The objective of this study was to develop an algorithm for the treatment of the distal humerus fractures. It was analyzed the implants categories (1, 2, 6, 15) and operative techniques (3, 5, 7, 8, 9, 12, 14) currently recommended for the treatment of the distal humerus fractures. It was taken into account the references from the literature (4, 10, 11, 13), our personal experience and the current practice of the discipline of Orthopedics and Traumatology. We analyzed the functional and radiological results for a series of 734 cases of distal humerus fractures over a period of six years. This analysis followed the AO (Arbeitsgemeinschaft für Osteosynthesefragen) classification (16), because this classification fails to cover the full range of the distal humerus fractures with few exceptions – personally I met a single fracture that could not be classified in the AO classification.

Corroborating all the data, we propose the following algorithm of treatment:

1. **A1**
   - A1.1 and A1.2
     - **A1.1. Without displacement**
       - Stable elbow – conservative treatment
       - Unstable elbow
         - Lateral / medial approach or arthroscopic portals
         - Classic/ arthroscopic fixation with Kirschner wire + ligament reconstruction
     - Displaced
       - Lateral / medial approach or arthroscopic portals
       - Classic/ arthroscopic fixation with Kirschner wire + ligament reconstruction

2. **A2 – Surgical only**
   - A2.1
     - Median transtiticipital or Brayan – Morrey approach
     - ORIF 4,5 mm plate minim 2+3/ Y plate/2 perpendicular plates
   - A2.2
     - Median transtiticipital or Brayan – Morrey approach
     - ORIF 4,5 mm plate minim 2+3/ Y plate/2 perpendicular plates
   - A2.3
     - Osteoporosis
       - Brayan – Morrey approach
       - ORIF LCP/ X screws + Herbert screws/ crossing double tension band
3. A3 – Surgical only
   ○ A3.1
     - Median transticipital or Brayan – Morrey approach
     - ORIF 4.5 mm plate minim 2+3/ Y plate/2 perpendicular plates
   ○ A3.2
     - Median transticipital or Brayan – Morrey approach
     - ORIF 4.5 mm plate minim 2+3/ Y plate/2 perpendicular plates
   ○ A3.3
     - Osteoporosis
       - Negative
         ○ Brayan – Morrey approach
         ○ ORIF LCP/ X screws + Herbert screws/ crossing double tension band
       - Positive
         ○ Brayan – Morrey approach + ORIF LCP
         ○ Transolecranon/anterior approach + total elbow replacement

4. B1 – Surgical only
   ○ B1.1
     - Lateral approach or arthroscopic portals
     - ORIF – cannulate 4.5 mm screws/ simple screws/ Kirschner wire/ reconstruction plate
   ○ B1.2
     - Lateral approach or arthroscopic portals
     - ORIF – cannulate 4.5 mm screws/ simple screws/ Kirschner wire/ reconstruction plate
   ○ B1.3
     - Lateral approach or arthroscopic portals
     - ORIF – cannulate 4.5 mm screws/ simple screws/ Kirschner wire/ reconstruction plate

5. B2 – Surgical only
   ○ B2.1
     - Medial approach or arthroscopic portals
     - ORIF – cannulate 4.5 mm screws/ simple screws/ Kirschner wire/ reconstruction plate
   ○ B2.2
     - Medial approach or arthroscopic portals
     - ORIF – cannulate 4.5 mm screws/ simple screws/ Kirschner wire/ reconstruction plate
   ○ B2.3
     - Medial approach or arthroscopic portals

6. B3 – Surgical only
   ○ B3.1 – classic or arthroscopic surgery
     - Hahn – Steinhthal
     - Lateral approach or arthroscopic portals
     - Herbert screws
   ○ B3.2 – classic or arthroscopic surgery
     - Simple fracture
     - Transolecranon/anterior approach or arthroscopic portals
     - Herbert screws
     - Burst fractures
     - Transolecranon/anterior approach
     - ORIF versus total elbow replacement
   ○ B3.3 – classic or arthroscopic surgery
     - Osteoporosis
     - Negative
       ○ Transolecranon/anterior approach or arthroscopic portals
     - Positive
       ○ Transolecranon/anterior approach or total elbow replacement

7. C1
   ○ Brayn – Morrey approach
   ○ ORIF – 2 perpendicular plates

8. C2
   ○ Brayn – Morrey approach
   ○ ORIF – 2 perpendicular plates

9. C3
   ○ Under 60 years
   ○ Brayn – Morrey approach
   ○ ORIF – 2 perpendicular plates
   ○ Over 60 years
   ○ Osteoporosis
     - Negative
       ○ Transolecranon approach
     - Positive
       ○ ORIF LCP/ total elbow replacement

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