

Tibial Rotational Osteotomy and Distal Tuberosity Transfer for Obligatory Congenital Patella Dislocation – Surgical Technique and Seven Year Follow Up

Michael Drexler, MD, CANADA

Tim Dwyer, MBBS, CANADA

De Juan Ng, FRACS(Orth), AUSTRALIA

Nikolaus Reischl, MD, CANADA

Meir Marmor, MD, USA

Fahad Gulam Attar, FRCS (Tr & Orth), MRCSEd, MBChB, UNITED KINGDOM

John Charles Cameron, MD, FRCSC, CANADA

Holland Orthopaedic & Arthritic Centre
Toronto, Ontario, CANADA

Summary:

Congenital dislocation of the patella is a rare condition with two clinical syndromes: fixed and obligatory dislocation of the patella. A series of patients presenting with obligatory congenital patella subluxation in combination with excessive external tibial torsion > 45°, underwent tibial derotation osteotomy and tibial tuberosity transfer achieving a satisfactory outcome in terms of pain relief

Abstract:

Introduction:

Congenital dislocation of the patella is a rare condition with two clinical syndromes: fixed and obligatory dislocation of the patella. In addition to shortened quadriceps muscles, hypoplastic patellae and hypoplastic trochlear grooves, excessive external tibial torsion (EETT) is a common finding, and EETT > 30° is known to contribute to the progression of knee instability and osteoarthritis. This study evaluates the long term outcomes of patients undergoing simultaneous tibial derotation osteotomy and tibial tuberosity transfer for the treatment of obligatory congenital dislocation of the patella.

Methods:

Between 1998 and 2011, a combined tibial derotation osteotomy and tibial tuberosity transfer was performed in twelve patients (fifteen knees) with congenital patella subluxation in combination with EETT. Clinical and functional evaluation was carried out using preoperative and postoperative Knee Society Score (KSS), the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) questionnaire and the short form 12 (SF-12), as well a visual analogue score (VAS) pain scale.

Results:

The mean follow-up period was 84 months (range, 15 to 156). The mean patient age was 36 years (range, 19 to 70 years). Patients presented with a mean pre-operative external tibial torsion of 62° (range, 55-70°), with an average rotational correction of 35° (range, 30-45°) after surgery. Significant improvement was found in the KSS part I ($p < 0.0001$) (from 37.3 ± 14.2 to 89 ± 11 points) and KSS part II ($p < 0.0001$) (from 25.2 ± 26 to 84.6 ± 13.9 points). Quality of life, as measured using the SF-12 outcome, also improved significantly ($p < 0.0001$), as did all WOMAC questionnaire score subscales ($p < 0.0001$). The VAS preoperative status for pain improved from 8.8 ± 1.9 to 2.4 ± 1.5 . Two patients had a nonunion of the tibial osteotomy site; one patient required bone grafting, whilst another patient required revision to TKA.

Conclusions:

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A series of patients presenting with obligatory congenital patella subluxation in combination with excessive external tibial torsion $> 45^\circ$, underwent tibial derotation osteotomy and tibial tuberosity transfer achieving a satisfactory outcome in terms of pain relief and improved function. We recommend this procedure be performed in patients with congenital patella dislocation who have associated EETT $> 45^\circ$.