Complication post supra-condylar fracture.

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SGH 2006
Case History

- 14 yr old boy. Previously well.
- Extension injury to right elbow whilst playing football 24.12.05.
- Gartland III supracondylar fracture.
- Reduced and stabilised in theatre with two 2mm K wires.
- Wires removed at 4 weeks.
- X-rayed at 6 and 8 weeks.
Diagnosis

- Myositis ossificans circumscripta (Heterotopic ossification, Sterner’s tumour).
- Recognised since the 18th century.
- Extra-osseous non neoplastic growth of new bone following blunt trauma (75%).
- Myositis ossificans is a recognised complication of paralysis, progressiva is a fatal, autosomal dominant sub-type associated with hypoplastic first metatarsal and carpal bones.
Clinical Picture

- Seen most commonly in 2\textsuperscript{nd} and 3\textsuperscript{rd} decades.
- Arms and thighs post trauma, more likely to occur with more significant trauma.
- Most commonly in quadraceps, brachialis and deltoid.
- Rapid enlargement and pain 1-2 weeks post injury with localised increased skin temp.
- May be attached to bone, in continuum with periosteum or attached only to muscle.
- Usually distant from joint.
- Ossification and pain decreases with time.
Microscopically

- Acutely, proliferation of undifferentiated mesenchymal cells that infiltrate the muscle.
- 2-3 weeks, peripheral zone of lamella bone, osteoid middle zone and centrally immature fibroblasts and granulation tissue.
Differential Diagnosis

- Osteochondroma
- Osteomyelitis – constitutional symptoms.
- Fibrodysplasia (myositis ossificans) progressiva.
- Proliferative myositis.
- Osteosarcoma - Parosteal/periosteal sarcoma. Calcifies from centre to periphery unlike myositis ossificans which calcifies peripherally first, pain usually increases with time. 40% follow trauma.
- Chondrosarcoma – medullary cavity continuous with adjacent long bone.
- Synovial cell sarcoma.
Making the diagnosis

- Seen on plain film at 2-4 weeks.
- Increased uptake on bone scan can be seen at 3 weeks.
- CT scan delineate central radiolucency.
- Raised ESR and ALP.
Aetiology

- Various theories:
  - Organising haematoma (Seen in 16% of quadraceps haematomas).
  - Periosteum pushed into muscle.
  - Osteoblasts escape the periosteum.
  - Metaplasia of connective tissue.
Treatment

Non-operative – RICE
Avoid early stretching
Protection from re-injury
Avoid corticosteroids
NSAID’s – Indamethacin
25mg tds 3-6/12, bd for 2-6/52
Diphosphonates
Radiation therapy

Operative – late, if function restricted. Can have up to 67% recurrence rate
References

- Evaluating and Managing Muscle Contusions and Myositis Ossificans
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THE PHYSICIAN AND SPORTSMEDICINE - VOL 30 - NO.2 - FEBRUARY 2002

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