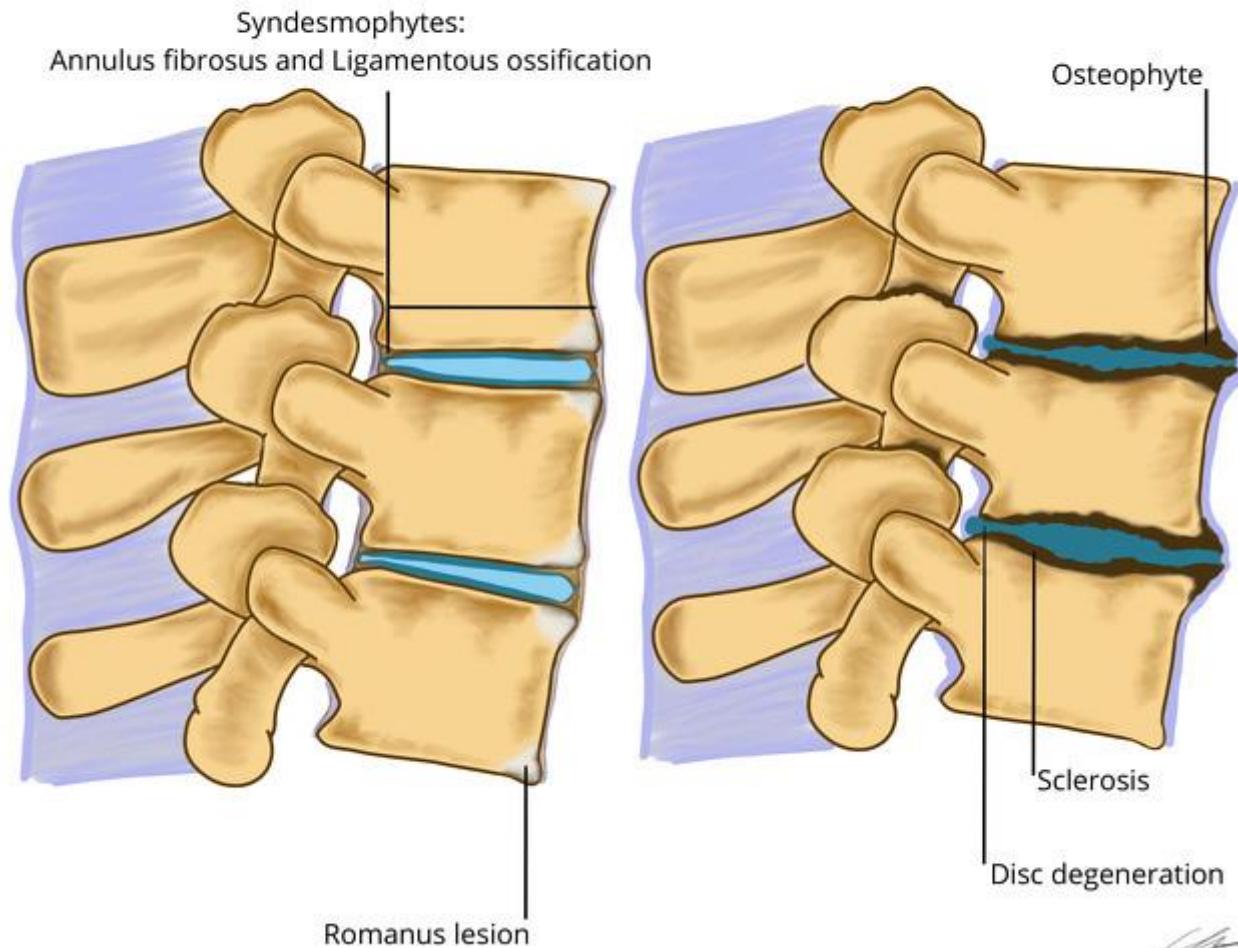


# Syndesmophytes

- Calcifications or heterotopic ossifications inside a spinal ligament or of the annulus fibrosus.
- They are seen in only a limited number of conditions including:
  - Ankylosing spondylitis
  - Ochronosis
  - fluorosis
  - Reactive arthritis
  - Psoriatic arthritis
- Classified
  - **Marginal** (along the margins of the vertebral bodies)
  - **Non-marginal** (larger and bulky away from the vertebral bodies)
  - **Ankylosing spondylitis** classically displays symmetrical marginal syndesmophytes

# Syndesmophyte v Osteophyte

## Lumbar spine illustration



### Syndesmophytes



Annulus fibrosus  
ossification  
Symmetric



Ankylosing  
spondylitis

### Parasyndesmophytes

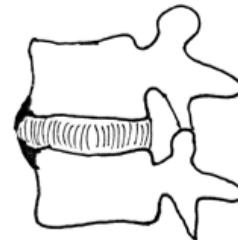


Para-vertebral  
connective tissue  
Assymmetric



Reactive Arthritis  
Psoriatic Arthritis

### Claw osteophytes

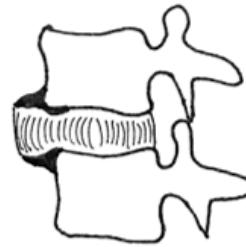


No gap  
Associated with  
response to tension



Degenerative  
“Stress”

### Traction spurs

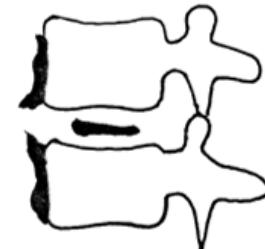


With gap  
Associated with  
shear tension



Degenerative

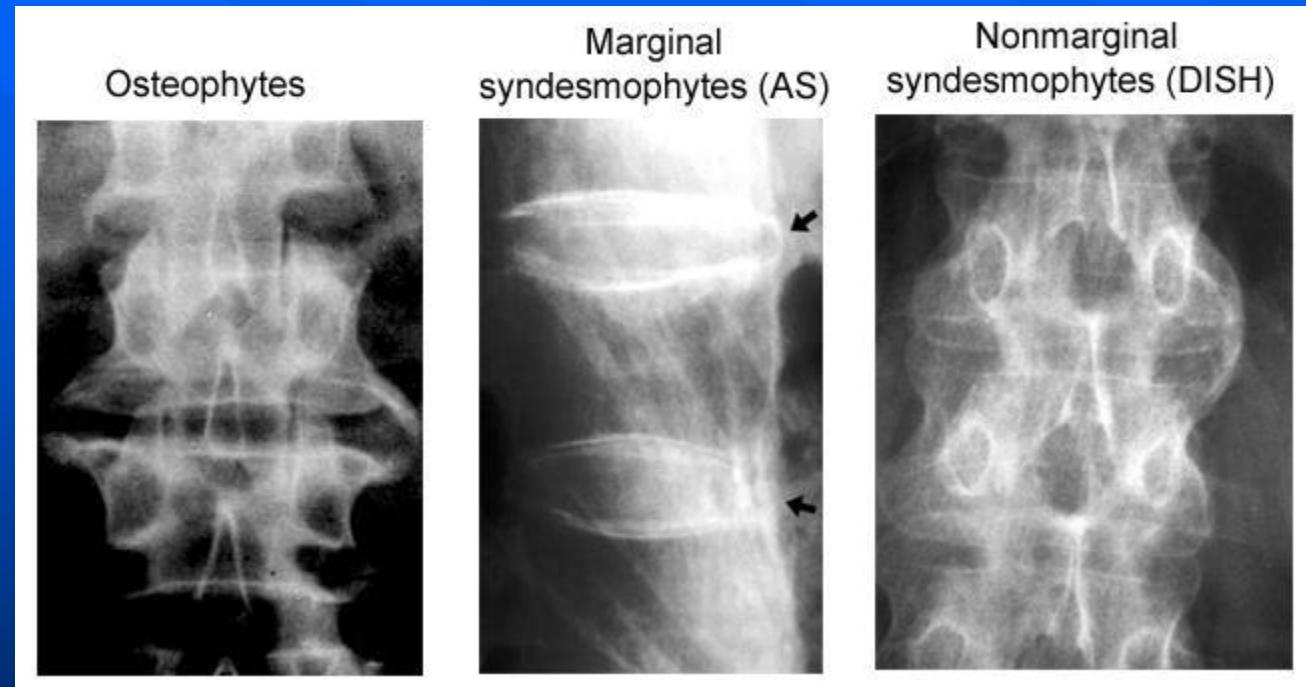
### Flowing anterior ossification



Anterior longitudinal  
ligament, diskus and  
connective tissue

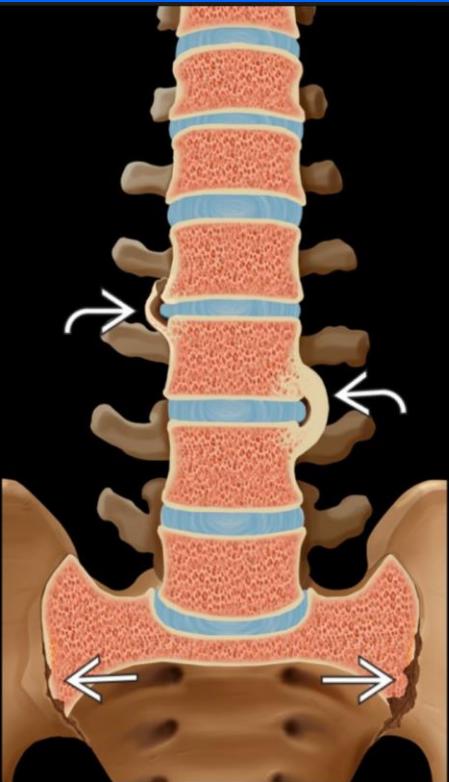


DISH



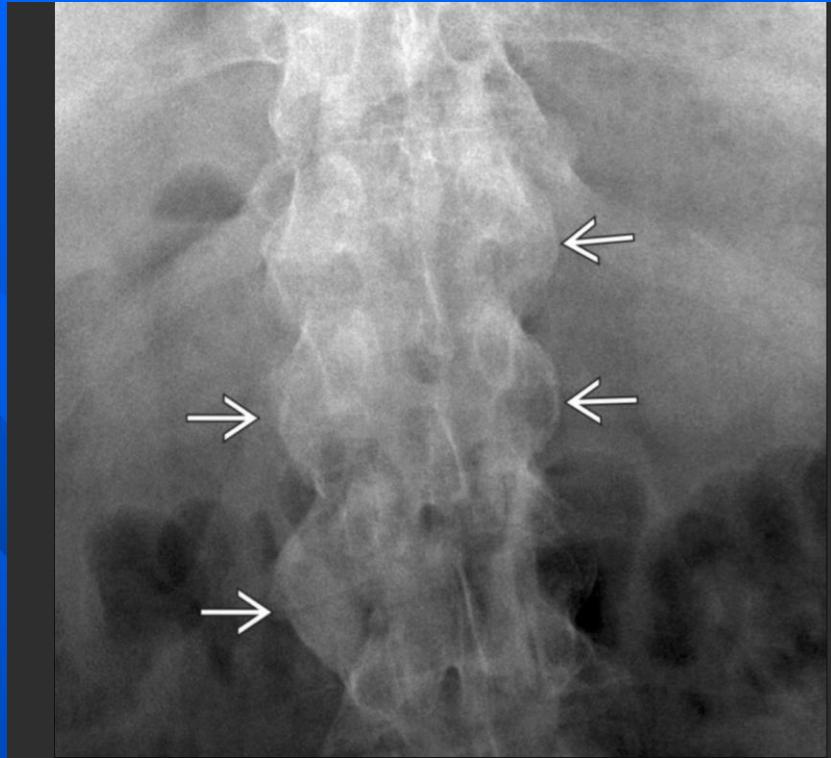
## Longitudinal Ligament Ossification – Comparison

	Ankylosing Spondylitis	DISH RGP I	OPLL
Ligament involved	Both anterior and posterior longitudinal ligaments	Anterior longitudinal ligament	Posterior longitudinal ligament
Shape	Thin calcifications contiguous with syndesmophytes, <u>“bamboo spine”</u>	Prominent <u>“flowing”</u> anterior osteophytes <u>involving &gt;4 levels</u>	Thin or thick linear sheet of ossification
Location	Diffuse	Most common in lower thoracic spine (T7-T11)	Most common in cervical or upper thoracic spine
Associated degenerative changes?	Often yes- inflammatory	<u>Not significant</u>	Often yes- associated with disc degeneration
			



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Coronal cut graphic of the lumbosacral spine depicts the axial abnormalities commonly found in chronic reactive arthritis (CRA). There is bilateral though asymmetric sacroilitis →. There is also bulky paravertebral ossification bridging the vertebral bodies → that is commonly asymmetric and non-marginal.



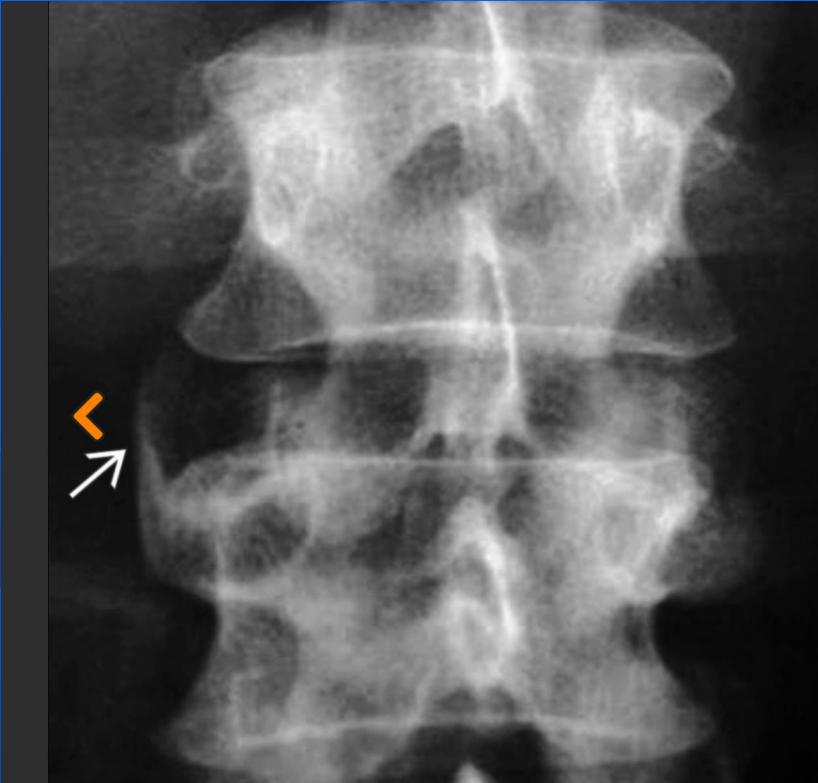
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AP radiograph in a 48-year-old man with CRA shows advanced bulky and somewhat asymmetric paravertebral ossification →, typical of this disease process.



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Lateral radiograph in a patient with CRA shows bridging syndesmophytes → at 2 levels of the cervical spine. The patient had more advanced and bulky syndesmophytes involving the thoracolumbar spine (not shown). Normal bone density is more typical of CRA or psoriatic arthritis (PsA).



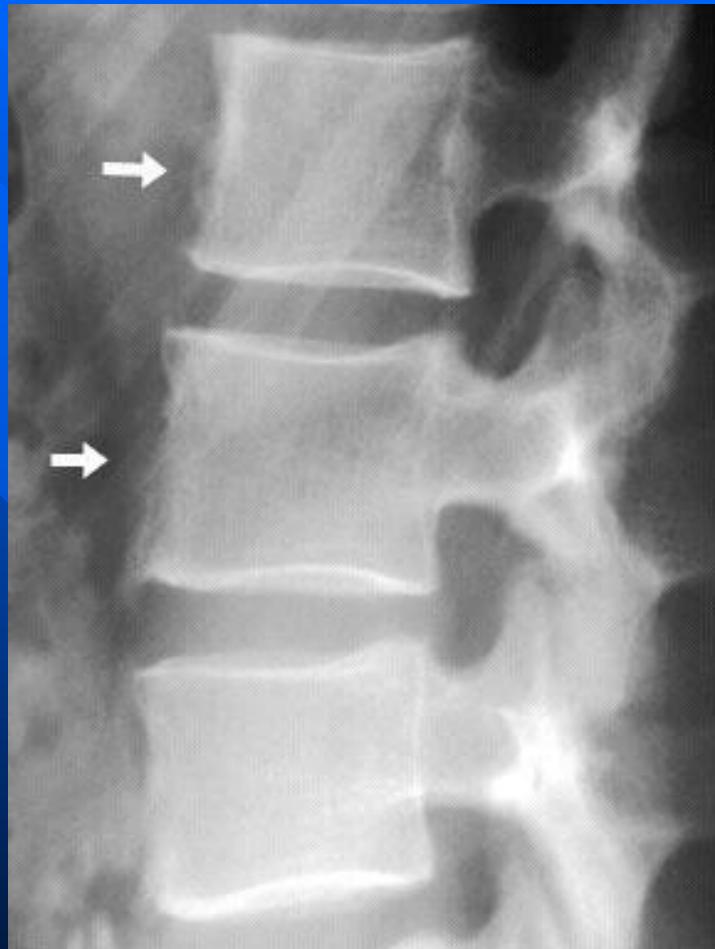
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AP radiograph shows early paravertebral ossification in a patient with CRA →. Note that it arises from the vertebral body some distance from the endplate and extends toward the vertebral body above. This is the nonmarginal pattern of CRA and PsA.

# Psoriatic arthritis



# Reiter's syndrome



Bony proliferation (arrows)