

Skeletally immature patient with left hand pain after a fall

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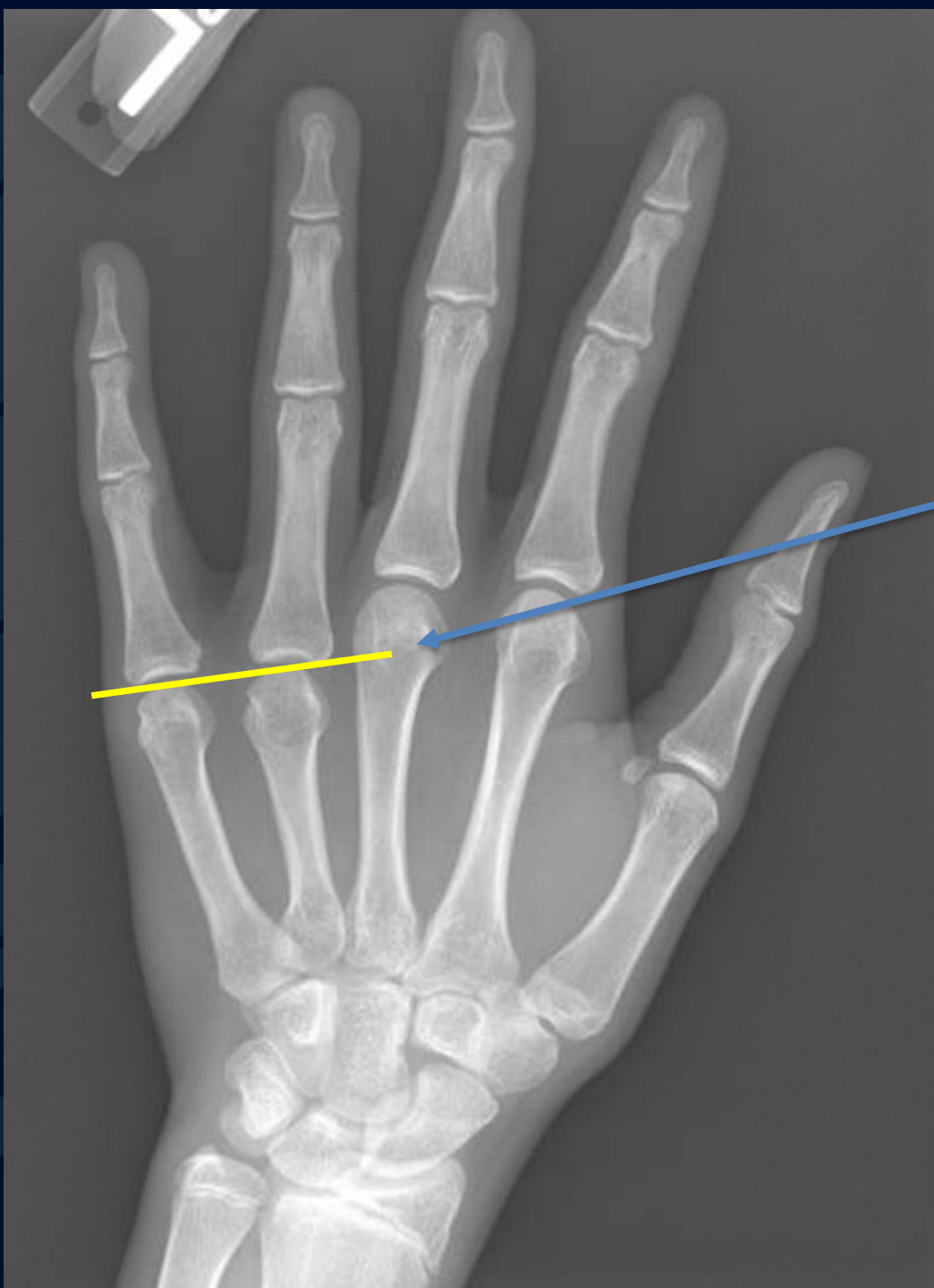
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HEALTH

RADIOLOGY

A large, stylized oak leaf graphic in a dark blue color, positioned on the left side of the slide. It features detailed vein patterns and a lobed edge.

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Idiopathic short 4th and 5th metacarpals



Positive metacarpal sign:
yellow line tangent to the
heads of the 4th and 5th
metacarpals intercepts
the third metacarpal



Oblique view demonstrates shortened 4th and 5th metacarpals with no evidence of fracture.

Short 4th and 5th metacarpals

- Radiographic imaging features:
 - Line drawn across heads of 4th and 5th metacarpals, should not intersect the 3rd metacarpal. If it does, this indicates that the 4th metacarpal is shortened.
 - Metacarpal sign may be positive in up to 10% of normal individuals
- 4th and 5th metacarpals can be shortened in many conditions.
- Idiopathic is most common
- Differential includes infection, trauma (premature growth plate closure), pseudohypoparathyroidism, Turner Syndrome, and Albert's hereditary osteodystrophy

References

- Jameson, J L. *Hormone Resistance Syndromes*. N.J., 1999.
- Rajagopal G, Mukka A, et al. Archibald's metacarpal sign. *Journal of Clinical and Scientific Research*. 2:114-115. 2013. DOI: 10.15380/2277-5706.JCSR.12.061
- Slater S. An Evaluation of the Metacarpal Sign (Short Fourth Metacarpal). *Pediatrics*. 46 (3): 468-471, 1970
- Weissleder R, Wittenberg J, et al. *Primer of diagnostic imaging*. Mosby, 2003.