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Brachial Artery Pseudoaneurysm Secondary to a Sessile Osteochondroma in an Avid Teenage Basketball Player

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Introduction

- Osteochondromas (OCE) are typically characterized as benign cartilaginous neoplasms occurring as either solitary lesions or as part of multiple hereditary exostosis (MHE)
- MHE = autosomal dominant mutation in EXT-1 or EXT-2 genes
- Common deformities associated with MHE: short stature, limb-length discrepancies, valgus deformities of knee and ankle and bowing of the radius with ulnar deviation of wrist

Case

History:

- 17 yo M basketball player presented with 1 year history of enlarging medial mass of right proximal humerus, occasionally painful
- Previous excision of osteochondromas located on his left wrist and bilateral proximal tibias with uneventful recoveries

Pertinent Exam Findings:

- Large, firm, immobile mass on medial proximal humerus with overlying soft tissue swelling (Figures 1A and 1B)
- No palpable pulsations, audible thrills or bruits on auscultation
- No numbness or change in temperature with forward elevation
- Neurovascularly intact

Studies:

- XR: complex right proximal humerus osteochondroma (Figure 2A)
- CT Angiogram: posterior medial right upper arm soft tissue mass consistent with pseudoaneurysm with pronounced flattening/effacement of the mid brachial artery in its periphery
- MRI (Fig 2B/2C) and MRA(Fig 2D): multiple sessile and pedunculated osteochondromas of the humerus and scapula; large vascular pseudoaneurysm in proximal medial upper arm with local mass effect (7.9 x 8.1 x 10.6cm)

Outcome:

- Successful resection and repair of the pseudoaneurysm and resection of the offending exostosis by Orthopaedic Oncology and Vascular Surgery (Figures 3A and 3B)
- Recovery to date has been unremarkable

Clinical Photographs



Figure 1A

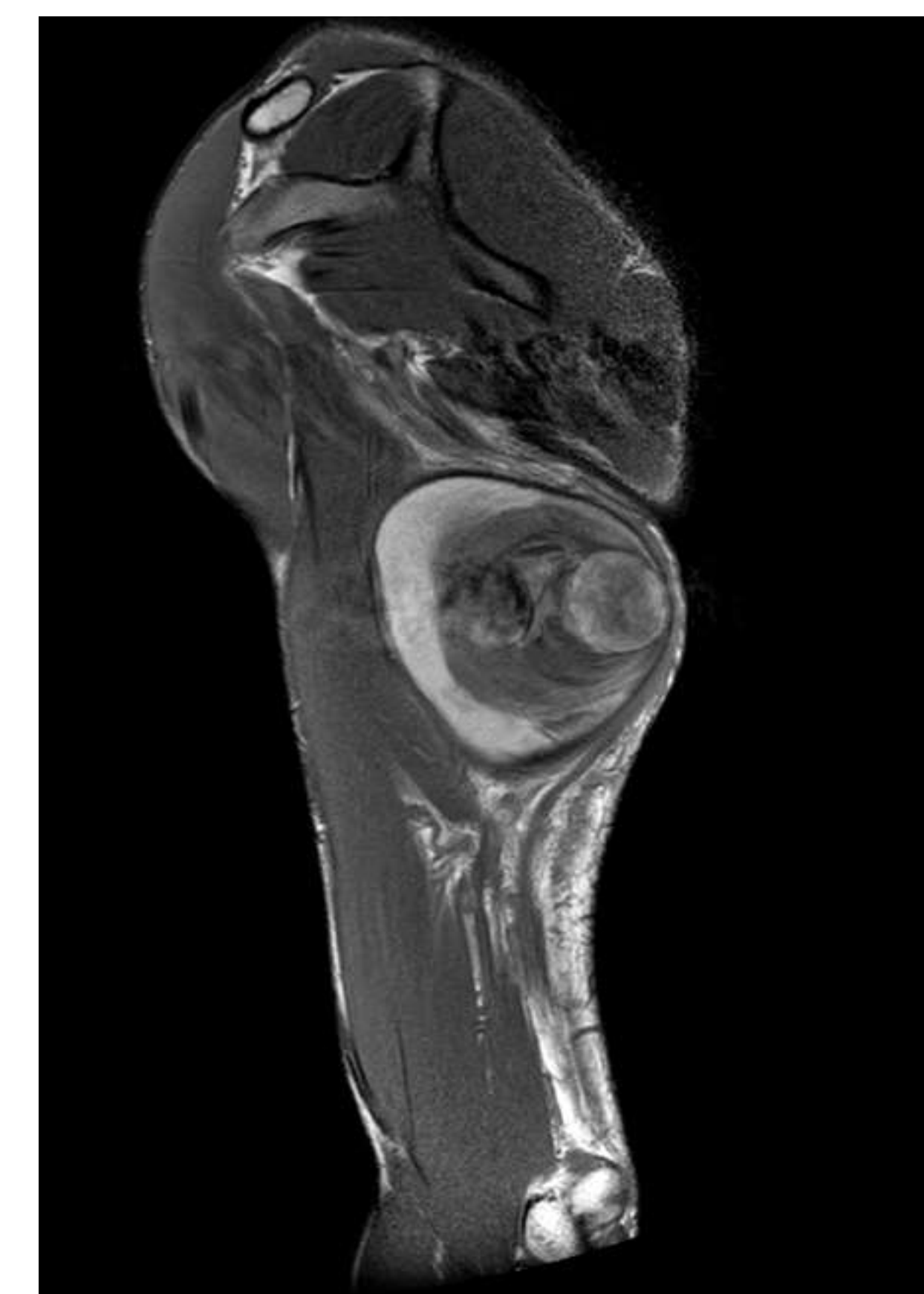
Figure 1B

Figures 1A and 1B demonstrating a medial mass of the right proximal humerus

Imaging



Figure 2A. AP radiograph demonstrating the osteochondroma of the right proximal humerus



Figures 2B and 2C demonstrating the pedunculated osteochondroma and pseudoaneurysm with local mass effect

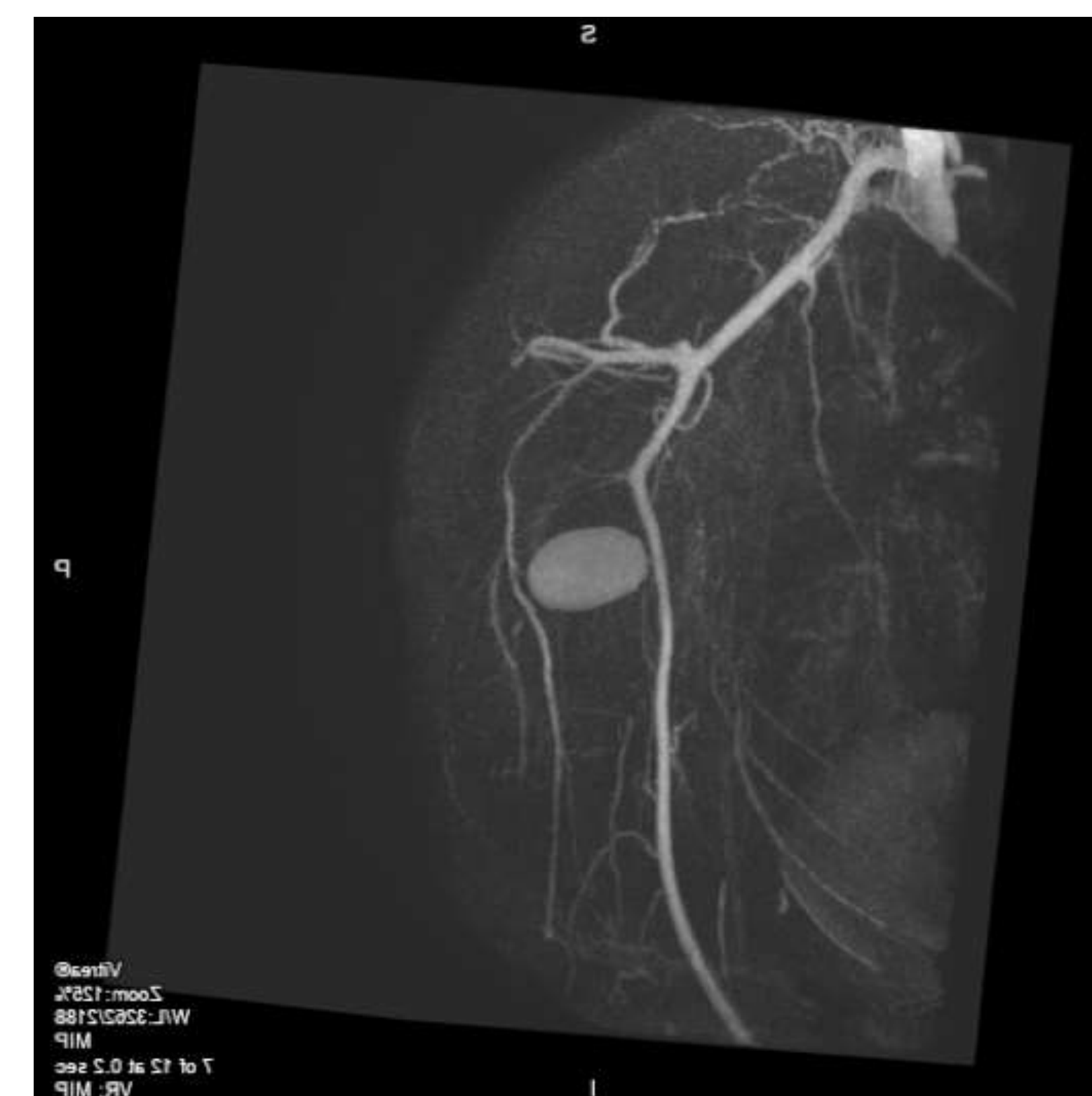


Figure 2D demonstrating the pseudoaneurysm arising off the brachial artery

Intraoperative Photographs

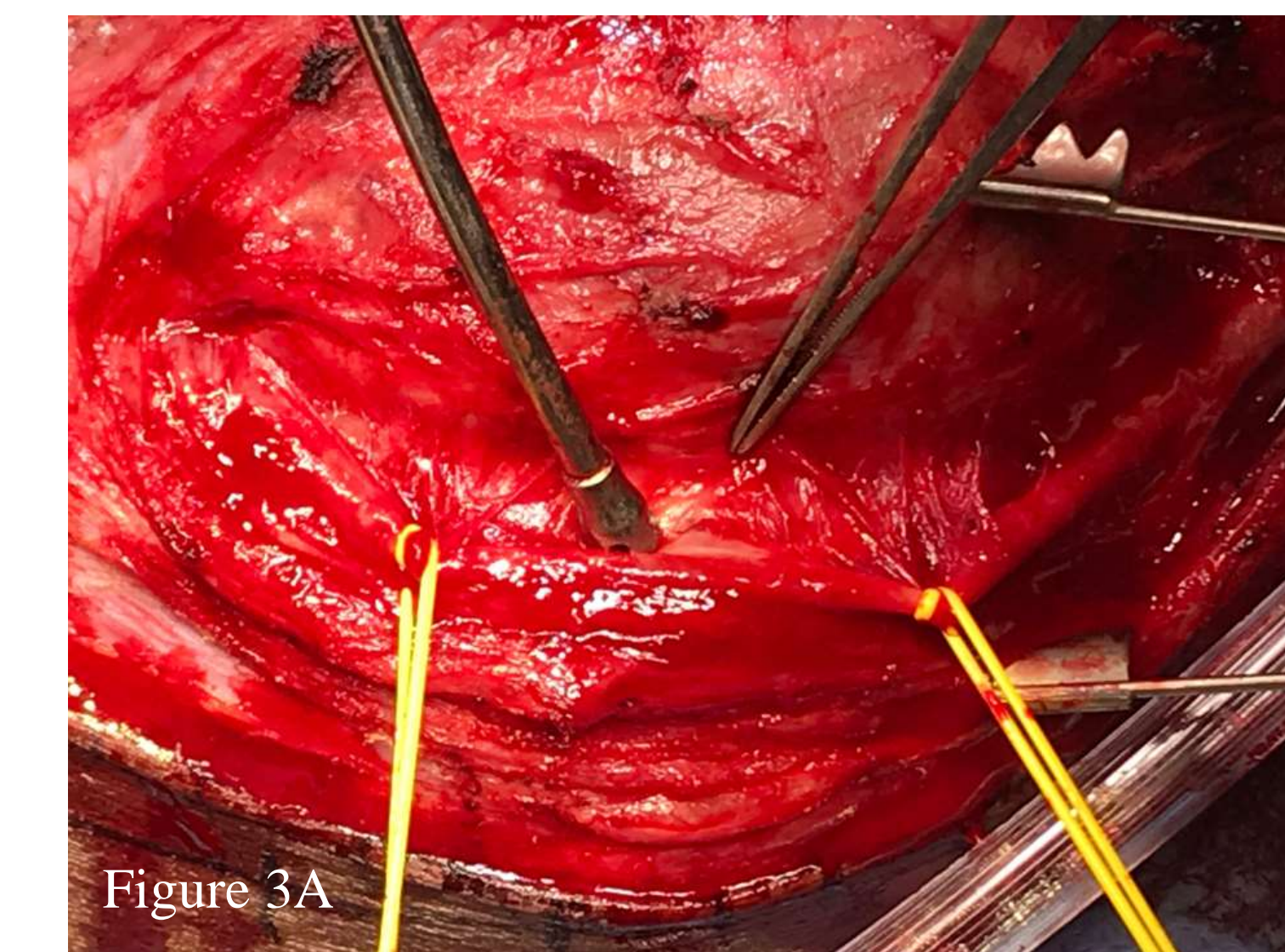


Figure 3A



Figure 3B

Figure 3A showing the pseudoaneurysm arising off the brachial artery. Figure 3B demonstrating the pseudoaneurysm bed after resection.

Discussion

- OCE's may cause pain due to mechanical irritation of nearby musculoskeletal structures and are typically only excised when symptomatic
- Vascular complications associated with MHE are rare and often happen after skeletal maturity
- Pseudoaneurysms are most common around knee, likely secondary to the knee being a common location for OCE's and the relative tethering of the popliteal artery about the knee
- The humerus is an uncommon location despite the joint's large range of motion
- Surgical resection and repair of the pseudoaneurysm and removal of the offending OCE is the mainstay of treatment

Conclusion

- Growth of OCE lesions is typically slow and mimics skeletal growth
- Continuous growth of an osteochondroma after skeletal maturity warrants further investigation
- While sarcomatous degeneration is a concern in patients with osteochondromas, other etiologies such as pseudoaneurysms should be included in the differential diagnosis in the presence of a growing mass
- History of vigorous exercise or direct trauma often precedes presentation of a pseudoaneurysm
- Appropriate workup is paramount in order to avoid disastrous open or needle biopsies

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