

Top 5 tips: Chronic non-bacterial osteitis

Arthritis Subcommittee



ESSR EUROPEAN SOCIETY OF
MUSCULOSKELETAL
RADIOLOGY

Chronic non-bacterial osteitis (CNO)

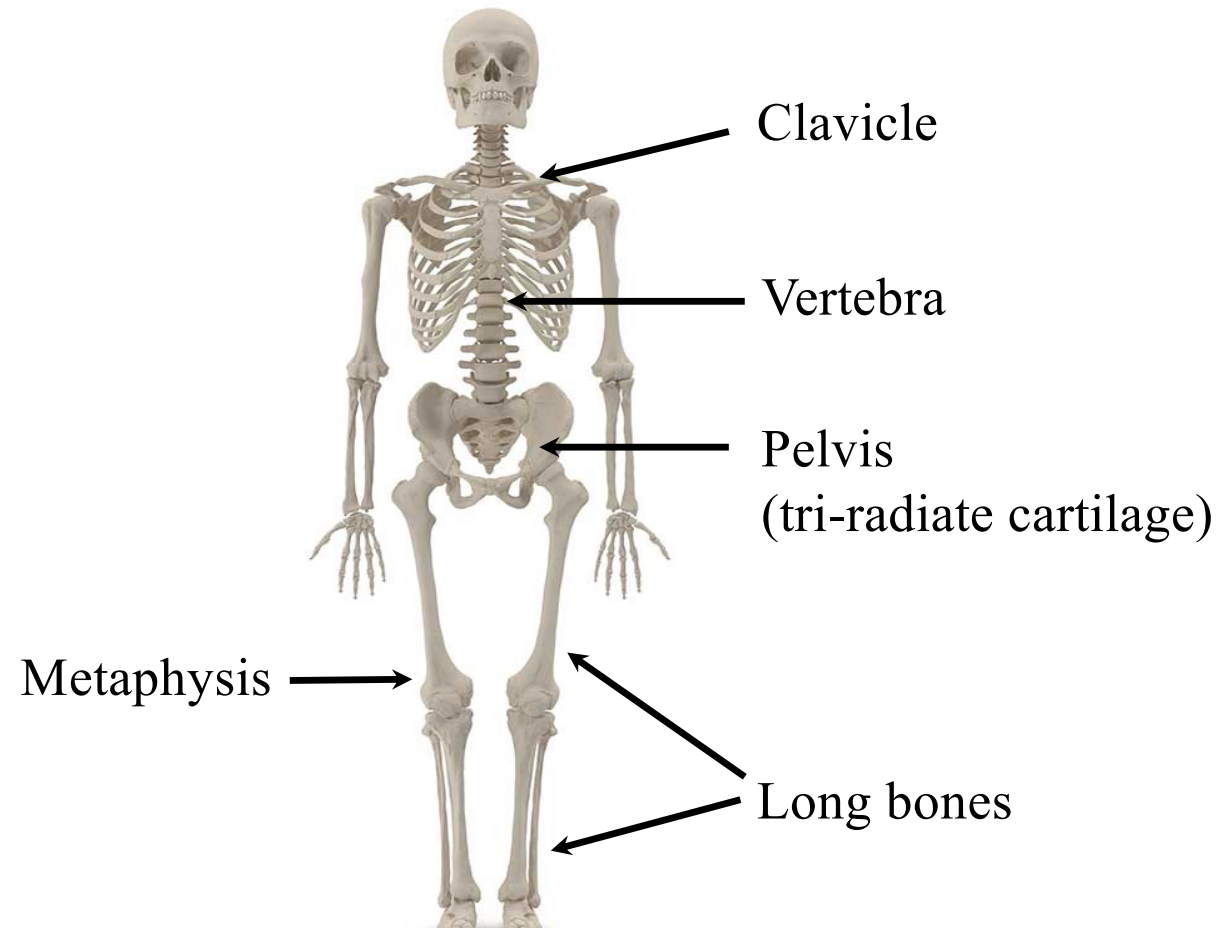
- CNO is an autoinflammatory disease characterized by recurrent flares of bone pain related to inflammatory osseous involvement in children and adolescents.
- During the years, CNO has been described under several names with CRMO (chronic recurrent multifocal osteomyelitis) being the most frequent term.

Tip#1: Clinical features

Clinical presentation range

- Mild-severe
- Bone involvement
 - Unifocal
 - Multifocal
- Characteristic target sites
- Fluctuating exacerbations & remissions
- Sometimes concomitant skin disease

Typical bone involvement



Tip#2: Imaging features

Acute/chronic inflammation:

- Bone marrow edema
- Soft tissue edema
- Reduced vertebral height

May simulate infection/tumor

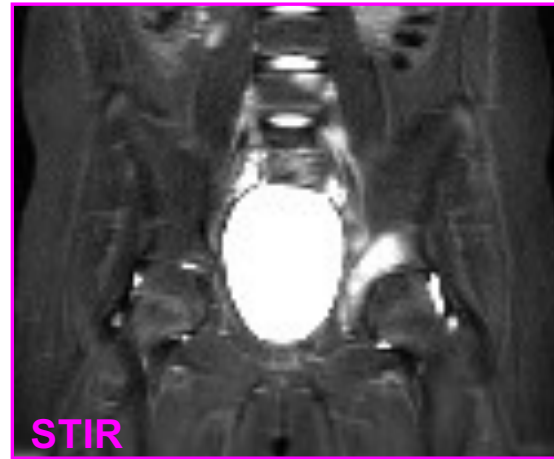
No abscess, fistula or sequester.

Bone biopsy often warranted

Vertebral
involvement



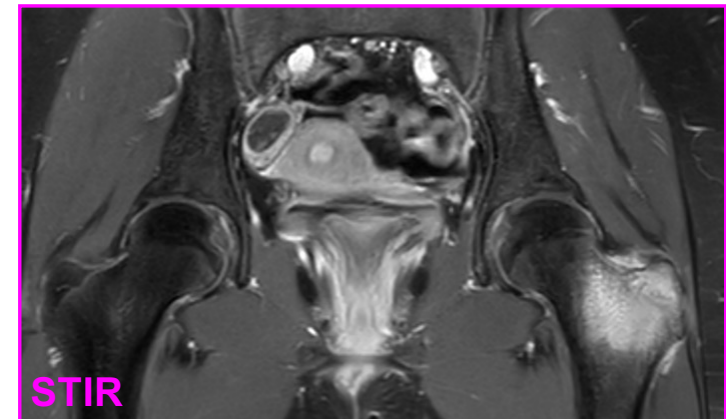
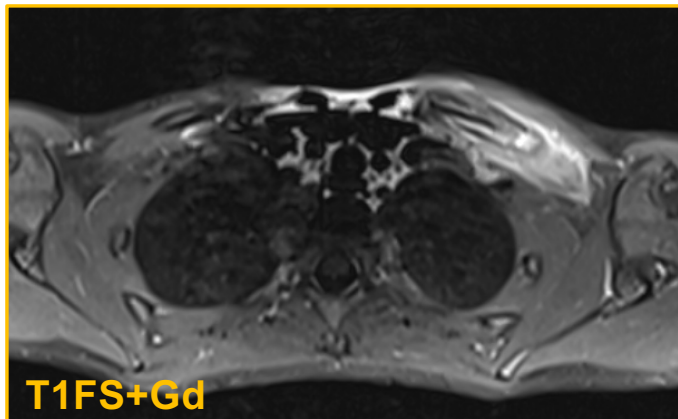
Tri-radiate cartilage
involvement



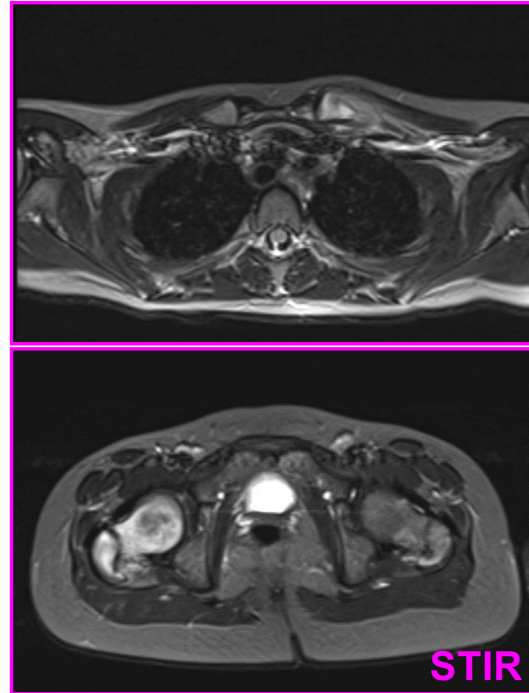
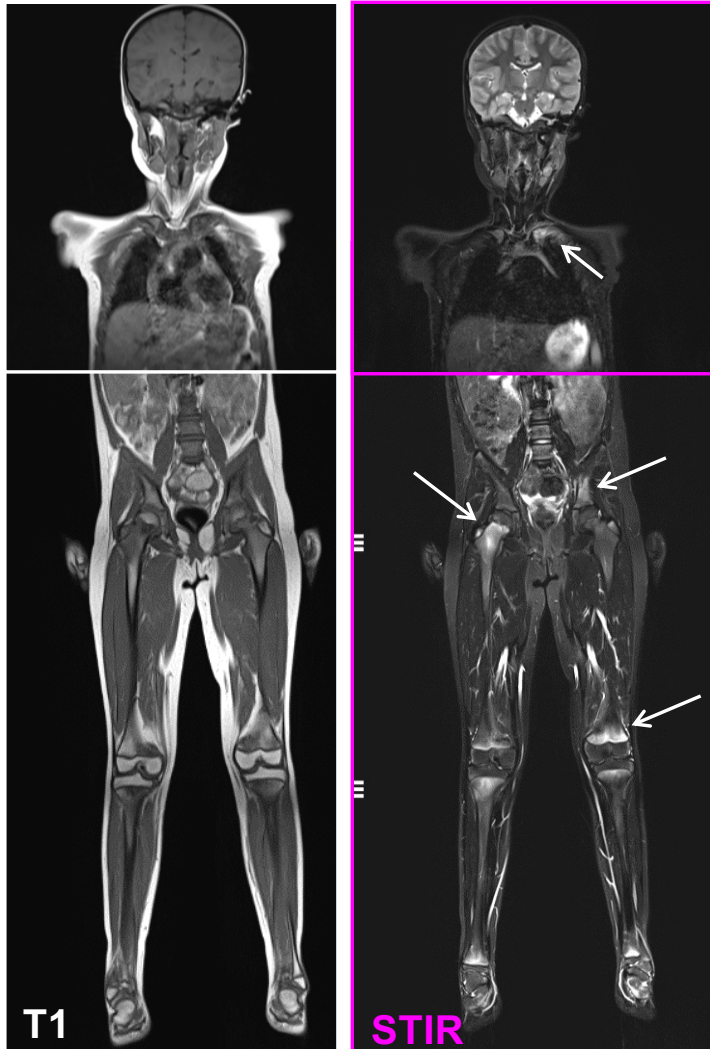
Metaphyseal
involvement



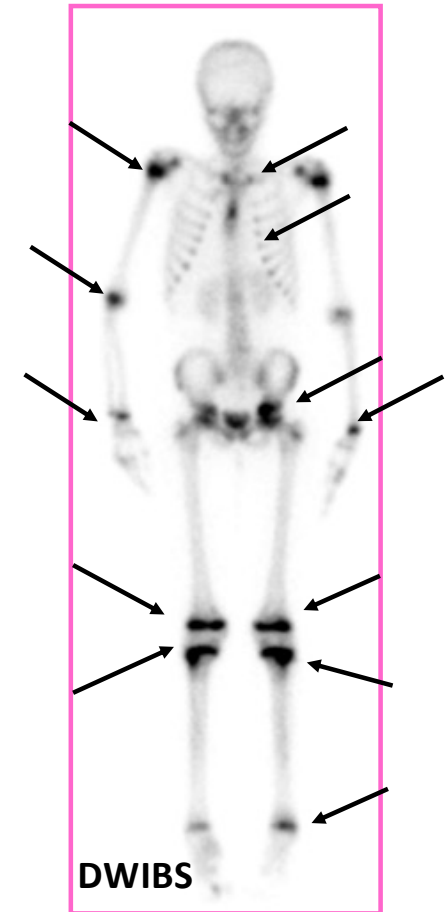
Bone & soft tissue involvement



Tip#3: WBMRI



- Coronal STIR & T1 + optionally DWIBS
- Evaluation of disease burden
- Visualization of clinical active & silent lesions
- Improvement of diagnostic confidence with additional planes.



Tip#4: Imaging spinal lesions

- Whole spine imaging is recommended
- Sagittal T1 and STIR
- Active vertebral lesions with bone marrow edema (white arrows)
- Chronic lesions: sclerotic vertebra with low signal on T1 and STIR) (orange arrow)
- Reduced vertebral height (orange arrow)



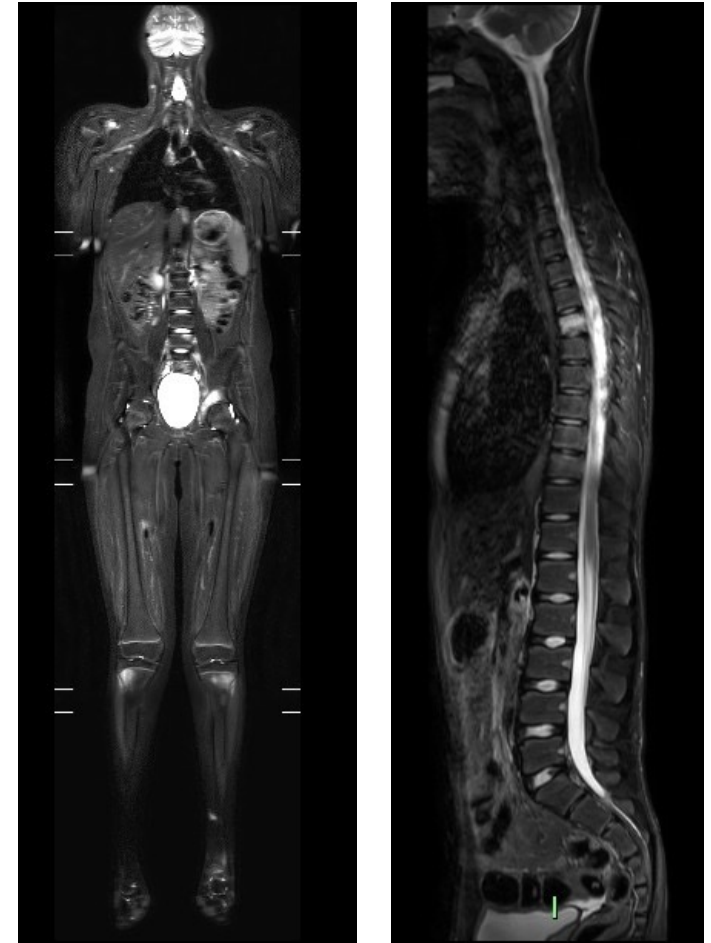
Tip#5: Treatment and follow-up

Treatment:

- Biological agents
- Bisphosphonate

WBMRI, including sagittal imaging of the spine, for the evaluation of :

- Disease evolution
- Therapeutic response
- Clinically silent lesions
- Complications (e.g., growth disturbances and kyphosis)



References

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- Lenert A, Ferguson PJ. Comparing children and adults with chronic nonbacterial osteomyelitis. *Current Opinion in Rheumatology* 2020, 32:421–426.
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