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# Calcific Discitis Seems to be a Common Incidental Finding in Adults

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**Abstract**

Calcific discitis seems to be a rare cause of back pain in adults. Imaging shows a calcification of the nucleus pulposus with extension through the endplates on computed tomography. This can be accompanied by bone marrow edema on magnetic resonance imaging. In a retrospective review of 150 patients, 4 cases of calcific discitis were found (2.8%). None of the patients reported about back pain. Therefore, it seems that symptomatic cases of calcific discitis are a rare occurrence in contrast to the quite frequent incidental finding of asymptomatic cases on imaging. Knowledge of the various imaging appearances of calcific discitis is necessary for radiologists, because especially in acute cases with substantial bone marrow edema, this benign entity may be confused with infectious spondylodiscitis or malignancy.

**Keywords**

- spinal imaging
- calcific discitis
- prevalence
- incidental finding

## Background

Calcific discitis seems to be a rare cause of back pain in adults, with around 40 published cases.[1,2] Imaging shows a calcification of the nucleus pulposus with extension through the endplates on computed tomography. This can be accompanied by bone marrow edema on magnetic resonance imaging. Calcific discitis is more prevalent in the thoracic spine.[2] The prognosis is favorable and pain usually resolves with symptomatic treatment. Sometimes follow-up imaging shows a resolution of the calcifications.[2] To the best of our knowledge, the prevalence of calcific discitis in adults has not been studied previously.

## Methodology

A retrospective review of chest computed tomography (CT) scans performed at our department during January 2022 was performed. All patients undergoing chest imaging on an 80-slice CT scanner (Canon Prime, Canon Medical Systems, Tokyo, Japan) were included in the study. Patients were scanned for different indications (such as cancer, pneumonia, interstitial lung diseases, or pulmonary embolism) and the use of contrast media was not mandatory. The sample consisted of 85 male and 65 female patients with a mean age of 69.5 years (range: 31–99 years). The reconstructed sagittal 3 mm slices of the thoracic and upper lumbar spine were transferred to a medical workstation and reviewed in a standard bone window setting using the departmental digital picture archive (SynedraView; Synedra Information Technology, Innsbruck, Austria). The diagnosis of calcific discitis was made if calcifications of the nucleus pulposus with extension through adjacent endplates were found. To rule out other causes of intervertebral disc calcifications (like degenerative changes or changes with ankylosing spinal disease), only cases with these typical imaging findings were excluded. All cases with fusion of the segment were excluded. In cases with calcific discitis, a chart review was performed.

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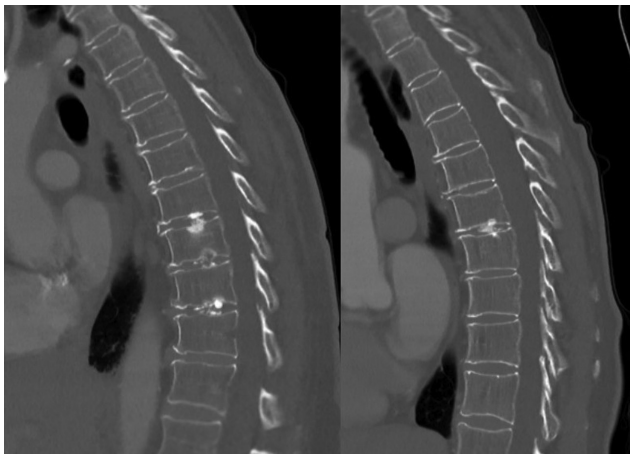

**Fig. 1** Two examples of calcific discitis of the thoracic spine showing the typical imaging finding of nucleus pulposus calcification with migration through the adjacent vertebral endplates.

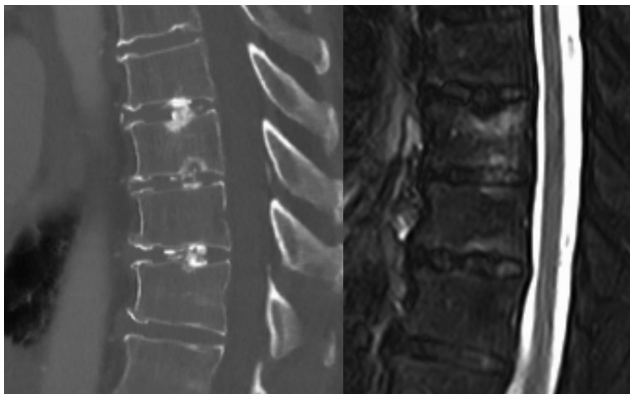

**Fig. 2** Imaging of a patient presenting with back pain and suspected malignancy on bone scintigraphy. Computed tomography (on the left) shows the typical imaging appearance of calcified discitis. Magnetic resonance imaging (on the right) shows reactive bone marrow edema due to the migration of the calcified nucleus pulposus through the endplates.

## Results and Discussion

In our sample of 150 patients, 4 cases of calcific discitis were found (2.8%) (►**Fig. 1**). Calcific discitis was found in three women and one man; these patients had a mean age of 77 years. In two patients, the changes were multisegmental. In the retrospective review of the medical records, none of the cases spontaneously reported about back pain at admission. This small study observed a prevalence of 2.8% of calcific discitis on CT, which is contradictory to the low number of reported symptomatic cases in the literature. Given the obvious limitations of a retrospective chart review, none of the patients reported about back pain on admission. Therefore, it seems that symptomatic cases of calcific discitis are a rare occurrence in contrast to the quite frequent incidental finding of asymptomatic cases on imaging. This is not an unknown phenomenon on spinal medicine and known from symptomatic Schmorl nodules.[3] It may be speculated that the migration of the calcified nucleus pulposus into the endplates causes self-limiting pain in most patients, which impedes further workup and detection of symptomatic cases on imaging. Nonetheless, knowledge of the various imaging appearances of calcific discitis is necessary for radiologists, because especially in acute cases with substantial bone marrow edema, this benign entity may be confused with infectious spondylodiscitis or malignancy[4] (►**Fig. 2**). The pathogenesis of calcific discitis remains unclear. A more recent hypothesis suggests secondary interruption or diminished blood supply of the nucleus pulposus, for example, after trauma, inflammation, or fusion.[5] It has to be noted that there are other forms of intervertebral disc calcifications. Nucleus pulposus calcifications are often seen in patients with fused intervertebral segments (i.e., in ankylosing spondylitis or diffuse idiopathic skeletal hyperostosis). However, in patients with degenerative changes, calcifications of the annulus fibrosus seem to be more common.[6,7]

## Conclusion

Calcific discitis seems to be a quite frequent incidental finding on CT of the spine. Knowledge of this entity is important to establish proper differential diagnosis.

**Conflict of Interest**
None declared.

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