The Use of the Absorbable Interference Screw for a Split Anterior Tibial Tendon (SPLATT) Transfer Procedure

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A split anterior tibial tendon transfer combined with an interference screw ensures superior tendon transfer fixation in the treatment of equinovarus deformity of the foot in children and adults with static encephalopathy.

The split anterior tibial tendon (SPLATT) transfer is a procedure commonly used to correct equinovarus deformity of the foot, primarily in children and adults with static encephalopathy. The procedure is indicated if over-pull of the tibialis anterior exists, resulting in a supination deformity. Fixed bony deformity is a contraindication. This procedure, often combined with other soft-tissue lengthening, has yielded excellent results.1-3

Typically, the transferred split tendon is fixed by placing the tendon into a bony tunnel and securing it to the bottom of the foot with a button or threading the transferred split tendon into two bony tunnels. The disadvantage of using the button is that it can result in underlying skin slough, ulcerating, and discomfort. The difficulty with bone tunnels is that they require a larger lateral incision and, with the weak (sometimes osteoporotic) bone in patients with static encephalopathy, the bony bridge between the tunnels often is fragile and can break, resulting in less reliable fixation.

Interference screw fixation using a cannulated bioabsorbable interference screw to fix the transferred hemi-tendon has been successful at our institutions.

Surgical Technique

The surgical technique for a SPLATT transfer is performed in the usual fashion.1-3 The split tendon is harvested at its insertion, taken to a proximal midline incision, and transferred laterally to a point over the cuboid. A 1-cm lateral incision is made directly over the central cuboid after the center is first identified with fluoroscopy. An oblique incision is performed parallel to Langer’s lines. It is carried down through the subcutaneous tissue. Care is taken to avoid any cutaneous and sensory nerves. Blunt dissection is used through the underlying extensor brevis muscle directly down to the periosteum. A periosteal elevator or electrocautery is used to divide the periosteum directly on bone. A guide pin is drilled through the cuboid bone from superolateral to plantar-medial.

Position is confirmed with fluoroscopy, and is subsequently overdrilled with a 6-mm drill and then tamped. The tamping provides better fixation, especially in osteoporotic bone common in patients with static encephalopathy. It is important to chamfer the outermost cortex slightly so that the tendon passes easily.

The screw is placed in a flush position with the lateral surface of cuboid. Secure fixation is confirmed by tensioning the transferred portion of the tendon.

The transferred tendon is secured with a nonabsorbable suture and passed through the drill hole with Keith abdominal needles (HMS Torrington, Hospital Marketing Services Company Inc, Industrial Park Naugatuck, Conn). The sutures are pulled through the
plantar aspect of the foot, and the tendon is tensioned appropriately to the transferred hemi-tendon. Correct tension is established when the transferred hemi-tendon is taught, with the foot in the corrected position, and the nontransferred hemi-tendon slightly lax. Care must be taken not to over-tighten the transferred hemi-tendon.

A guide pin is then placed through the previously drilled hole and a 7×23-mm bioabsorbable screw (Ethicon, Somerville, NJ) is introduced. This single screw size has been adequate for all cases performed by the authors, and other techniques have been used for young children. The screw is placed in a flush position with the lateral surface of the cuboid (Figure 1). Secure fixation is confirmed by tensioning the transferred portion of the tendon. If satisfactory, the guide pin is removed and the incisions are closed.

For this procedure, the patient wears a short-leg cast (weight bearing) for 6 weeks postoperatively.

**DISCUSSION**

The use of SPLATT transfer is common in children and adults with static encephalopathy secondary to cerebral
palsy or cerebral vascular accident. This can result in equinovarus deformity of the foot. Split anterior tibial tendon transfer is effective for correcting this deformity, often used in conjunction with other procedures such as tibialis posterior or tendo-Achilles lengthening.1-3

Using the interference screw, the quality of the fixation appears to be significantly superior to previous techniques, and time, incision size, and bone loss are decreased. This technique has been used to secure multiple leg grafts such as anterior cruciate ligaments in the knee and has been shown to provide strong fixation.4-6 This technique may be related to the bioabsorbable screw have been reported. E

REFERENCES