

Differentiating epidural fibrosis from disc herniation on contrast-enhanced and unenhanced MRI in the postoperative lumbar spine

Zita Passavanti, Sebastian Leschka, Simon Wildermuth, Thomas Forster & Tobias Dietrich

OBJECTIVE

To determine diagnostic confidence and inter-observer/intra-observer agreement in differentiating epidural fibrosis from disc herniation and lumbar spinal stenosis parameters on magnetic resonance images (MRI) in postoperative lumbar spines with (Gad-MRI) and without (unenhanced MRI) intravenous gadolinium-based contrast agent.

SUBJECTS AND METHODS

N = 124 lumbar spine MRI examinations of four groups were included: 1-6 months, 7-18 months, 19-36 months, more than 37 months between lumbar spine surgery and imaging. Two radiologists evaluated Gad-MRI and unenhanced MRI: diagnostic confidence was determined as confident or unconfident. Inter-observer and intra-observer agreement were assessed in differentiating epidural fibrosis from disc herniation and for lumbar spinal stenosis parameters on MRI. Fisher's exact test and Cohen's kappa served for statistics.

RESULTS

Diagnostic confidence in differentiating epidural fibrosis from disc herniation was significantly higher on Gad-MR images compared with unenhanced MRI at 1-18 months for observer 1 and at 1-6 months postoperatively for observer 2 (p values: 0.01-0.025). Inter-observer agreement at 1-6 months postoperatively for identification of epidural fibrosis was higher on Gad-MRI (kappa values: 0.53 versus 0.24). Inter-observer and intra-observer agreement for identification of disc herniation and for assessment of lumbar spinal stenosis parameters revealed inconsistent data, without a trend for higher inter-observer or intra-observer agreement on Gad-MRI compared with unenhanced MRI (kappa values: 0.17-0.75).

CONCLUSION

Gad-MR images compared with unenhanced MRI improved diagnostic confidence and agreement in differentiating epidural fibrosis from disc herniation for both observers in the first 6 months and for one observer in the

first 18 months after lumbar spine surgery. After 18 months, Gad-MR images compared with unenhanced MRI did neither improve confidence nor agreement.

type	journal paper/review (English)
date of publishing	10-06-2020
journal title	Skeletal Radiol (49/11)
ISSN electronic	1432-2161
pages	1819-1827