Fassier-Duval
Telescopic IM System™

Challenges with Fassier-Duval rod exchanges in congenital pseudarthrosis of the tibia: explant roadblock and solution

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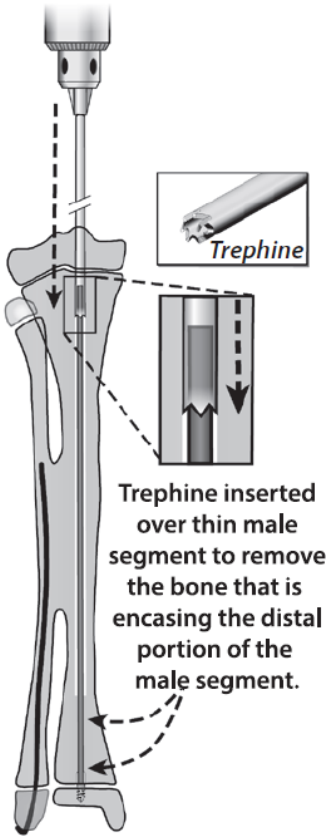
Abstract:

Congenital pseudarthrosis of the tibia (CPT) is characterized by anterolateral tibial bowing and hamartomatous periosteum that predisposes it to fracture. Fassier-Duval telescopic rods can improve the structural integrity of bone segments after reconstruction. We present our experience treating CPT with the Fassier-Duval rod and a novel technique for Fassier-Duval exchange that was developed after extraction failed in one patient.

Patients were identified who underwent treatment with Fassier-Duval rods for CPT between 2007 and 2016 and had undergone their first rod exchange. Medical records were reviewed, and complications were classified using the system of Cherkashin. Four patients had an average age at the initial insertion of 6 years 4 months (4-9 years). The average follow-up duration after initial Fassier-Duval implantation was 5.4 years (2.7-8.1 years). Seven Category 2 complications were associated with the Fassier-Duval rod: interlocking K-wire migration (2), lengthening failure (2), explant failure (1), distal migration of female rod through physis (1) and male rod portion proximally migrating through physis (1). Three patients underwent one rod exchange [average 3.2 years after implantation (range, 2.7-3.9 years)]. One patient underwent two rod exchanges (2.9 and 6.9 years after initial implantation). The second attempt at exchange failed; this failure prompted the development of custom trephines to remove the hard bone that can encase the distal male segment. The use of custom trephines was made necessary by dense sclerotic bone at the previous pseudarthrosis site.

We recommend that custom trephines be available during Fassier-Duval rod extraction to avoid failed retrieval.



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