

Guest Nation Poster #GN 4

Periarticular Gunshot Fractures With the Formation of Primary Defects of Soft Tissues and Bone Structure

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Purpose: The aim of the work was to analyze the results of treatment of patients with gunshot periarticular fractures with the formation of soft-tissue and bone defects.

Methods: An analysis of the treatment of 85 victims with this category of injuries was carried out, with an average age of 36.8 years (range, 19-62), 81 men and 4 women. Soft-tissue defects (STD) have been divided into 3 types (Ferreira N, Tanwar YS. 2020): alpha—STD closes without reconstruction, beta—requires reconstruction, and gamma—soft-tissue reconstruction is not possible. Epimetaphyseal bone defects (BD) were also divided into 3 groups: A—epiphyseal defect, B—metaphyseal defect, and C—epimetaphyseal defect. Each group included 3 subtypes: I—BD up to 25%, II—26-50%, and III—51% or more.

Results: In the structure of this category of wounded, the elbow joint prevailed with 24, knee 23, ankle 14, shoulder 12, hip 11, and wrist 1. At the first stage of treatment, in addition to debridement and fixation of bone fragments with rod external fixation for STD of gamma type and BD type B3 and C3 and the Mangled Extremity Severity Score (MESS) ≥ 7 scale, amputation (7) was performed. In beta type for STD of the shoulder, elbow, and wrist joints, a thoracodorsal flap (n = 7) was used with the replacement of the bone defect C3 with a spacer (n = 6), free movement of tissues 1, and the Italian technique 5. For STD of the knee and ankle joints, the medial head of the calf muscle 7, free movement of tissues 5, sural flap 8, and the Italian technique 1 were used. For type A1, B1, B3. and C1 BD, bone autoplasty (12) was performed. For segmental BDs of 5 cm or more, the Masquelet technique and scaffolds 9. With BD A2-A3 and C2-C3, arthroplasty was performed: shoulder 2, elbow 2, hip 5, and knee 3; and arthrodesis: shoulder 4, wrist 1, knee 3, ankle 8. The median follow-up was 12.8 months (range, 6-17). Contractures in this category of patients occurred in 78.7%. Delayed fusion after the Masquelet technique and scaffolds occurred in 88% of cases. Deep infection after the Masquelet technique, scaffolds, and arthroplasty was 8.7%.

Conclusion: Treatment of the wounded with gunshot combined defects of soft tissues and bone structure of periarticular localization is a difficult challenge today.