

Fractures of the femoral diaphysis

Fractures of the femoral diaphysis are caused by indirect (skiing) or direct violence (being run over by a car, car accident). Fractures in the upper third of the femur (up to 3 cm below the lesser trochanter) are termed subtrochanteric and are classified as proximal femur fractures.

AO classification (32)

- A – simple (1 - helical, 2 - oblique, 3 - transverse)
- B - wedge-shaped (1 - spiral wedge, 2 - bending wedge, 3 - broken wedge)
- C - complex (1 - helical, 2 - staggered, 3 - roughly splintered)

Diagnostics

Clinical

high pain, defiguration, pathological mobility, limited mobility, hematoma.

Imaging methods

X-ray in two projections (including hip and knee - echelon fractures); typical is shortening of dislocated fragments (thrust of proximal fragment into abduction, distal fragment medially and upwards).

Complications

1. Complications of injury:
 - injury to blood vessels and soft tissues (muscles) by sharp fragments – **bleeding** up to **2 litres**,
 - compartment syndrome.
2. Complications of treatment:
 - fat embolism, ARDS – when pre-drilling nails,
 - pseudoarthrosis – malposition of the nail, left axial deviation,
 - restriction of knee movement - inadequate rehabilitation.



Fracture of the diaphysis of the femur in a child

Therapy

First aid

- Immobilization: vacuum splint, Cramer's splint, tying both DK, formerly Dietrichs splint;
- anti-shock (infusions);
- X-ray before removal of the first fixation.

Surgical treatment

- **Osteosynthesis**: must be stable to allow early mobilisation (extension beyond tuberositas tibiae is only a temporary preoperative measure),
 - **intra-articular nailing**: antegrade and closed insertion once the axis is aligned and the correct length is achieved; nails are secured distally and proximally, preferably undrilled;
 - splint osteosynthesis: not so much used nowadays;
 - **external fixation**: open fractures (Tscherne II, III), splinter fractures, polytrauma;
 - **PFN** (proximal femoral nail), **gama nail**: for subtrochanteric fractures;
 - **Prévot's rods** (TEN – titan elastic nails): in children.

Conservative treatment

- In **children**, patch extension (hanging the DK vertically upwards) can be used, followed by immobilization with a plaster bandage after muscle formation (in 4 weeks).

Links

Related articles

- Fratures
- Fractured bones

Source

- PASTOR, Jan. *Langenbeck's medical web page* [online]. ©2006. [cit. 2022-16-12]. <<http://langenbeck.webs.com/chirurgie.htm>>.

Literature used

- KOUDELA, Karel, et al. *Orthopedic traumatology*. 1. edition. Karolinum, 2002. ISBN 80-246-0392-6.