

# Comparison of radiography, CT, and MRI for the evaluation of spinal involvement in MPS IVA (Morquio A)<sup>1</sup>

	<i>Strengths</i>	<i>Limitations</i>
Radiography	<ul style="list-style-type: none"><li>• Assess bone malformation</li><li>• Assess spinal canal stenosis</li><li>• Assess malalignment</li><li>• Flexion-extension instability</li><li>• Rapid</li><li>• Inexpensive</li></ul>	<ul style="list-style-type: none"><li>• Poor soft tissue discrimination</li><li>• Limited by overlapping structures</li><li>• Ionizing radiation</li><li>• Limited to ossified structures</li></ul>
CT	<ul style="list-style-type: none"><li>• Rapid (may obviate need for anaesthesia)</li><li>• Multiplanar imaging of bony structures</li><li>• Alternative method for assessing flexion-extension instability in difficult cases (recommend low radiation dose protocol<sup>a</sup>)</li><li>• Can assess some soft tissue components of canal stenosis and cord compression with appropriate filtering</li><li>• Preoperative planning</li></ul>	<ul style="list-style-type: none"><li>• Suboptimal for visualizing soft tissues and the spinal cord</li><li>• Ionizing radiation</li><li>• More expensive and less accessible than plain film radiography</li></ul>
MRI	<ul style="list-style-type: none"><li>• Multiplanar imaging</li><li>• Ideal for soft tissue imaging</li><li>• Preferred method for assessing spinal cord compression and myelomalacia</li><li>• Flexion-extension imaging directly visualizes spinal cord</li><li>• Demonstrate venous collaterals</li><li>• Non-ionizing radiation</li></ul>	<ul style="list-style-type: none"><li>• Long imaging times</li><li>• May require anaesthesia</li><li>• Metal and motion artifacts</li><li>• Limited access</li><li>• Expensive</li></ul>

<sup>a</sup>Focus on area of interest only, with lowest possible dose technique to yield adequate signal-to-noise at bone algorithm displayed at bone window.

Abbreviations: CT, computed tomography; MPS, mucopolysaccharidosis; MRI, magnetic resonance imaging.

**Reference: 1.** Solanki GA, Martin KW, Theroux MC, et al. Spinal involvement in mucopolysaccharidosis IVA (Morquio-Brailsford or Morquio A syndrome): presentation, diagnosis and management. *J Inherit Metab Dis.* 2013;36(2):339-355. doi:10.1007/s10545-013-9586-2.