

## Calcific discitis: MRI changes in discs without visible calcification

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The syndrome of calcific discitis producing pain referable to the neck or back in children is not uncommon [1–5]. The diagnosis is accomplished on the basis of clinical findings and the radiographic demonstration of calcified intervertebral discs. We present a recent case of a young child who presented with typical clinical findings and demonstrated calcification in a thoracic intervertebral disc. MR examination, however, demonstrated pathologic changes in three other intervertebral discs which did not demonstrate calcification on plain roentgenograms.

### Case report

This 13-year-old girl presented with a three week history of back pain and stiffness. She also complained of painful knots forming over her neck and shoulder region, primarily over the spinal areas. On physical examination she had limitation of movement and rigidity of the neck and upper back. The paraspinal knots were palpable and measured approximately 3–8 cm in diameter. Her temperature was 36.7°C. Previous laboratory investigation from another hospital demonstrated an elevated ESR but a normal white blood cell and differential count. Radiographs of her thoracic and cervical spine were obtained and a calcified intervertebral disc was noted at the T2–T3 level (Fig. 1a). The diagnosis of calcific discitis was made.

Upon examining the radiographs in the cervical spine region there was some suggestion that the intervertebral disc spaces between C2–C3 and C6–C7 were more plump (slightly expanded) than normal (Fig. 2a). For this reason an MR scan was obtained. T1 weighted images only were obtained but clearly demonstrated the expected signal void in the calcified intervertebral disc at the T2–T3 level (Fig. 1b). There was some associated edema posteriorly and a little posterior displacement of the spinal cord.

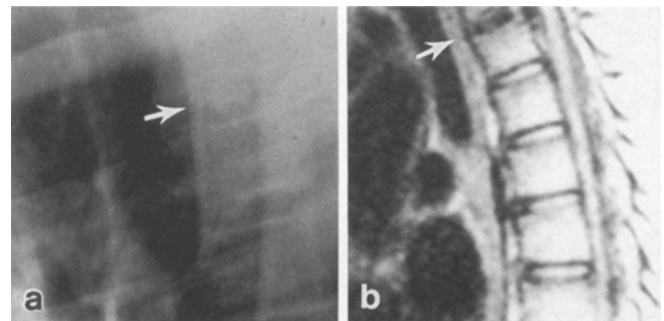
Images of the cervical spine demonstrated expansion of the C2–C3 and C6–C7 intervertebral disc spaces with markedly altered signal in the discs (Fig. 2b). There also was absence of signal in the anterior portion of the intervertebral disc between T1 and T2. This suggested associated abnormality at this level.

The patient was placed on anti-inflammatory medication and at a followup visit two weeks later had noted some improvement. No followup imaging was performed. It was planned to maintain her on anti-inflammatory medication until symptoms subsided.

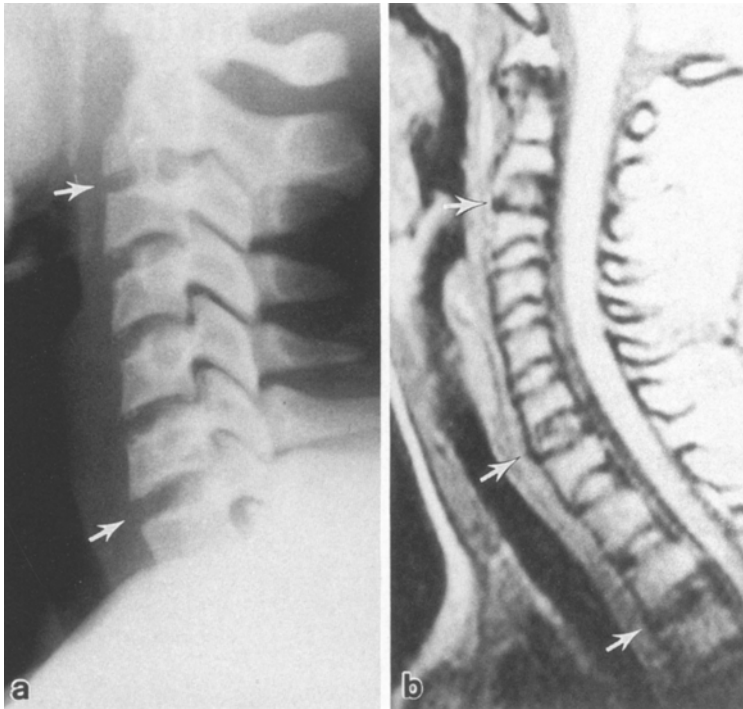
### Discussion

There is no known etiology for the condition of calcific discitis in children although both trauma and viral infection have been considered in the past [1–5]. Generally, it is a self-limiting condition which involves the intervertebral discs of the cervical and thoracic portions of the spine. Although clinical findings are variable, neck or back pain usually is present and in some cases may be very pronounced.

The diagnosis of calcified discitis is unequivocally secured when calcification of intervertebral discs is demonstrated on plain film radiography or computerized tomography. Most commonly the calcifications occur in the cervical and thoracic portions of the spine and usually are quite dense and somewhat oval in configuration. In our patient such calcification was seen in the upper thoracic spine, but, in addition it was noted that the intervertebral discs, at two levels in the cervical spine, appeared somewhat expanded and abnormal. On the subsequent MR study it became clear that these discs were in fact abnormal (Fig. 2b). The calcified thoracic disc, of course, also appeared abnormal.



**Fig. 1a, b.** Thoracic spine. **a** Note the calcified disc at the T2–T3 level (arrow). **b** Mid-sagittal T1 image (TR 500 TE 24) demonstrates decreased signal in the calcified disc at the T2–T3 level (arrow). Note posterior edema



**Fig. 2 a, b.** Cervical spine. **a** Lateral view demonstrates slightly expanded intervertebral disc spaces at the C2–C3 and C6–C7 levels (*arrows*). The findings at the C6–C7 level are, perhaps, more convincing. Minimal calcification at this level might be suggested but the finding is very subtle. **b** Midsagittal T1 image (TR 500, TE 24) demonstrates expanded disc spaces at the C2–C3 and C6–C7 levels (*upper two arrows*). There is altered, amorphous signal in these discs. Also note loss of signal in the calcified disc at the T2–T3 level (*lowest arrow*) and, in addition, note loss of anterior signal in the intervertebral disc at the T1–T2 level

The decreased signal in the two suspicious discs in the cervical spine and the one unsuspected disc space in the upper thoracic spine could be due to calcification in its early stages. This finding also could simply be due to edema, but in fact we were unable to unequivocally determine why these discs showed altered signal. On the other hand they were distinctly abnormal and it is our supposition that they were involved in the same disease process as the thoracic disc which showed calcification. We further believe that the MR study was able to detect changes in the discs before visible calcification was seen.

Although we do not advocate that MR be performed in all these patients, we believe that in patients who clinically are suspect of having calcific discitis, if calcifications are not seen on plain films, MR examination can be helpful. In addition, it may well reveal, as it did in our case, that the condition is more widespread than initially appreciated.

## References

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