

Innovative Splinting Technique for Preventing Manus Valgus Deformity Following Excision of Radius due to Malignant Tumors in Pediatric Patients

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Introduction: Excision of radius following recurrent benign or malignant tumors of radius puts the hand in valgus position compromising hand functions. Stability at wrist can only be achieved with arthrodesis at skeletal maturity. We devised an innovative splinting technique to prevent manusvalgus deformity till skeletal maturity.

Objective: To review the outcome of innovative splinting technique following resection of radius.

Methods: Three children with mean age 7years, were put on splintage protocol post excision of radius with the objectives of providing stable wrist, preserving hand functions and prevention of development of valgus deformity. As per clinical presentation with reference to radial nerve, patients were fitted with Modified radial cock-up splint or Modified dynamic wrist splint. A Modified static cock-up splint was prescribed during demanding play activities. A dual stretch cock-up night splint was given for applying longitudinal and radial stretch at wrist for preserving length of soft tissue structures for future surgical interventions at wrist. Physical and functional evaluation for affected hand was done with and without splint.

Results: Patients were followed for mean 4.3 years. Mean Musculoskeletal Tumor Society score was recorded as 87.78% with splint and 65.56% without splint. Splint helped to enhance grip strength by 25%, and average pinch (pad to pad, lateral, tripod) strength by 28%.

Conclusion: Innovative splinting technique is successful in preventing manus valgus deformity. It keeps the wrist in supple position. Combination of splints with specific protocol, support the very purpose of limb saving radius excision surgery in pediatric patients.