Panner's Disease

Panner's disease is one of the osteochondroses. It involves the capitulum of the distal humerus,\(^1\) which is one of the ossification centres of the humerus. The capitulum also articulates with the head of the radius. Panner's disease causes pain and stiffness of the lateral elbow. It also occurs in other species, including dogs, pigs and horses, which has encouraged research on aetiology.\(^1\)

Pathophysiology

Osteochondroses all involve a defect in ossification. In Panner's disease, there is thought to be an interference in the blood supply to the growing epiphysis with bone resorption.\(^2\) There is essentially avascular necrosis of the capitulum.\(^3\) However, the epiphysis eventually becomes revascularised and there is repair and replacement of the ossification centre.\(^1\) Potential causes include:\(^1\)

- Chronic repetitive trauma (repetitive valgus overload).\(^4\)
- Fat embolism.
- Endocrine disturbances.
- Congenital and hereditary factors.

Presentation\(^1\)

- It is usually seen in boys aged 5-12 years,\(^1\) especially those who play throwing sports such as baseball.\(^5\)
- It can occur in girls, particularly competitive gymnasts.\(^6\)
- It usually affects the dominant elbow.
- Symptoms are elbow pain and stiffness, exacerbated by activity and relieved by rest. Pain is usually experienced laterally.\(^3\)
- Examination can reveal tenderness over the capitulum with effusion and synovial thickening of the elbow joint.
- Full elbow extension may not be possible and there may be some loss of pronation and supination.

Differential diagnosis

The main differential diagnosis is osteochondritis dissecans of the capitulum:

- This usually affects boys >13 years who have a history of activities involving throwing.
- Panner's disease and osteochondritis dissecans of the capitulum probably represent a continuum of disordered endochondral ossification. Presentation and prognosis seem to be dependent on age of onset.\(^6\)
- There are no loose bodies in Panner's disease.
- There is a separate article Osteochondritis Dissecans.

Investigations\(^1\)

- X-ray of the elbow:
  - Shows an irregular capitulum with areas of radiolucency (where resorption has taken place) and sclerosis.
  - After 3-5 months, the radiolucent areas enlarge and there is reconstruction of the epiphysis.
  - After 1-2 years, the epiphysis returns to normal.
- MRI scanning is sometimes used

Management

- Because the natural history or the disease is self-limiting with resolution and eventual revascularisation and development of a normal epiphysis, symptomatic treatment alone is all that is usually needed.\(^6\)
- Reduction in use of the elbow can provide pain relief and allow elbow movement to return.\(^1\)
- Non-steroidal anti-inflammatory drugs may be helpful.
- Physiotherapy can be used.
- A long arm splint or cast may be needed for 3-4 weeks if there is significant pain, swelling and local tenderness.\(^1\)
Prognosis

Natural history of the disease means that there is usually resolution in 1-2 years. There is usually complete resolution of symptoms but, in some, there may be a persistent loss of elbow extension. Symptoms may resolve before the radiology returns to normal.  

Further reading & references

1. Panner's Disease; Wheeless' Textbook of Orthopaedics

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