POSTERIOR APPROACHES IN DISTAL HUMERUS FRACTURES BRYAN – MORREY APPROACH VERSUS TRANSTRICIPITAL APPROACH

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Abstract: In this paper, we tried to establish a fair indication as regards the management of distal humerus fractures. Fractures included in this paper are part of the group of fractures type A2.1, A2.2, A2.3, A3.1, A3.2, A3.3- AO (Arbeitsgemeinschaft für Osteosynthesefragen) classification.

INTRODUCTION

In this paper we try to establish a fair indication as regards the management of distal humerus fractures. Fractures included in this paper are part of the group of fractures type A2.1, A2.2, A2.3, A3.1, A3.2, A3.3- AO (Arbeitsgemeinschaft für Osteosynthesefragen) classification.

This group is represented by extraarticular fracture. The following analysis compared two ways of approach: Bryan - Morrey technique and transtricipital approach.

MATERIAL AND METHODS

The study was made on a sample of 28 patients over a period of one year. Patients were balanced distributed for each surgical technique (14 patients).

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After care, patients were included in a program of intensive functional rehabilitation, being re-evaluated at 2 weeks, 4 weeks to 2 months, 3 months, 6 months and 1 year. At each visit patients were investigated radiologically and functionally (flexion, extension, pronation, supination, prehension).

Bryan-Morrey technique

Anesthesia of the patient may be regional or general, authors preferring the last. The patient is positioned on the surgical table in lateral or ventral decubitus (preferably in ventral decubitus).

The upper limb is suspended on a support so the forearm is flected on the arm at an angle of 110. It begins with a skin incision, which starts from 14-16 cm above the peak of olecranon and extending distal to the tip of olecranon (aprox. 1 cm) and extending distal to the tip of the olecranon. Anesthesia of the patient may be regional or general, authors preferring the last. The patient is positioned on the surgical table in lateral or ventral decubitus (preferably in ventral decubitus).

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olecranon, crossing and lowering it by a further 4-6 cm along the cubitus crest.

Continue with subcutaneous cellular tissue and superficial fascia. Cubits nerve is found and isolated a stupe imbued with saline physiological solution (Warning: do not turn the nerve when you enter the stupe).

We make an incision in long of medial edge of triceps, on all plans included the periostum, and crossing completely the cubitus from medial to lateral. Then we make the de dezinsertion of triceps using a fine chisel. The triceps reflection is made with a panel of thin bone, to ensure reintegration of the triceps. We make the triceps reflection, thereby achieving access to the distal humerus (Pictures. 1 a, b). Approach can be completed with the osteothomia of the peak of olecranon (approximately 1 cm), to get a better view of the surface of articulation of trohleea.(1,3,6)

**Pictures no. 1. Bryan-Morrey approach: a. viewing of the fracture, b. after fixing**

After reduction and fixation of fracture, the muscle is inverted and the edges are sutured with unrezorbabil wired. Reintegration is completed by placing a clamp on olecranon, respecting the anatomy.

**Transtricipital approach:**
Anesthesia and patient positioning are the same as in the technique described above, noting that this technique can be performed with the patient positioned in dorsal decubit. It begins with a skin incision, which starts from 14-16 cm above the peak of olecranon and extending distal to the tip of olecranon. Continue with subcutaneous cellular tissue, superficial fascia. Make an incision on triceps tendon and tricipital fascia along the fibers, then splitting muscle fibres to see the fracture.

**RESULTS AND DISCUSSIONS:**
Patients had postoperative simple development. At 48 hours after surgical intervention was initiated the functional rehabilitation. Until the first visit at 2 weeks patients have benefited from immobilization with antalgic effect. Functional assessment of patients during office visits showed no significant differences between the two groups. By Bryan-Morrey technique we have difficulty in addressing the proximal fragment (Picture 2.a, b) to a patient with a complex fracture and high muscle mass.

For this reason, to the similar following fracture the approach was made by transtricipital technique to facilitate the access to the proximal fragment.

Intraoperatorily, in a patient with a low fracture that was operated by Bryan-Morrey technique, we found an intercondilar fracture that was fixed with a screw.

**CONCLUSIONS**
Analyzing this study we can deduce that we can use both surgical techniques. For each of them there are advantages and disadvantages. Thus for the transtricipital approach we have disadvantages that do not allow joint viewing, and if we have a fracture in the joint to fix that is required to convert in transolecranon approach or Bryan - Morrey approach. Also through this approach we can not fix the fracture with 2 perpendicular plates.(7) The advantage can be noted that keeps the integrity of triceps insertion and you can approach easier the proximal fragment in a fracture with diaphisal extension. All in favor of this approach we have aesthetics arguments (smaller incision), and that avoids the cubital nerve. In case of Bryan - Morrey approach we appreciate the advantages of good viewing area joint, particularly the deal can be completed with olecranon osteothomy (approx. 1 cm) and also a wide and easy access to the two pillar of humeral palette. Disadvantage that knows is relatively more difficult access to the proximal fragment in cases with higher fracture.

For these reasons, for A2 and A3 fracture staff prefers the Bryan – Morrey approach.

**REFERENCES**
5. O'Driscoll SW Supracondylar fractures of the elbow: open reduction, internal fixation Hand Clin. 2004...