Calcaneal pull-down technique in the management of resistant equinus associated with congenital club foot

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BACKGROUND

Dr Ponseti developed a method for treating congenital clubfoot that uses manipulation and casting followed by percutaneous Achilles tenotomy (PAT).¹ This method is successful in almost 90% of cases^{1,2} and PAT should be included in almost 85% of cases.³ A small number of feet are left with residual equinus despite PAT. We present a technique first described by Dr Miroslav Zhivkov (at the International Clubfoot Conference in Manchester, November 2003) that can be used as an adjunct to PAT in the management of resistant equinus deformity.

TECHNIQUE

PAT and a period of postoperative Ponseti casting is always attempted in the first instance. The procedure described in this technical note is only used when residual equinus exists despite this intervention. Under general anaesthesia, a second PAT is performed. Following this, a cat's paw retractor is inserted through the skin so the tines engage the cartilage on the superior aspect of the calcaneum. Traction is applied through the cat's paw while a dorsiflexion force is applied by pushing on the plantar surface of the forefoot. This creates a turning moment at the ankle joint. Without traction on the calcaneum, dorsiflexion of the forefoot can lead to a rocker bottom deformity. X-ray can be used to assess the correction (Fig 1) or a clinical assessment can be employed.

DISCUSSION

This technique offers an adjunct to PAT and can be used for resistant equinus, recurrent equinus or for cases of repeated plaster

slipping. Early management of resistant equinus avoids the need for more invasive surgery in the future.

References

- 1. Ponseti IV. Treatment of congenital club foot. *J Bone Joint Surg Am* 1992; **74**: 448–454.
- 2. Herzenberg JE, Radler C, Bor N. Ponseti versus traditional methods of casting for idiopathic clubfoot. *J Pediatr Orthop* 2002; **22**: 517–521.
- 3. Morcuende JA, Abbasi D, Dolan LA, Ponseti IV. Results of an accelerated Ponseti protocol for clubfoot. *J Pediatr Orthop* 2005; **25**: 623–626.

A 'TAD' easier to calculate!

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BACKGROUND

Failure of fixation of peritrochanteric fractures that have been treated with a fixed angle sliding hip screw device or intramedullary device is frequently related to the position of the lag screw in the femoral head.^{1,2} Baumgaertner *et al* stated that the risk of screw cut-out is reduced if the tip–apex distance (TAD) is less than 25mm.¹ However, the formula to calculate the TAD can deter some clinicians from using this method to calculate the distance accurately (Fig 1). The distance is also difficult to calculate intraoperatively owing to the differences in magnification using an image intensifier. Using a known measurement as a reference scale intraoperatively removes magnification differences and eliminates the need to use the original formula to calculate the TAD.

TECHNIQUE

The thread (outer) diameter of the sliding hip screws of single screw design implants available from the NHS Supply Chain for use in hip fracture fixation is approximately 12.5mm (Table 1). Using this measurement, if the distance between the tip of the hip screw and the apex of the femoral head is less than the diameter of the hip screw on both the anteroposterior and lateral views, then the TAD will be less than 25mm. Figure 2 confirms the ratios calculated when visually estimating the distance intraoperatively.

DISCUSSION

Knowledge of the diameter of the sliding hip screw makes it much easier to calculate the TAD intraoperatively, which should reduce the failure rate of fixation of peritrochanteric fractures of the hip.³

Corrected TAD = (X ap × D true / D ap) + (X lat × D true / D lat)

X is TAD and D is diameter of lag screw in millimetres.
D true is the actual diameter of the lag screw used.

Figure 1 Formula to calculate the tip–apex distance (TAD)

Figure 1 X-ray demonstrating some residual equinus despite PAT and application of a dorsiflexion force at the ankle (left), and improvement of the equinus with the calcaneal pull-down technique (right)

Table 1 Sliding hip screws available for hip fracture fixation

Implant manufacturer	Name of implant	Thread diameter of sliding hip screw
Biomet (Warsaw, IN, US)	HipLOC®	12.5mm
Ortho Solutions (Maldon, UK)	Compression Hip Screw (CHS)	12.7mm
Synthes (West Chester, PA, US)	Dynamic Hip Screw (DHS) Blade	12.5mm
Synthes (West Chester, PA, US)	Dynamic Hip Screw (DHS) Screw	12.5mm
Smith & Nephew (London, UK)	Compression Hip Screw (CHS)	12.7mm
Smith & Nephew (London, UK)	Intramedullary Hip Screw Clinically Proven (IMHS™ CP)	12.7mm
Stryker (Kalamazoo, MI, US)	Gamma™ Nail	10.5mm
Stryker (Kalamazoo, MI, US)	Omega 3 Compression Hip Screw (CHS)	13.0mm
Zimmer (Warsaw, IN, US)	Versa-Fx® II / Dynamic Hip Screw (DHS)	12.7mm

Figure 2 Intraoperative fluoroscopy of a dynamic hip screw insertion illustrating the distance ratios confirming a tip–apex distance of less than 25mm

References

1. Baumgaertner MR, Curtin SL, Lindskog DM, Keggi JM. The value of the tip–apex distance in predicting failure of fixation of peritrochanteric fractures of the hip. *J Bone Joint Surg Am* 1995; **77**: 1,058–1,064.

2. Geller JA, Saifi C, Morrison TA, Macaulay W. Tip–apex distance of intramedullary devices as a predictor of cut-out failure in the treatment of peritrochanteric elderly hip fractures. *Int Orthop* 2010; **34**: 719–722.

3. Baumgaertner MR, Solberg BD. Awareness of tip–apex distance reduces failure of fixation of trochanteric fractures of the hip. *J Bone Joint Surg Br* 1997; **79**: 969–971.

Nebulised local anaesthesia technique for fish bone removal

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BACKGROUND

We would like to highlight a local anaesthesia technique for removal of fish bone from distal parts of the oropharynx. Patients commonly present

to acute ear, nose and throat (ENT) departments with fish bones lodged in the oropharynx. These are often easy to remove if embedded in the tonsil or proximal tongue base. However, if lodged in the distal tongue base or vallecula, they are extremely difficult to remove in the clinic setting. One frequently used technique for removal involves the use of an anaesthetic laryngoscope and Magill forceps, with the patient lying supine.¹ In our experience, spraying the oral cavity and oropharynx with co-phenylcaine often fails to provide sufficient pain relief and suppression of the gag reflex required to allow for removal of the bone on awake patients. As a result, many patients require general anaesthesia.

TECHNIQUE

Following discussion with anaesthetic colleagues, we have adopted the technique they commonly use for awake fiberoptic intubation. For this approach, we use 2ml of 2–4% lidocaine in a standard nebuliser for 5–15 minutes to achieve sufficient topical anaesthesia. In our experience, this method provides improved local anaesthesia compared with spraying with co-phenylcaine.

DISCUSSION

Nebulising equipment is readily available on most hospital wards and lidocaine is found in the majority of ENT treatment rooms. We feel this method offers a cheap and simple alternative to standard local anaesthesia techniques with the additional benefit of improved efficacy, increased patient comfort and improved patient safety as it decreases the need for general anaesthesia.

Reference

1. Nathan B, Premachandran S, Hashemi K. Removal of fish bones from the throat. *J Accid Emerg Med* 1995; **12**: 302–303.