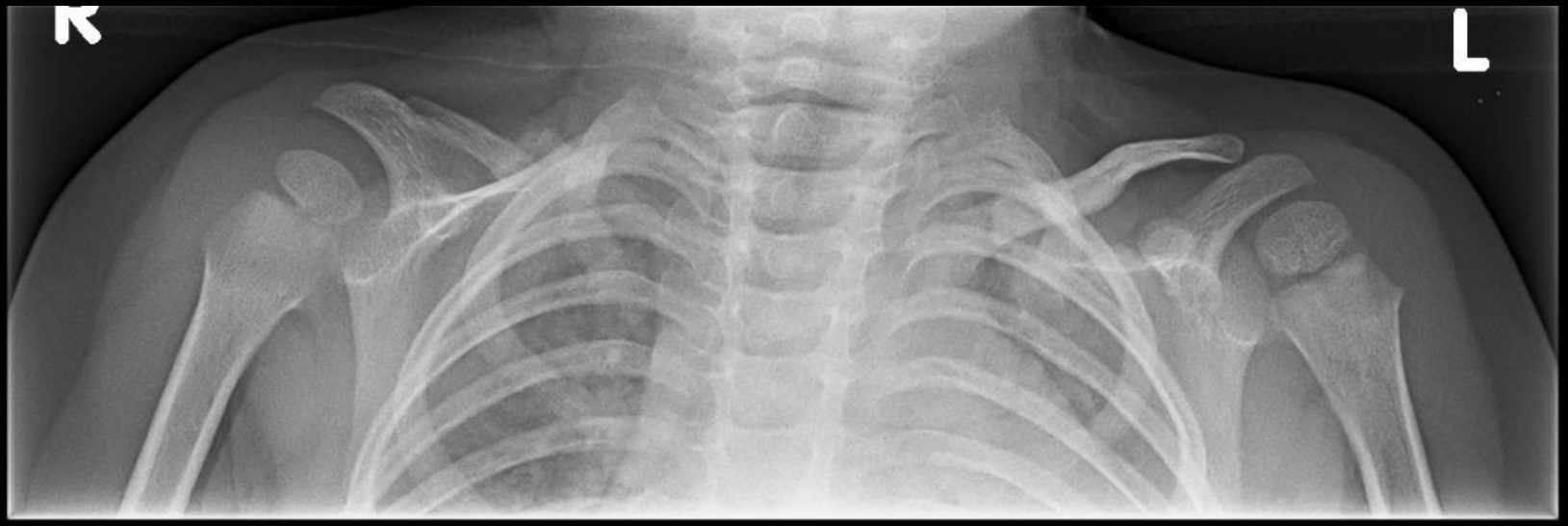
Newborn with history withheld

Paul Jabour

2.24.17

- Fracture of the mid clavicle

2 years later




Compression 20:1
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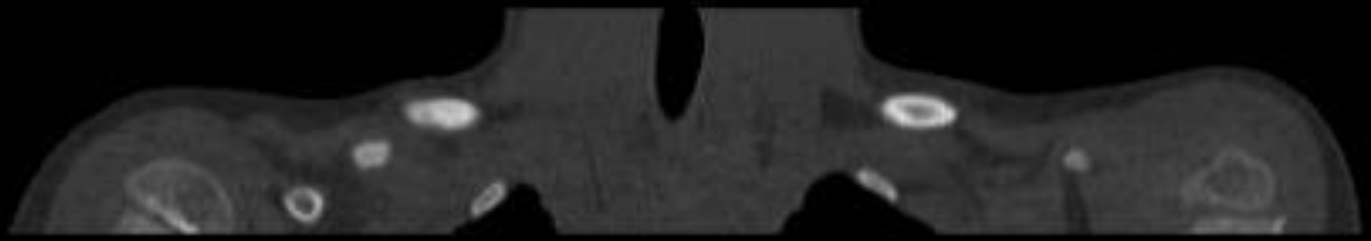
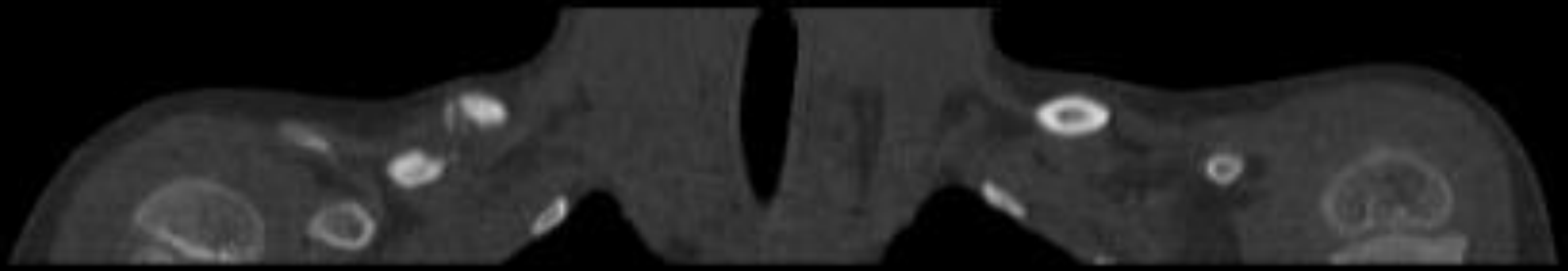
Lossy Compression 14:1

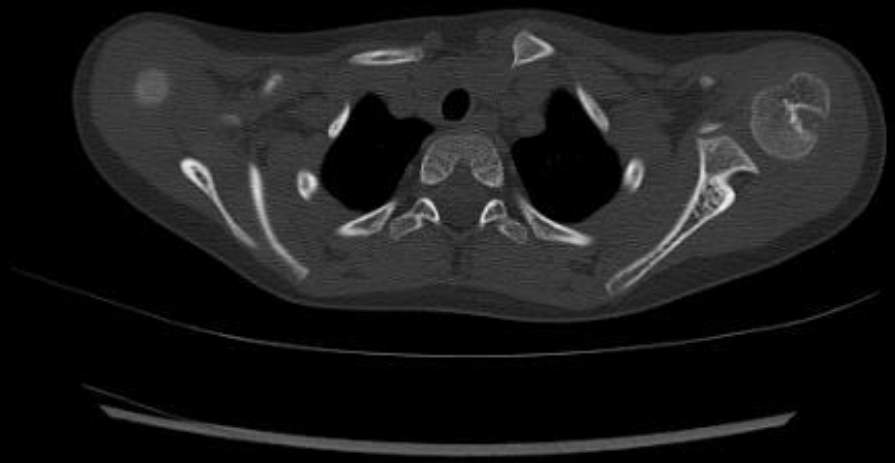


Lossy Compression 14:1




Lossy Compression 0.1

Lossy Compression 6:1



Pseudarthrosis of the right clavicle

- Epiphysis and physis of the distal aspect of the medial moiety
- Suggestion of tiny calcification center at medial aspect of distal moiety likely representing an additional epiphysis/physis
- Epiphyses on both sides of pseudarthrosis

- Pseudo-arthrosis
- Greek
- Pseudo = false
- Arthrosis = joint

A **pseudoarthrosis** has a differential diagnosis which includes:

- fracture non-union
- failed bone graft
- neurofibromatosis type 1 (NF1)
- Ehlers-Danlos syndrome
- osteogenesis imperfecta
- fibrous dysplasia
- congenital pseudoarthrosis
- ochronosis (alkaptonuria)
- ankylosing spondylitis (post-trauma)
- DISH (post-trauma)

https://radiopaedia.org/articles/pseudoarthrosis-differenital

Clavicle Fractures

- Allman classification
  - Group 1: Middle 1/3 (80%)
  - Group 2: Distal 1/3 (15%)
  - Group 3: Medial 1/3 (5%)

Clavicle Fractures

- Common, accounting for 5% of all fractures
- 50% occur in children under age of 10
- Majority heal without difficulty
- Nonunion is rare (1-4% of cases)
  - more likely to occur with unstable distal clavicle or poorly immobilized fracture
- Posttraumatic osteoarthritis is common in type III distal clavicle fractures

Congenital clavicle pseudarthrosis

- Clavicular fracture from birth trauma
  - reported frequency of 15 per 1000 live births.
  - association with brachial plexus injuries is also well-known

Congenital clavicle pseudarthrosis

- First reported by Fitzwilliams in 1910
- frequency is not well documented in the literature.
- right-sided involvement;
  - One review of 33 patients found 100% involvement
  - female predominance (70%) was also observed but not well confirmed
- Possible genetic transmission of the condition has also been suggested with a postulated autosomal dominant trait
  - nine cases in a single family

http://www.hkmj.org/system/files/hkm1306p265.pdf

Embryology

- first bone to become ossified
- latest to attain full maturation (in the early 20s).

- 2 primary ossification medial and lateral centers
  - 5^{th} and 6th gestational weeks
  - fuse during fetal development;

- extrinsic pressure exerted on the budding clavicle by the adjacent pulsatile subclavian artery
- right subclavian artery is generally located at a higher level

Radiographic Findings

- both ends show bony hypertrophy with well defined corticated borders
- the sternal half typically lies above and anterior to the acromial half
- lack of callus formation and uneventful delivery

- rare yet important differential diagnosis would be cleidocranial dysplasia
- hypoplasia/aplasia of the lateral clavicular ends, retarded cranial ossification
- supernumerary teeth, and short stature.
- dissimilar location (lateral involvement), tapering of both bone ends,

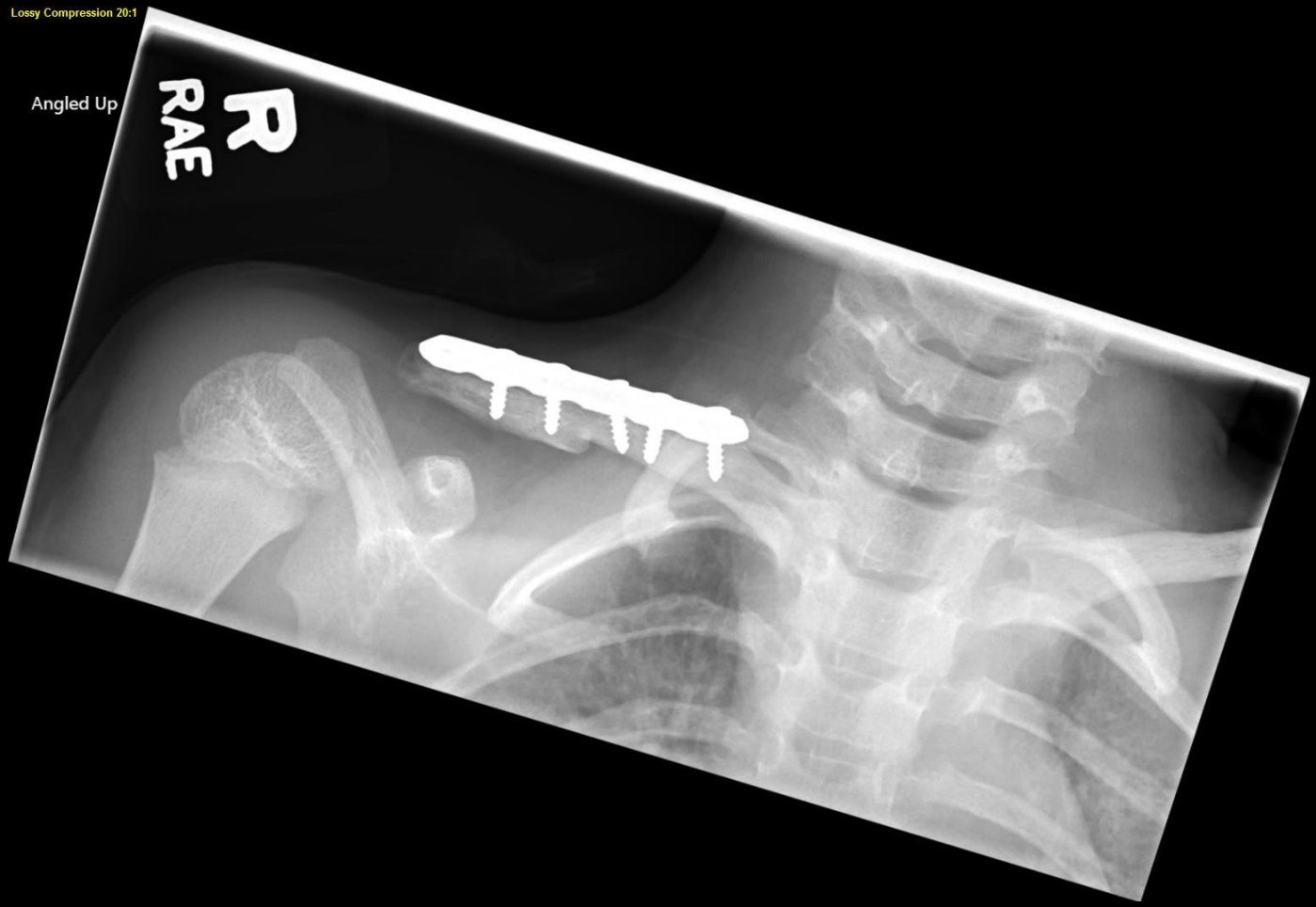
http://caseconnector.jbjs.org/content/2/4/e77

http://eorif.com/congenital-pseudoarthrosis-clavicle


Lossy Compression 20:1
R
RAE

Lossy Compression 20:1

Angled Up



Take Home Points

- Think of congenital pseudarthrosis if correct location, appearance and unremarkable birth history

References

- Clavicle Fracture Stat Dx: https://my.statdx.com/document/clavicle-fracture/c092ed81-9af2-4c55-b478-ee9544ad9ec6?searchTerm=Clavicle%20Fracture
- Bilateral Congenital Pseudarthrosis of the clavicle: http://www.actaorthopaedica.be/acta/download/1999-3/10546362.pdf
- Congental pseudarthrosis of the clavicle: a rare and challenging diagnosis; http://www.hkmj.org/system/files/hkm1306p265.pdf