

Clinical/Diagnostic Problem	Investigation	Recommendation (Grade)	Dose	Comment
C01. Myelopathy	MRI	Indicated [B]	0	MRI is the best imaging modality for evaluating suspected spinal cord lesions and possible cord compression.
	CT	Specialized Investigation [B]	☢☢	CT is usually indicated only if better bony detail is required.
	CT Myelography	Specialized Investigation [C]	☢☢	CT myelography may be required if MRI is contraindicated or a diagnostic dilemma remains after CT or MRI.
C02. Suspected discitis or vertebral osteomyelitis	MRI	Indicated [B]	0	MRI is the best imaging modality for evaluating suspected discitis or osteomyelitis.
	CT	Specialized Investigation [B]	☢☢	CT is usually indicated only if better bony detail is required.
	NM	Indicated only in specific circumstances	☢☢	If MRI is contraindicated or the findings equivocal, a combined bone and gallium scintigraphy is helpful. The combination of bone and gallium scanning is more specific than MRI especially in the postoperative or post instrumentation setting. It can also be used to assess the presence of residual infection after therapy.
Cervical spine				
C03. Possible atlanto-axial instability	XR	Indicated [B]	☢	Lateral cervical spine XRs in flexion and extension are the appropriate imaging to assess possible cervical spine instability in patients with rheumatoid arthritis, Down's syndrome, etc.
	MRI	Specialized investigation [B]	0	MRI is valuable to show cord damage secondary to chronic atlanto-axial instability.
C04. Neck pain, brachialgia, degenerative change	MRI	Indicated [B]	0	Imaging is only indicated when there are neurological signs or symptoms, or if pain persists after conservative management for more than four weeks.
	CT	Indicated only in specific circumstances [B]	☢☢	CT is indicated only when MRI is contraindicated or not available.
	XR	Not Indicated [B]	☢	Degenerative changes begin to appear on XR in early middle age and are usually unrelated to the patient's symptoms.

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Thoracic Spine				
C05. Pain without trauma (For children see L17)	XR	Indicated only in specific circumstances[B]	⊕⊕	XR may be used if a compression fracture or a metastasis is suspected. However, it does not distinguish between an acute and an old fracture and it is not as sensitive as MRI for metastases.
	Nuc Med bone scan with SPECT (+/-CT)	Indicated only in specific circumstances[B]	⊕⊕	When malignancy is suspected or known, in osteoporotic patients especially to determine age of compression fractures, to aid in selection of vertebral levels for vertebroplasty, to evaluate patients in whom other investigations of the T-Spine are negative (assessment of chest wall, ribs etc).
	MRI	Indicated only in specific circumstances [B]	0	If there is clinical concern about an epidural abscess or hematoma which may be present with acute pain but no neurological symptoms, urgent MRI imaging is required. Imaging is otherwise only indicated when there are neurological signs or symptoms, or if pain persists after conservative management for more than four weeks.
	CT	Indicated only in specific circumstances [B]	⊕⊕⊕	CT is only indicated if MRI is contraindicated or unavailable, or if more bony detail is necessary.
Lumbar spine				
C06. Lower back pain (For children see L17)	MRI	Indicated in special circumstances [B]	0	If imaging is indicated, MRI is the best modality. Imaging is only indicated if there are "red flag" indications: If there is clinical concern about an epidural abscess or hematoma which may present with acute pain but no neurological symptoms, urgent imaging is required. • Suspected cancer • Suspected infection. • Cauda equina syndrome • Severe/progressive neurologic deficit • Suspected compression fracture In patients with suspected uncomplicated herniated disc or spinal stenosis imaging is only indicated after an unsuccessful 4- 6 week trial of conservative management.

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C06. Lower back pain (continued)	CT	Indicated in special circumstances [B]	☼☼	Imaging is only indicated if there are “red flag” indications: If there is clinical concern about an epidural abscess or hematoma which may present with acute pain but no neurological symptoms, urgent imaging is required. • Suspected cancer • Suspected infection. • Cauda equina syndrome • Severe/progressive neurologic deficit • Suspected compression fracture In patients with suspected uncomplicated herniated disc or spinal stenosis imaging is only indicated after an unsuccessful 4- 6 week trial of conservative management. CT is only indicated if MRI is contraindicated or unavailable. CT can provide excellent imaging. In very large patients, image noise can be a problem. The radiation dose is also a consideration.
	XR	Indicated only in specific circumstances [B]	☼	XR may be used if a compression fracture or a metastasis is suspected. However, it does not distinguish between an acute and an old fracture and it is not as sensitive as MRI for metastases.
	NM	Indicated in specific circumstances [B]	☼	When malignancy is suspected or known, in osteoporotic patients especially to determine age of compression fractures, to aid in selection of vertebral levels for vertebroplasty, or to evaluate patients in whom other investigations of the L-Spine are negative. NM can be useful to localize fractures not visible on conventional X-Ray.