OLECRANON OSTEOTOMY FOR DISTAL HUMERUS FRACTURES

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Abstract: In this study we will analyze the olecranon osteotomy approach for distal humerus fractures. For olecranon osteosynthesis were used AO tension band or a sponge screw 6.5 mm with extra washer or a screw 6.5 mm and additional wire. Following observations and measurements were recorded following imperfections of the olecranon osteosynthesis: angulation of the fragment in the tranche of osteotomy, displacement of the osteotomy fragments, diastasis of the fragments in the osteotomy tranche. Olecranon osteotomy is a gesture which should be evaluated very carefully in traumatic surgery of the distal humerus. Therefore, when is absolutely necessary, the olecranon osteotomy can be done in V-shaped, with a thin blade saw, so loss of the bone in the tranche of osteotomy to be the smallest.

RESULTS AND DISCUSSIONS

Following observations and measurements were recorded following imperfections of the olecranon osteotomy osteosynthesis:

- Angulation of the fragment in the tranche of osteotomy (Fig.1. a, b).

Figure no. 1. a and b. Angulation of the fragment in the tranche of osteotomy

This angulation is due in particular to the effect it has the AO tension band on the posterior surface of the olecranon. Basically, because of the tension and compaction force that are engaged in the posterior cortex of the olecranon, combined with anterior cortical bone integrity (which was fractured) (Fig.2.a), appear this angulation (Fig.2.b), angulation, which is directly proportional with defect size produced by oscillating saw and for radiological assessment of distal humerus fixation and evaluate osteosynthesis of olecranon osteotomy tranche.
metal wire tension. This angle is inversely proportional with ulna size, respectively as the distance between the two cortical of the olecranon is less, the angle is greater after the osteosynthesis. Also, the angle can increase by excessive tension in metal wire, by spongy bone compacting and cortical superposition. If the osteotomy cuts is straight, the angulation results from the residual defect of the olecranon cortex after osteotomy. This defect may be important when the osteotomy is done improper (very thick blade saw, Gigli increased diameter).

- Displacement of the osteotomy fragments (Fig. 3.)

Figure no. 2. a. Defect formed by osteotomy, b. Angle formed by osteosynthesis

![Figure no. 2](image)

Displacement of the fragments appear particularly when the osteotomy tranche is right and the osteosynthesis is done with screw, because when the screw engages in the channel, it will turn along ulna channel (2,5,6), resulting the displacement of the proximal fragment, cause exists a natural angulation of the proximal part of ulna. This displacement will create a step in the joint, which if is important will reduce significantly the cubital articular surface that comes into contact with articular surface of the distal humerus. This will lead to changes in components of reaction forces that occur in the joint during flexion-extension cycle.

- Diastasis of the fragments in the osteotomy tranche (Fig. 4.)

![Figure no. 4](image)

Interfragmentar diastasis may have two causes: either a very large tranche of the osteotomy or cubits wide channel, where the screw has no stability. When the channel is wide, diastasis can be corrected by adding a wire with tension effect.

This can translate diastasis evolving through the development of a close pseudarthrosis (3) to the olecranon, pseudarthrosis, which generally is well tolerated. Healing is slower outbreak olecranon diastasis interfrramentar and this will interfere with functional rehabilitation program and progress are modest recovery of elbow function in this case.

**CONCLUSIONS**

Olecranon osteotomy is a gesture which should be evaluated very carefully in traumatic surgery of the distal humerus. Any osteotomy, regardless of how it is achieved, by osteosynthesis, induces unwanted changes in the olecranon geometry. These changes are important as both can lead joint non-congruency, mismatch can have a devastating impact on the subsequent function of the elbow (3). Therefore, when is absolutely necessary, the olecranon osteotomy can be done in V-shaped, with a thin blade saw, so loss of the bone in the tranche of osteotomy to be the smallest.

**REFERENCES**