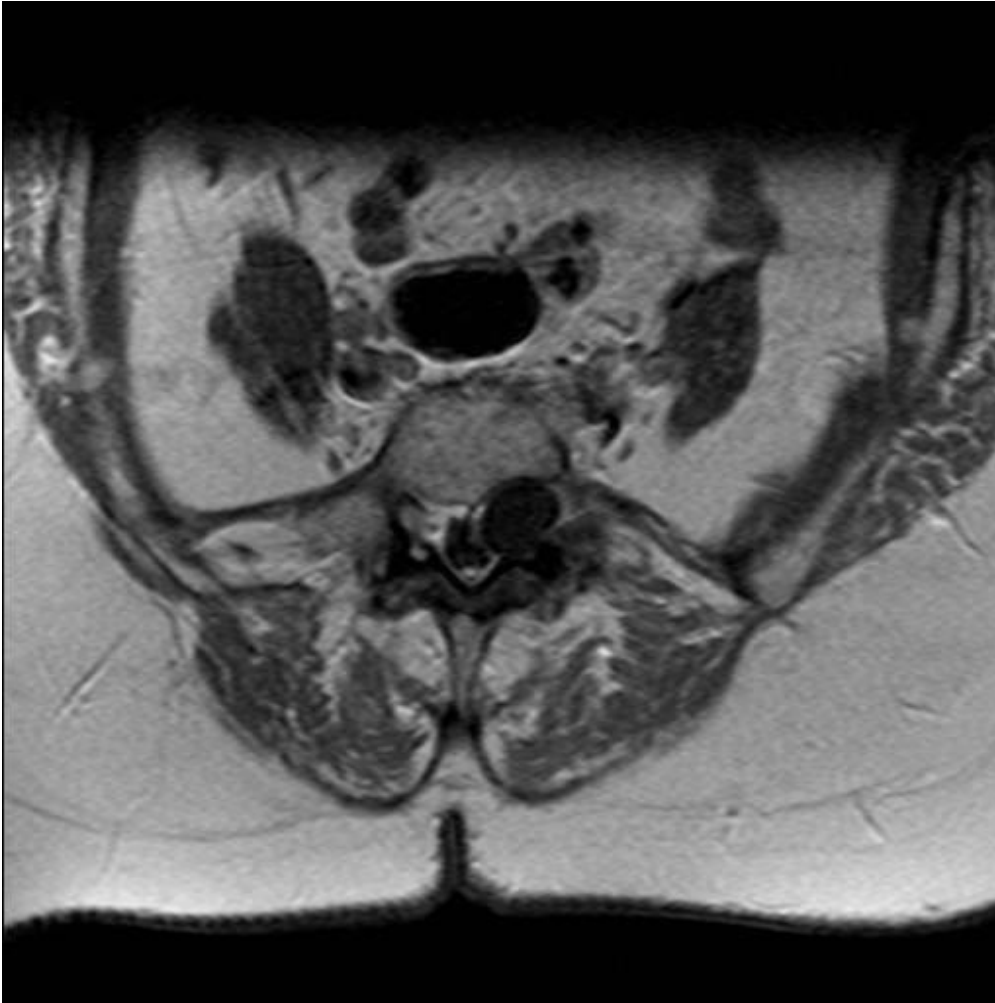
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**Description:** MRI of lumbosacral spine inversion recovery sequence(STIR) shows well defined round process with inhomogenous high signal intensity, lying at level of L5 on left side. Compression on L5 vertebra seen without bone oedema. **Origin:** Regionshospitalet Horsens

**Figure 6**

a



**Description:** MRI lumbosacral spine with contrast medium shows no enhancement of the process.

**Origin:** Regionshospitalet Horsens

**Figure 7**

**a**



**Description:** MRI of lumbosacral spine T2 weighted axial image showing fluid component of the cyst at the level of L5 on left side. Joint effusion in facet joint on the same level can also be appreciated.

**Origin:** Regionshospitalet Horsens