

Combined Tarsal Coalition Resection and Arthroereisis in Treatment of Symptomatic Rigid Flat Foot in Pediatric Population

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Abstract : Introduction. Symptomatic tarsal coalition with rigid flat foot often demands operative solution. An isolated coalition resection does not guarantee pain relief; correction of co-existing foot deformity may be required. The objective of the study was to analyze the results of combination of tarsal coalition resection and arthroereisis. Patients and methods. We retrospectively reviewed medical records and radiographs of children operatively treated in our institution for symptomatic calcaneonavicular or talocalcaneal coalition between the years 2019 and 2022. Eight patients (twelve feet), 4 boys and 4 girls with mean age 11.2 years, were included in the study. In six patients (10 feet) calcaneonavicular coalition was diagnosed, two patients (two feet) sustained talonavicular coalition. To quantify degrees of foot deformity, we used calcaneal pitch angle, lateral talar-first metatarsal (Meary's) angle, and talonavicular coverage angle. The clinical results were assessed using the American Orthopaedic Foot and Ankle Society (AOFAS) Ankle Hindfoot Score. Results. The mean follow-up was 28 month. The preoperative mean talonavicular coverage angle was $17,75^{\circ}$ as compared with postoperative mean angle of $5,4^{\circ}$. The calcaneal pitch angle improved from mean $6,8^{\circ}$ to $16,4^{\circ}$. The mean preoperative Meary's angle of $-11,3^{\circ}$ improved to mean $2,8^{\circ}$. The preoperative mean AOFAS score improved from 54.7 to 93.1 points post-operatively. In nine of twelve feet, overall clinical outcome judged by AOFAS scale was excellent (90-100 points), in three feet was good (80-90 points). Six patients (ten feet) obviously improved their subtalar range of motion. Conclusion. For symptomatic stiff or rigid flat feet associated with tarsal coalition, the combination of coalition resection and arthroereisis leads to normalization of radiographic parameters, clinical and functional improvement with good patient's satisfaction and likely to be more effective than the isolated procedures.

Keywords : rigid flat foot, tarsal coalition resection, arthroereisis, outcome

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