

MADELUNG'S DEFORMITY

It is a congenital anomaly associated with defective development of the medial part of the lower radial epiphysis. This results in growth disorders of the medial side of the radius while the outer part of the radius and ulna continue to grow at normal pace. Subsequently the radial shaft bows backwards and the lower end of ulna subluxates backwards. A Vickers' ligament is the feature to differentiate Madelung's deformity from Madelung-like deformities.

EPIDIMIOLOGY:

Predominantly adolescent females are affected by a ratio of 4:1. The deformity is bilateral most often.

CLINICAL FEATURES:

- Initially asymptomatic, progressive clinical deformity
- Pain at wrist
- Loss of wrist extension
- Compromised forearm rotation
- “Bayonet” deformity- prominent distal ulna as a result of dorsal subluxation
- Girls are more often affected than boys
- Presents between the ages of 6 and 13 years

PATHOGENESIS:

Premature growth plate arrest at the medial volar aspect of the distal radius causes Madelung deformity. Repetitive traumatic pressure may result in Madelung-like deformity. Mutation or absence of the short stature homeobox (SHOX) gene is thought to be the cause of congenital Madelung deformity.

Congenital Madelung deformity can occur as a part of Leri-Weill dyschondrosteosis (LWD) or Turner syndrome.

DIAGNOSIS:

X-RAY

- increased dorsal and radial convexity of the distal radius
- increased volar and ulnar tilt of the distal radial articular surface
- widened interosseous space
- relative dorsal position of the ulnar head
- pyramiding of the carpus

MRI

MRI is done on the patients who need the surgical release of Vickers' ligament to prevent deformity progression.

TREATMENT:

CONSERVATIVE;

Physiotherapy - to reduce pain,

-Icing

-Cold whirlpool immersion

-Transcutaneous electrical nerve stimulation

-limited pronation and supination suggests the need of exercise to help maintaining and/or increasing the power of involved muscles, i.e.- pronators and supinators

-volar splint

SURGICAL:

Excision of lower end of ulna is most commonly performed operation. It improves deformity and the movements of supination and pronation. In postoperative period no plaster is generally applied.

Corrective osteotomy of lower end of radius is also done after that plaster cast is required to be maintained for 6-8 weeks.

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