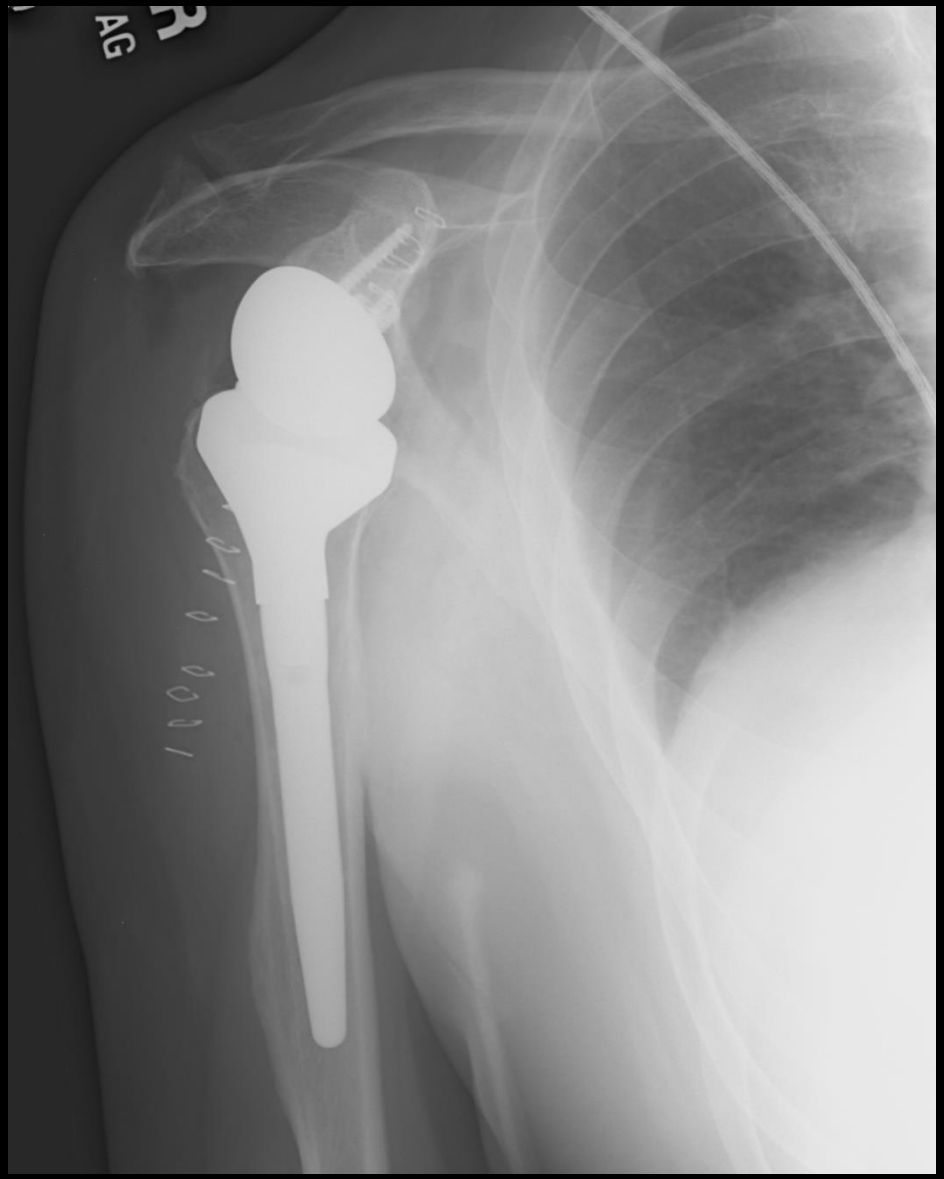
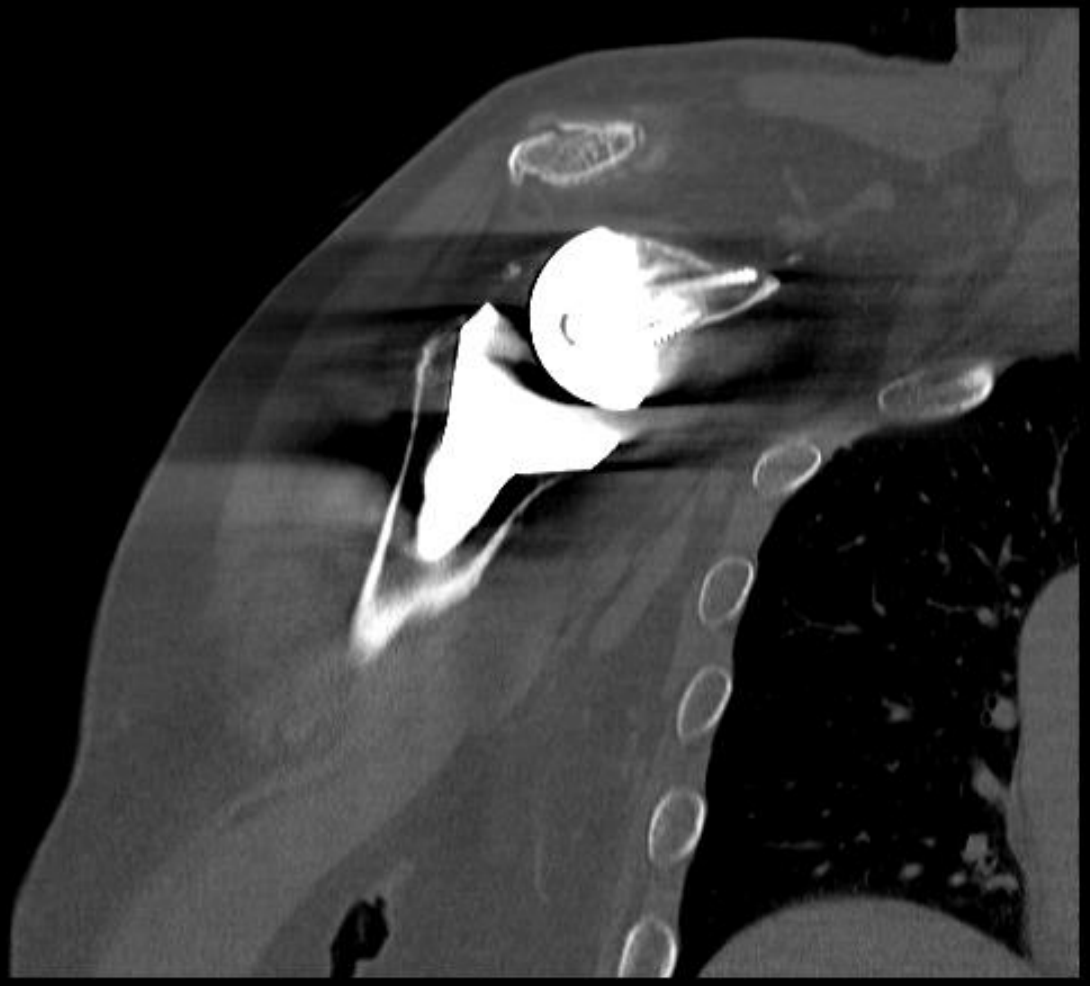
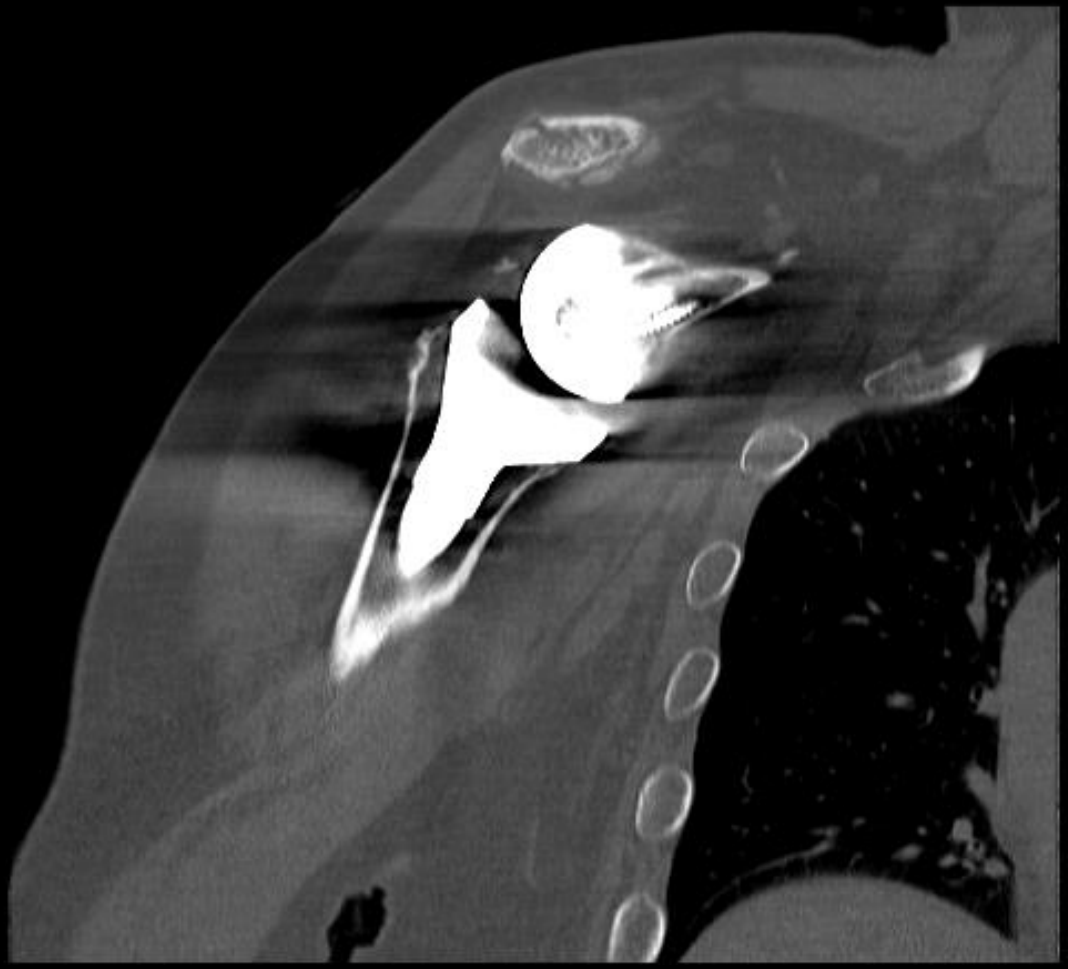
68 YO WOMAN PRESENTS WITH PERSISTENT SHOULDER PAIN AFTER HER SHOULDER REPLACEMENT

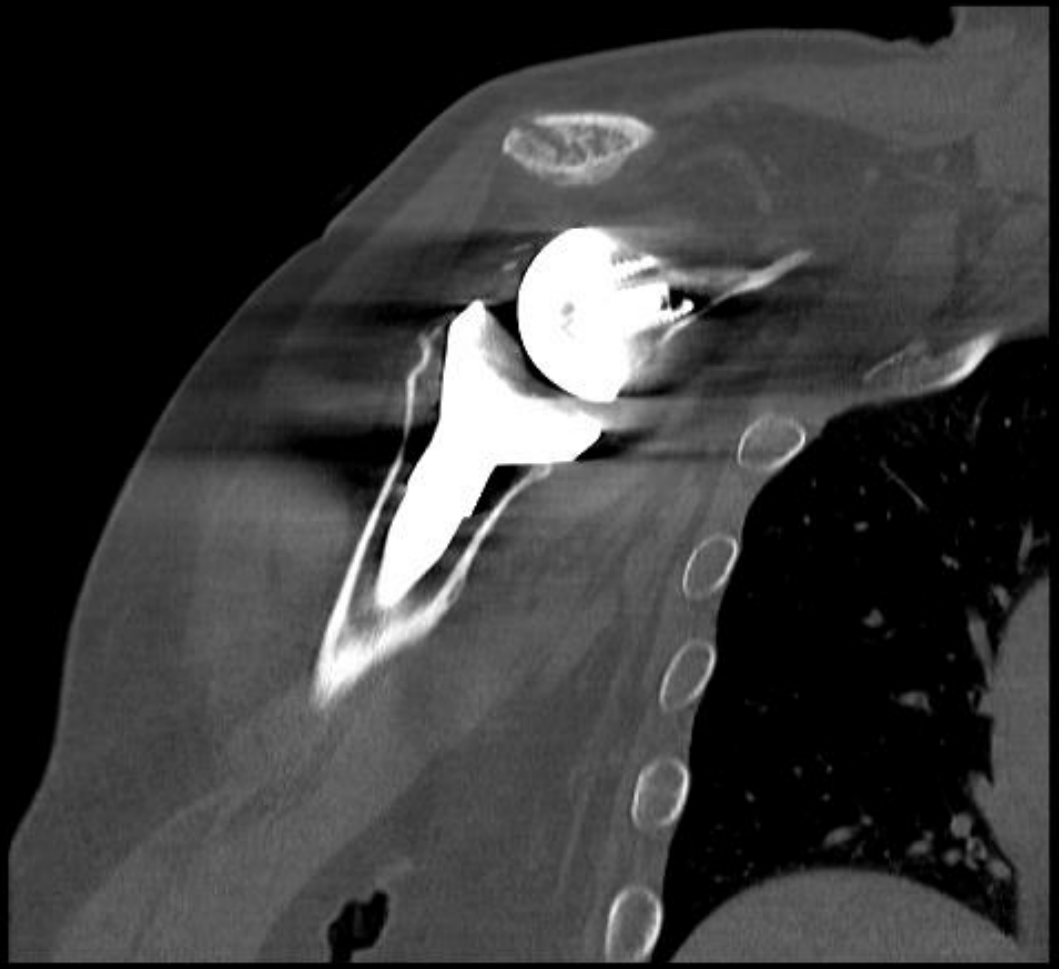


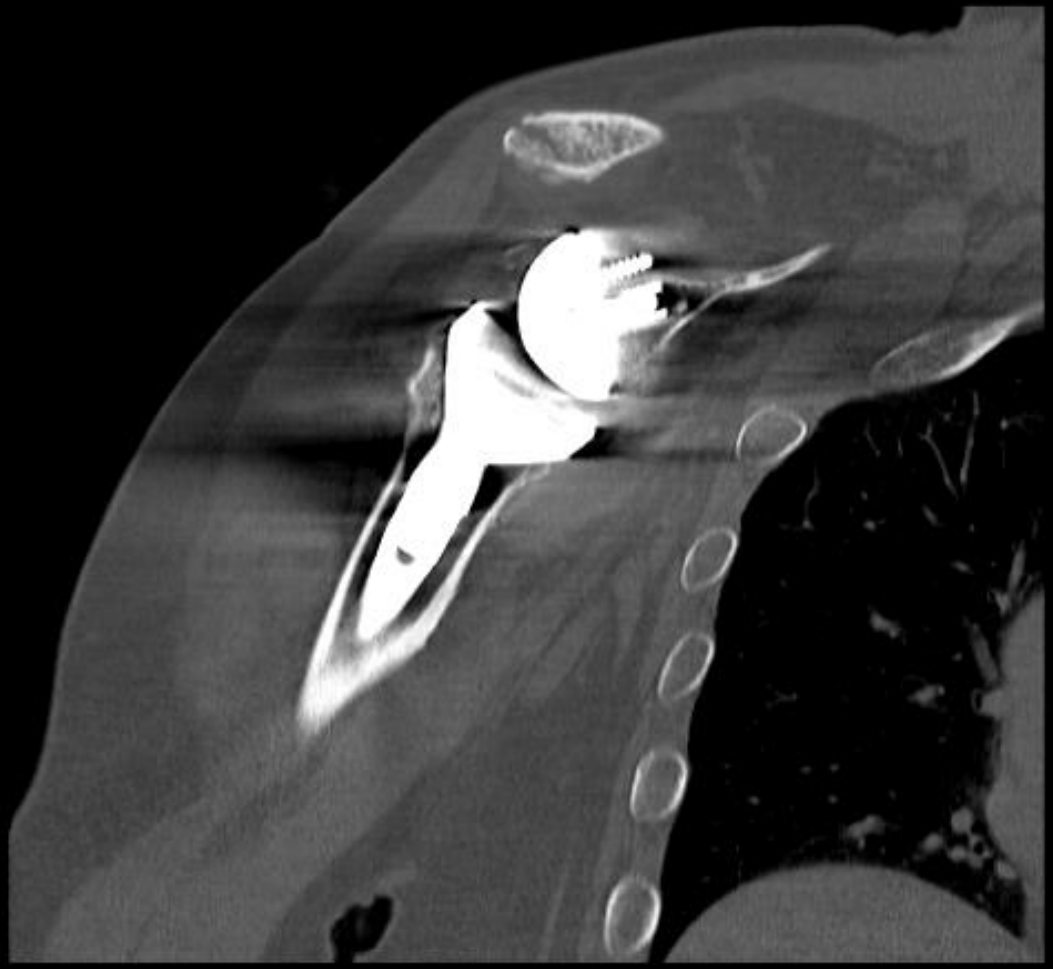
Immediate post surgical findings of soft tissue swelling, subcutaneous emphysema, and skin staples for reverse total shoulder arthroplasty.

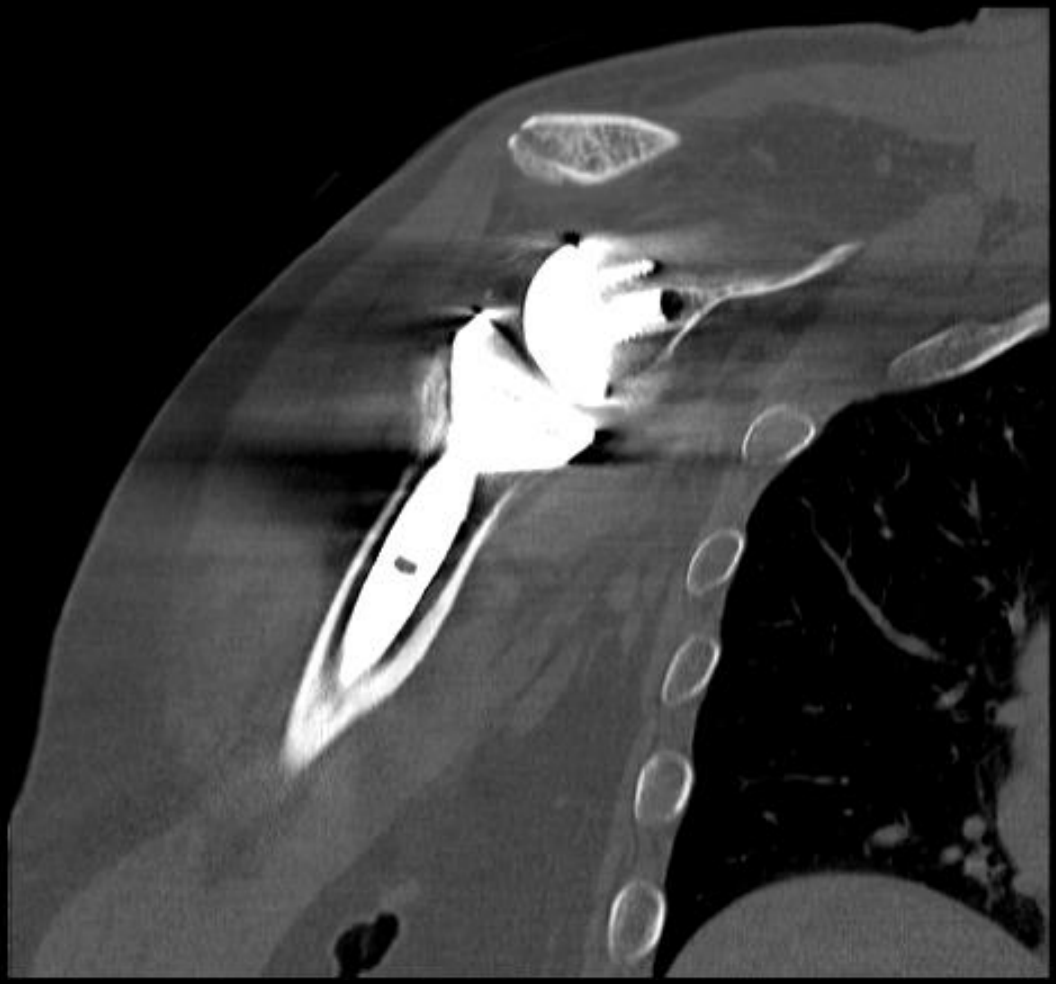
REVERSE TOTAL SHOULDER ARTHROPLASTY WITH FRACTURED ACROMION



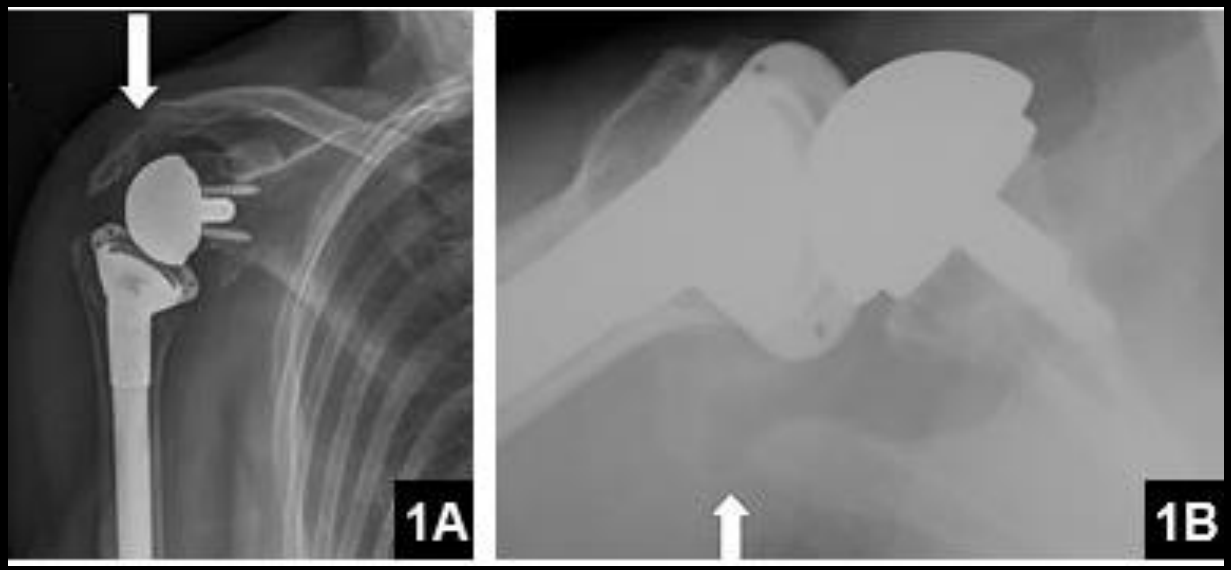


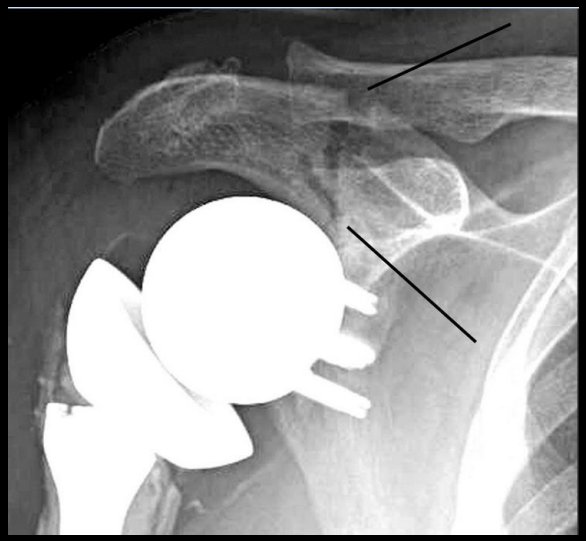






COMPLICATIONS OF RTSA





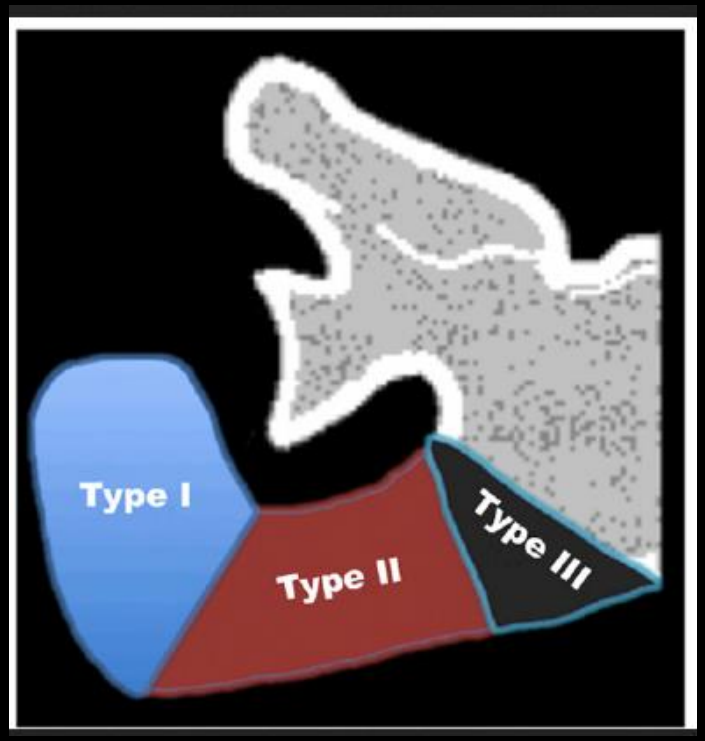
Above: Fracture at base of acromion

Left: Fracture of scapular spine

Mechanism

- Arm is lengthened by 2.5 cm over the normal length, thus increasing tension on the deltoid muscle.
- Loads on the acromion increase because the longer lever arm of the deltoid and changes in the center of rotation of the glenohumeral joint, which is now more inferior and medialized.
- Acromion may be already eroded and weakened from the underlying humeral head, which is superiorly subluxed from the rotator cuff tear.
- If subscapularis muscle is intact, the erosion may be more posterior and predisposes to scapular spine fracture.

Classification of acromion fracture based on imaging

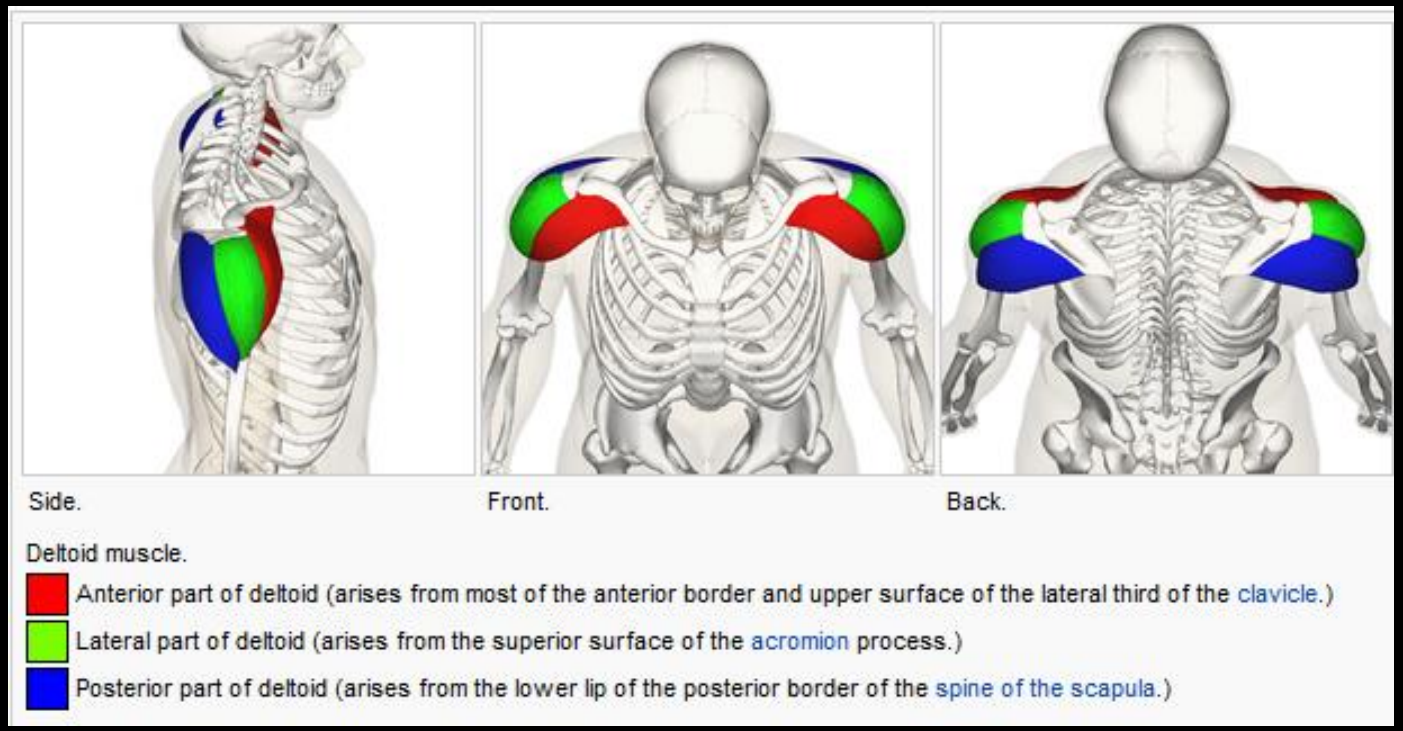


Type I: Fracture through mid part of acromion involving portion of anterior and middle deltoid origin

Type II: Fractures involved at least entire middle deltoid origin and portion of the posterior deltoid origin

Type III: Fractures involved entire portion of the middle and posterior deltoid origin

DELTOID MUSCLE

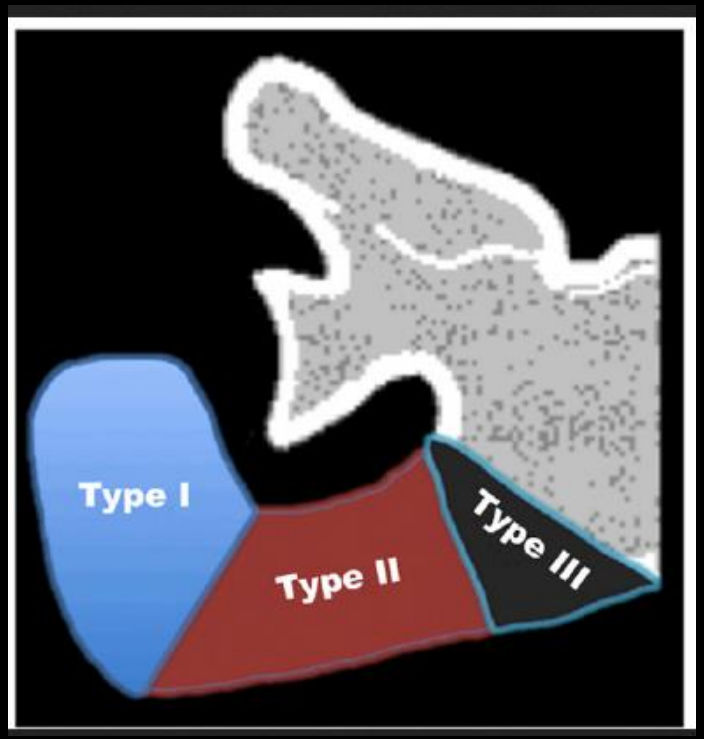


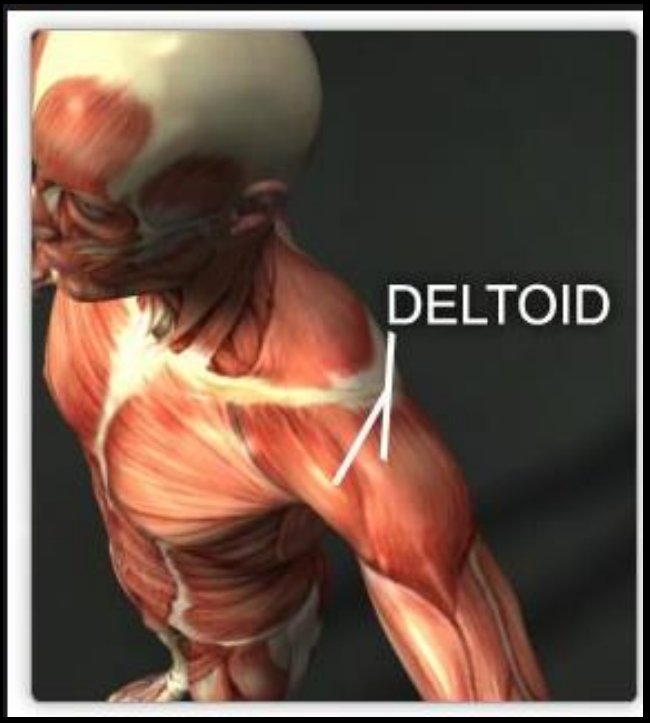
Anterior deltoid (clavicular fibers): Arises from anterior and upper surface of the lateral 1/3 clavicle. It lies adjacent to the lateral fibers of pectoralis major muscle.

Lateral/Middle deltoid (acromial fibers): Arises from the acromion process.

Posterior deltoid (spinal fibers):Arises from the lower lip of the posterior border of the spine of the scapula.

Classification of acromion fracture based on imaging





Type I: Fracture through mid part of acromion involving portion of anterior and middle deltoid origin

Type II: Fractures involved at least entire middle deltoid origin and portion of the posterior deltoid origin

Type III: Fractures involved entire portion of the middle and posterior deltoid origin

Treatments/Outcome for acromion fracture

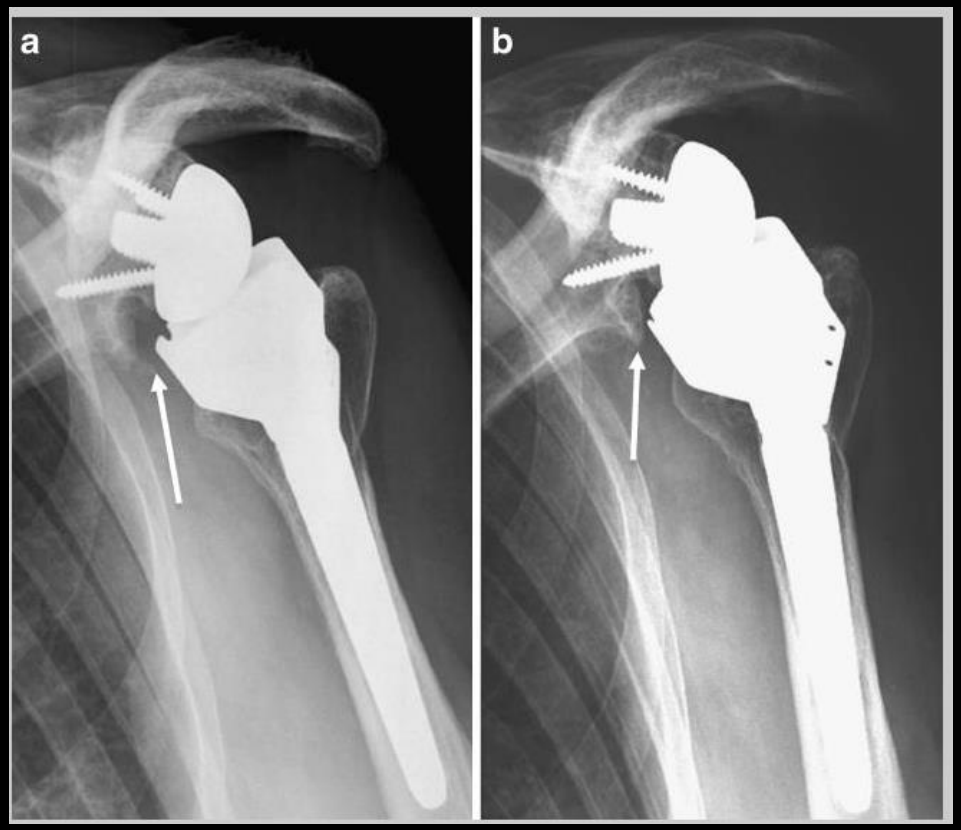
- Nonoperative treatments of majority of the cases with splinting (abduction splinting for 6 weeks).
- Few are treated with internal fixation (band wire). Those that are internally fixated are more likely the scapular spine fractures because the functional limitation from these fractures are worse than the acromial fractures.
- Pain from fracture resolves with time
- Limited function of shoulder compared with population with the RTSA without fracture but much improved function compared with preoperative condition.
- Os acromiale is not a contraindication for reverse shoulder arthroplasty.

Increasing Indications for Reverse Shoulder Arthroplasty

- Historically RTSA reserved for patients over the age of 70 years with cuff arthropathy and massive cuff tear
- Rheumatoid arthritis (cautiously used)
- Acute proximal humerus fractures (complex 3-4 part neck of humerus fractures in elderly patients with poor quality bone and multiple comorbidities).
- Failed revision of conventional shoulder arthroplasty.

COMPLICATIONS OF RTSA

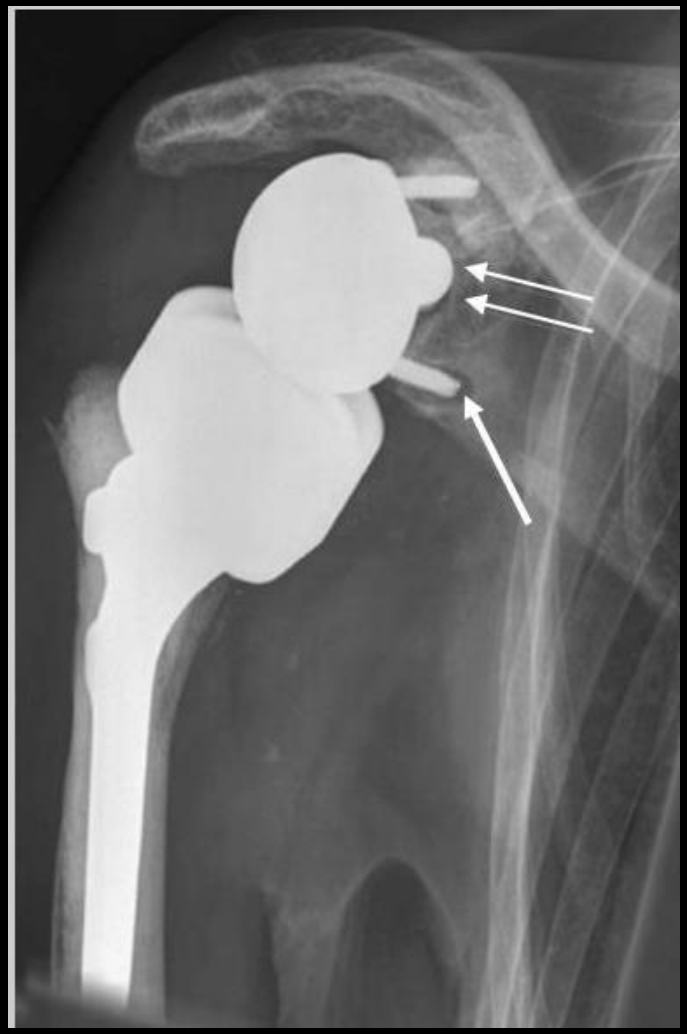
Scapular notching,, most common but of unknown clinical relevance



At 3 years post RTSA

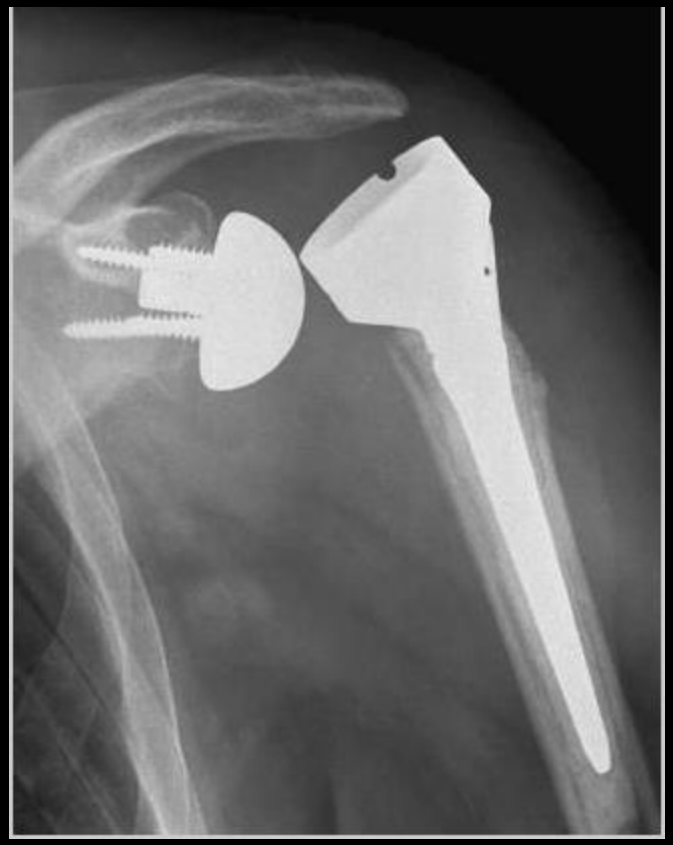
At 8 years post RTSA

COMPLICATIONS OF RTSA



Clinically most significant is infection/loosening

COMPLICATIONS OF RTSA



Instability leading to dislocation of prosthesis (anterolateral)
Do NOT do well with closed reduction if dislocation occurs within a few months of initial placement of the prosthesis.

References

- Classification of postoperative acromial fractures following reverse shoulderarthroplasty. Levy JC, Anderson C, Samson A. J Bone Joint Surg Am. 2013 Aug 7;95(15):e104. doi: 10.2106/JBJS.K.01516. PMID: 23925750 [PubMed - indexed for MEDLINE]

- Reverse total shoulder arthroplasty-from the most to the least common complication. Farshad M, Gerber C.Int Orthop. 2010 Dec;34(8):1075-82. doi: 10.1007/s00264-010-1125-2. Epub 2010 Sep 25. Review. Erratum in: Int Orthop. 2011 Mar;35(3):455. PMID: 20865260 [PubMed - indexed for MEDLINE]

- **The Influence of Postoperative Acromial and Scapular Spine Fractures on the Results of Reverse Shoulder Arthroplasty** Steven J. Hattrup, MD. Orthopedics. May 2010 - Volume 33 · Issue 5: 302 DOI: 10.3928/01477447-20100329-04

- **Reverse shoulder arthroplasty.** Christopher J. Smithers,[1] Allan A. Young,[2] and Gilles Walch[3]Curr Rev Musculoskelet Med. 2011 December; 4(4): 183–190. Published online 2011 August 23. doi: 10.1007/s12178-011-9097-4PMCID: PMC3261241