College of Health and Medical Technologies
Department of Radiology Technologies
Computed Tomography

CT cervical spine
CT dorsal spine
CT lumbar spine

4 th stage

LECTUER 7

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MSc Radiographic Imaging

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CT cervical spine (protocol)

The CT cervical spine or C-spine protocol serves as an examination for the assessment of the cervical spine. It is usually performed as a non-contrast study. In certain situations, it might be combined or simultaneously acquired with a CT angiography of the cerebral arteries or a CT of the neck. It also forms a part of a poly trauma CT or might rarely be done as a CT myelogram in situations where MRI is contraindicated.


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تصوير فقرات الرقبة

Indications

-cervical spine injury (cervical spine fractures)

- cervical spine implants and complications if MRI is contraindicated

-spinal tumors and/or vertebral metastasis

-congenital anomalies

-inflammatory arthritis or spondylodiscitis

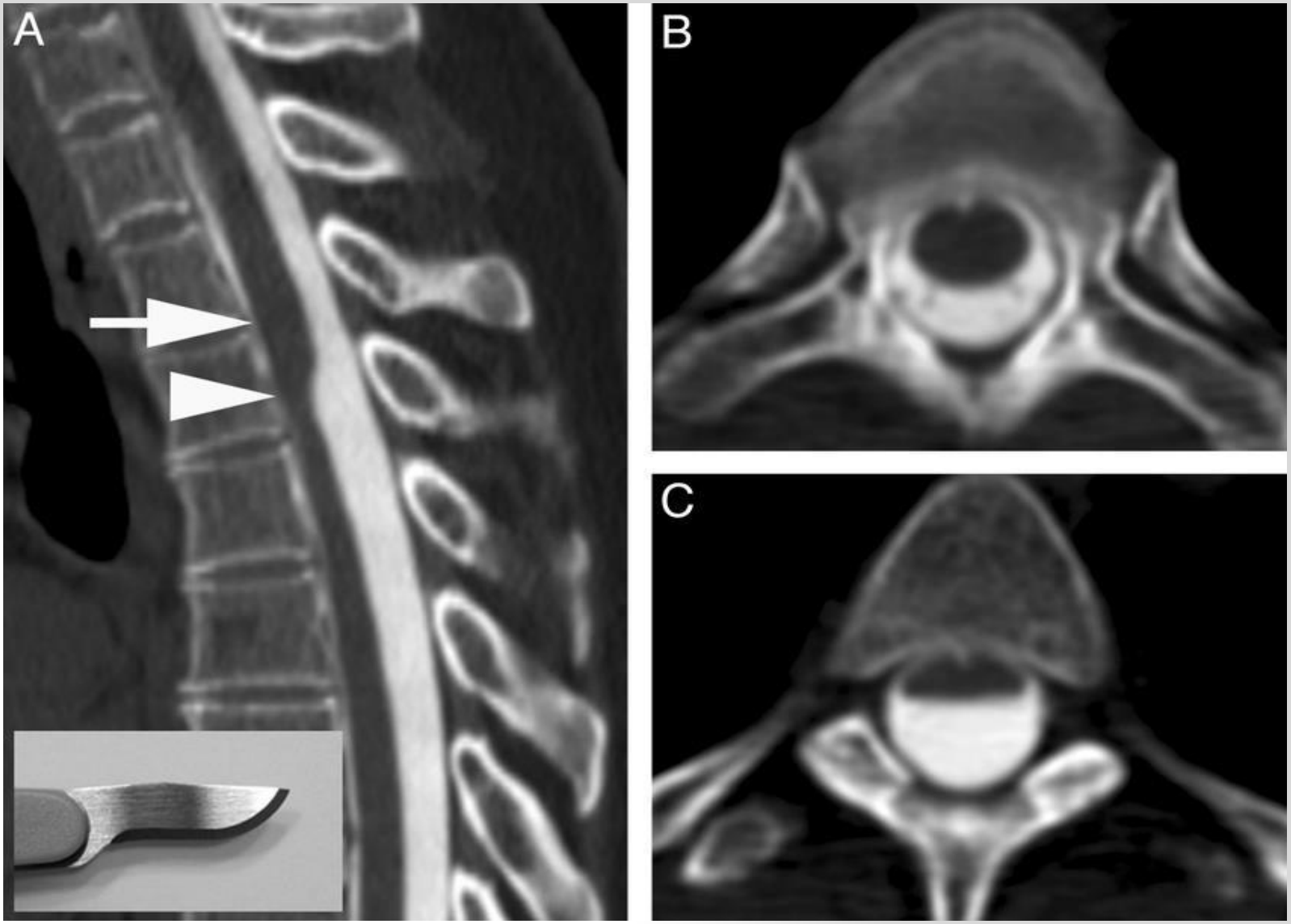
-degenerative disk disease

-image guidance (e.g. cervical spinal epidural injections)

CT myelography

-if MRI is contraindicated or metallic implants prevent sufficient image quality

-spinal cord compression


A
B
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Technique

patient position

supine position

both arms next to the body, shoulders pulled down

tube voltage

≤120 kVp

tube current

as suggested by the automated current adjustment mode

scout

from above the temporal bone to the manubrium sterni

scan extent

should include the base of the skull and the first thoracic vertebra

scan direction

craniocaudal

scan geometry

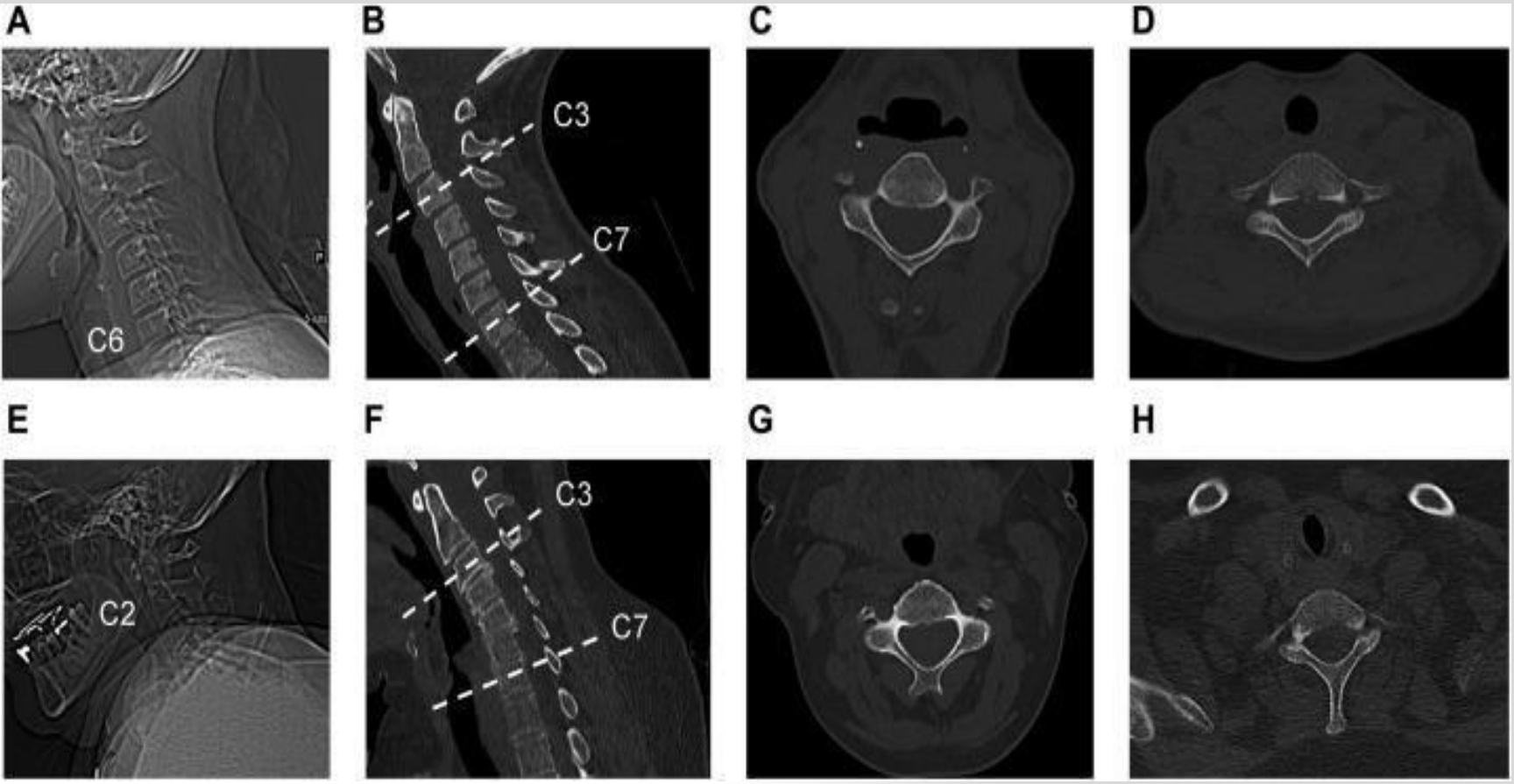
field of view (FOV): 120-200 mm (should be adjusted to increase in-plane resolution)

slice thickness: ≤1 mm

reconstruction algorithm: bone, soft tissue

multiplanar reconstructions/reformats

sagittal images, coronal images &axial images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C7
C2

CT dorsal spine (protocol)

The CT dorasal spine or D-spine protocol serves as an examination for the assessment of the dorasal spine. As a separate examination, it is most often performed as a non-contrast study. It might be combined or simultaneously acquired with a CT chest. It also forms a part of a polytrauma CT or might rarely be done as a CT myelogram in situations where MRI is contraindicated.

Indications

-dorasal spine fractures

-dorasal spine implants and complications if MRI contraindicated

-spinal tumors and/or vertebral metastasis

-spondylodiscitis or inflammatory arthritis

-degenerative disk disease

-spondylolisthesis/spondylolysis

-dorasal spine interventions (e.g. dorasal spinal epidural injections)

CT myelography

(if MRI is contraindicated or metallic implants are present)

-cauda equina syndrome

الفقرات الصدرية

Technique

patient position

supine position

both arms elevated

tube voltage

120 (140) kVp

tube current

as suggested by the automated current adjustment mode

Scout

AP and lateral

scan extent

Start location: Just above T1

End location: Just below T12

might vary with regard to the clinical question should include all thoracic spine vertebrae, unless a level is specified

scan direction: craniocaudal

scan geometry

field of view (FOV): 120-200 mm

slice thickness: ≤0.6 mm

reconstruction algorithm: bone, soft tissue

contrast injection considerations

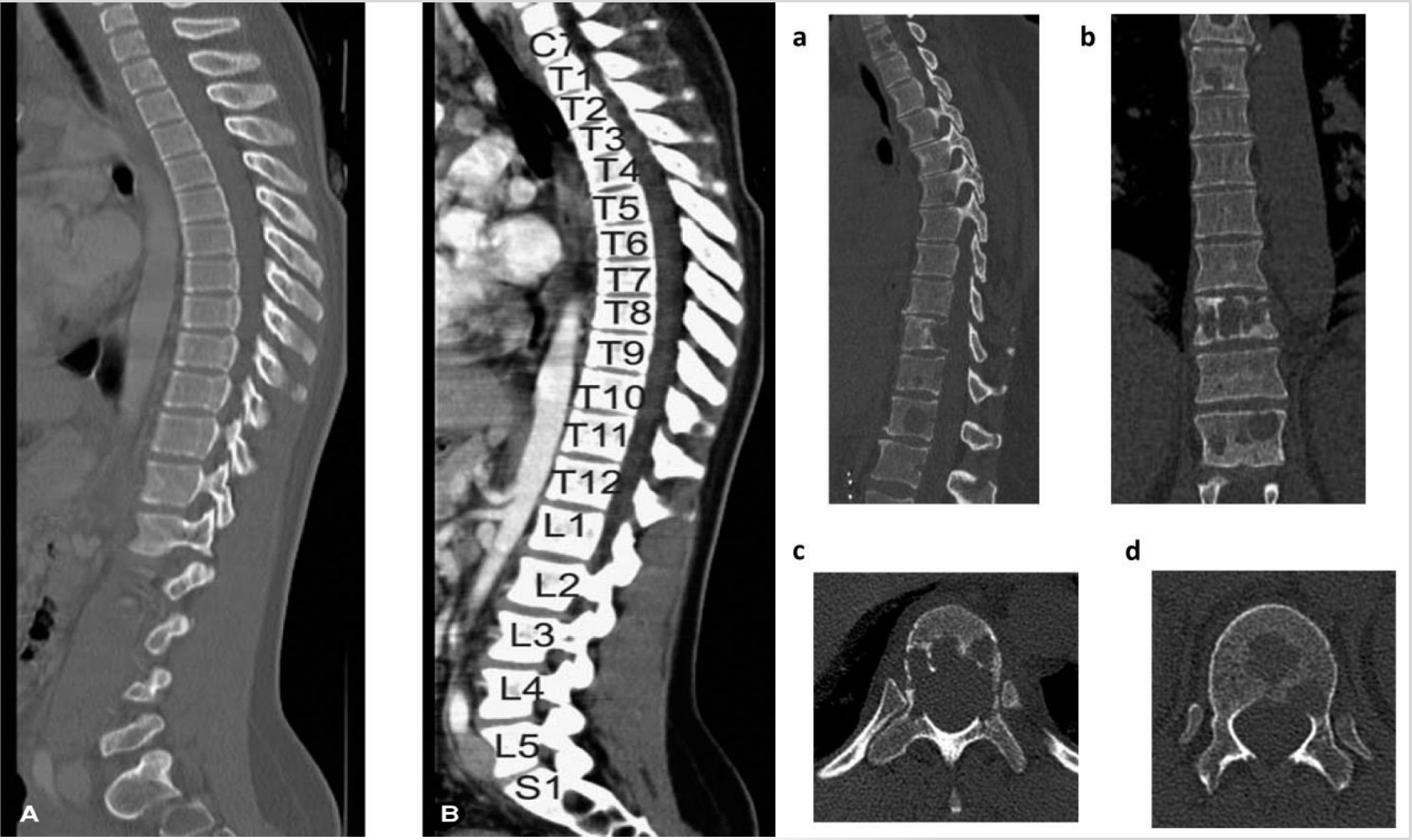
usually non-contrast, optionally with contrast

contrast volume: 85-100ml (0.1 mL/kg) at 2-3 mL/s

scan delay: 60-80 seconds

multiplanar reconstructions/reformats

sagittal images, coronal images &axial images


A
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T6
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T12
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L2
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L4
L5
S1
B
a
b
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d

CT lumbar spine (protocol)

The CT lumbar spine or L-spine protocol serves as an examination for the assessment of the lumbar spine. As a separate examination, it is most often performed as a non-contrast study. It might be combined or simultaneously acquired with a CT abdomen. It also forms a part of a polytrauma CT or might rarely be done as a CT myelogram in situations where MRI is contraindicated.

Indications

-lumbar spine fractures

-lumbar spine implants and complications if MRI is contraindicated

-spinal tumors and/or vertebral metastasis

-spondylodiscitis or inflammatory arthritis

-degenerative disk disease

-spondylolisthesis/spondylolysis

-lumbar spine interventions (e.g. lumbar spinal epidural injections)

CT myelography

(if MRI is contraindicated or metallic implants are present)

-cauda equina syndrome

الفقرات القطنية

Technique

Patient position

supine position both arms elevated

tube voltage

120 (140) kVp

tube current

as suggested by the automated current adjustment mode

scout

diaphragm to hip

scan extent

might vary with regard to the clinical question

should include T12 and S1

scan direction: craniocaudal

scan geometry

field of view (FOV): 120-200 mm slice thickness:

≤0.6 mm

reconstruction algorithm: bone, soft tissue

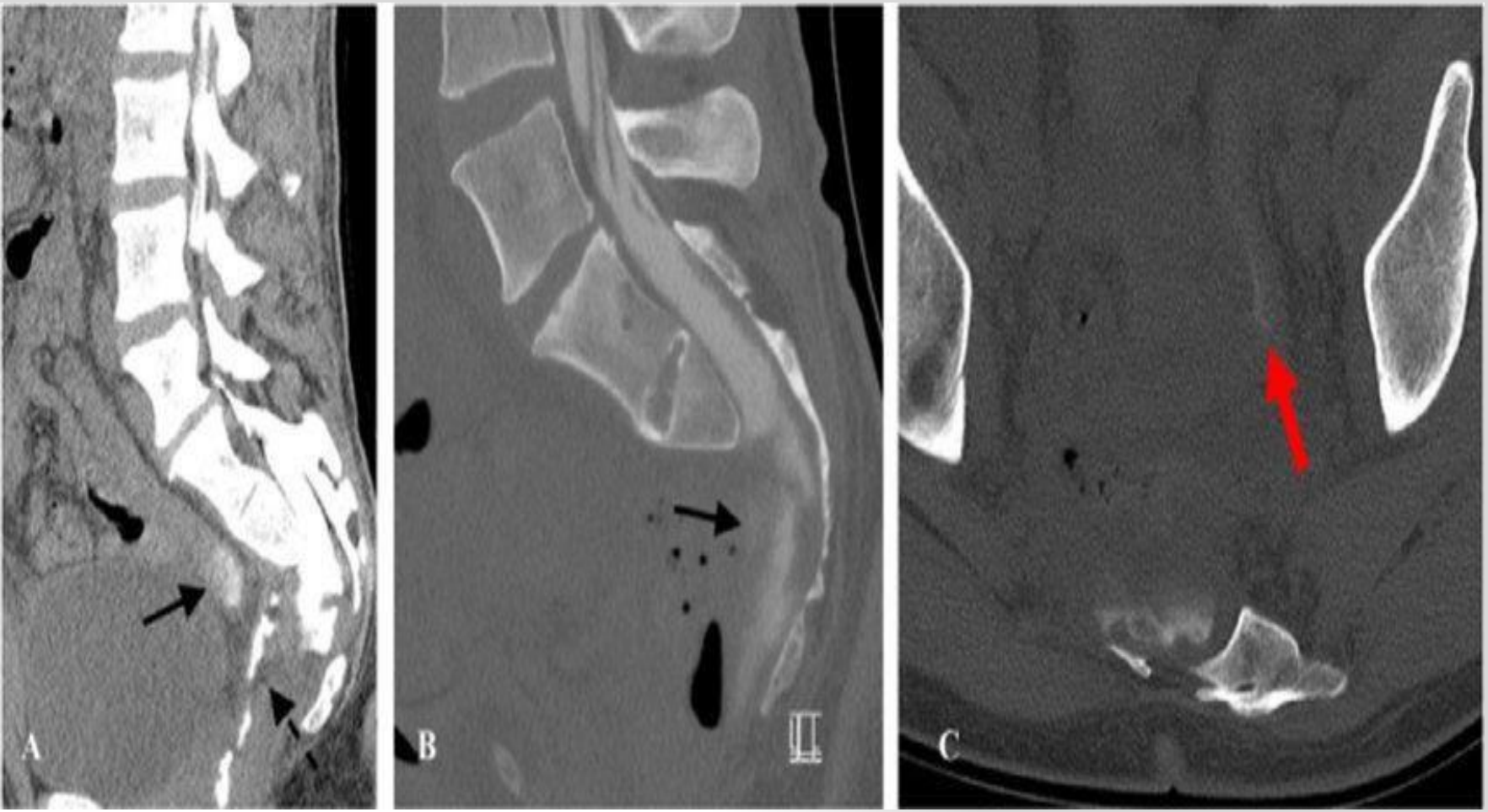
contrast injection considerations

usually non-contrast, optionally with contrast contrast volume:

70-100ml (0.1 mL/kg) at 2-3 mL/s scan delay: 65-80 seconds

multiplanar reconstructions/reformats

sagittal images, coronal images &axial images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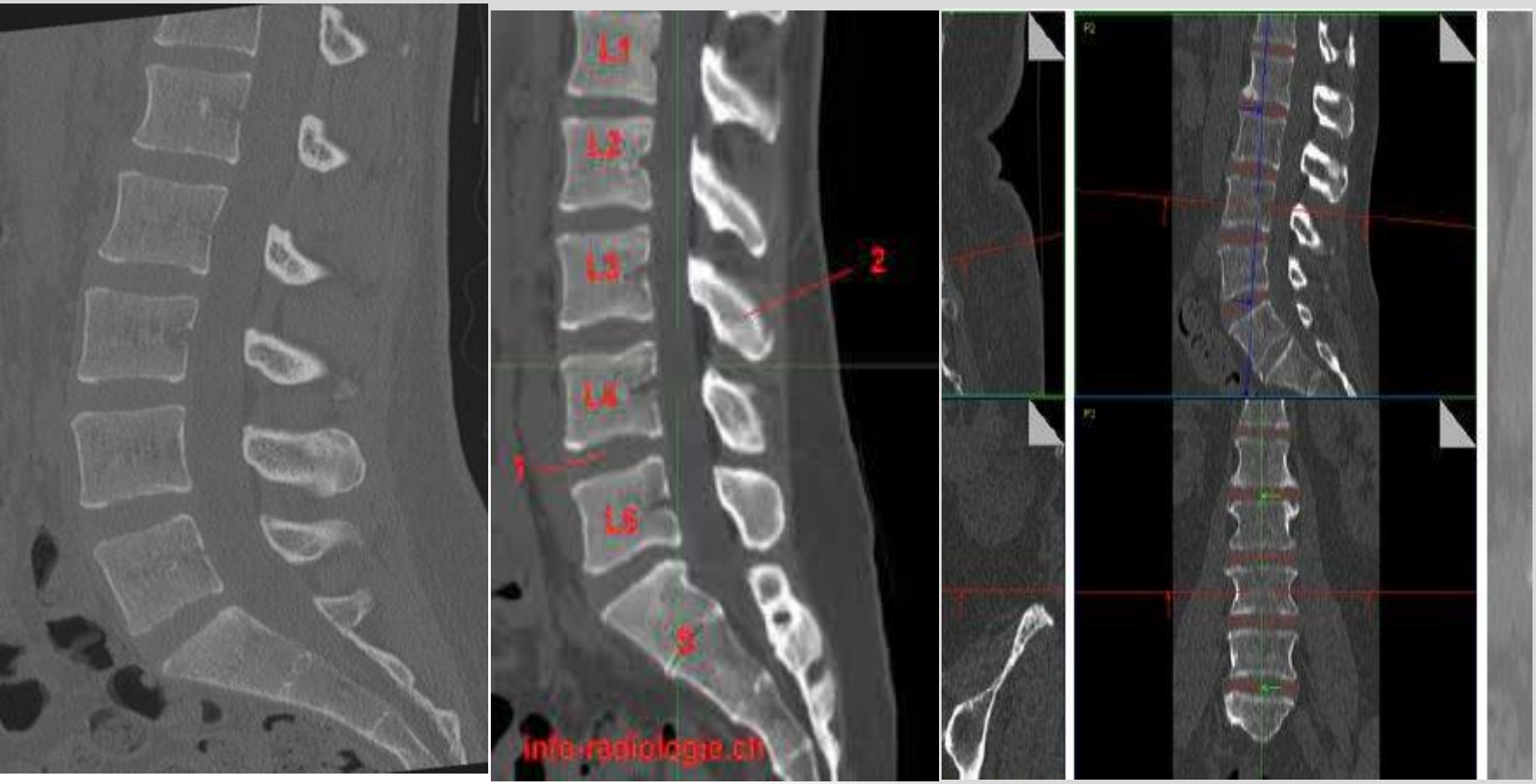
L1
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THANK YOU