American College of Radiology
ACR Appropriateness Criteria®

Management of Vertebral Compression Fractures

Variant 1:  New symptomatic compression fracture identified on radiographs or CT. No known malignancy.

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**MRI spine area of interest without IV contrast**

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**MRI spine area of interest with IV contrast**

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### Variant 2:

Osteoporotic compression fracture, with or without edema on MRI and no “red flags”. With or without spinal deformity, worsening symptoms, or pulmonary dysfunction.

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Variant 3:  Painful osteoporotic compression fracture with edema on MRI. Contraindication to vertebral augmentation or surgery (eg, fitness, pregnancy, infection, coagulation disorder, etc.).
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Variant 4: Known malignancy and new back pain. Compression fracture identified on radiographs or CT.

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| MRI spine area of interest without and with IV contrast | Usually appropriate | Strong | O 0 mSv | O 0 mSv [ped] | 9 | 9 | 0 0 0 0 0 0 2 4 8 |

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| MRI spine area of interest without and with IV contrast | Usually appropriate | Strong | O 0 mSv | O 0 mSv [ped] | 9 | 9 | 0 0 0 0 0 0 2 4 8 |

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| MRI spine area of interest without IV contrast | May be appropriate (Disagreement) | Expert Opinion | O 0 mSv | O 0 mSv [ped] | 5 | 6 | 0 | 0 | 2 | 1 | 4 | 2 | 4 | 1 | 1 |
|------------------------------------------------|----------------------------------|----------------|---------|--------------|---|---|---|---|---|---|---|---|---|---|
| 102 (24484060)                                  |                                  |                |         |              | 2 |   |   |   |   |   |   |   |   |   |
| 103 (28670417)                                  |                                  |                |         |              | 3 |   |   |   |   |   |   |   |   |   |
| 104 (26376170)                                  |                                  |                |         |              | 4 |   |   |   |   |   |   |   |   |   |
| 106 (20580503)                                  |                                  |                |         |              | 3 |   |   |   |   |   |   |   |   |   |
| 107 (19530588)                                  |                                  |                |         |              | 3 |   |   |   |   |   |   |   |   |   |
| 108 (26204297)                                  |                                  |                |         |              | 4 |   |   |   |   |   |   |   |   |   |
| 101 (21857034)                                  |                                  |                |         |              | 3 |   |   |   |   |   |   |   |   |   |
| 109 (27441748)                                  |                                  |                |         |              | 4 |   |   |   |   |   |   |   |   |   |
| 13 (20809724)                                   |                                  |                |         |              | 4 |   |   |   |   |   |   |   |   |   |

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MRI spine area of interest without IV contrast

May be appropriate

Disagreement

MRI spine area of interest with IV contrast

May be appropriate

Strong
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**Variant 5:** Asymptomatic pathologic spinal fracture with or without edema on MRI.

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**Variant 6:** Pathologic spinal fracture with severe and worsening pain.

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### Variant 7: Pathologic spinal fracture with spinal deformity or pulmonary dysfunction.

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  - 108 (26204297)
  - 126 (26635286)
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- Surgical consultation
  - 142 (16112300)
  - 148 (20562730)
  - 93 (21629164)
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- Radiation oncology consultation
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Variant 8: Pathologic spinal fracture with neurologic deficits.

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References
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- 93 (21629164) Study Quality 4
- 11 (21709187) Study Quality 3
- 141 (15450879) Study Quality 4
- 152 (-3121235) Study Quality 4
- 153 (26337716) Study Quality Good

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- 143 (6178497) Study Quality 1
- 150 (15450875) Study Quality 4
- 154 (7607970) Study Quality 2
- 131 (21277118) Study Quality 4
- 155 (27479724) Study Quality 4
Appendix Key
A more complete discussion of the items presented below can be found by accessing the supporting documents at the designated hyperlinks.

**Appropriateness Category:** The panel's recommendation for a procedure based on the assessment of the risks and benefits of performing the procedure for the specified clinical scenario.

**SOE:** Strength of Evidence. The assessment of the amount and quality of evidence found in the peer reviewed medical literature for an appropriateness recommendation.

- **References:** The citation number and PMID for the reference(s) associated with the recommendation.
- **Study Quality:** The assessment of the quality of an individual reference based on the number of study quality elements described in the reference.

**RRL:** Relative Radiation Level. A population based assessment of the amount of radiation a typical patient may be exposed to during the specified procedure.

**Rating:** The final rating (1-9 scale) for the procedure as determined by the panel during rating rounds.

**Median:** The median rating (1-9 scale) for the procedure as determined by the panel during rating rounds.

**Final tabulations:** A histogram showing the number of panel members who rated the procedure as noted in the column heading (ie, 1, 2, 3, etc.).

Additional supporting documents about the AC methodology and processes can be found at [www.acr.org/ac](http://www.acr.org/ac).