Open reduction and internal fixation is usually performed with a locking pre-contoured acromial plate (Fig 2). The addition of perioperative botulinum toxin injections into the three parts of deltoid (400 units in total) can temporarily defunction the deltoid muscle.

DISCUSSION

Botulinum toxin works by inhibiting the release of acetylcholine, which is an essential neurotransmitter at the neuromuscular junction, thereby causing muscle paralysis.⁴ The use of botox for acromial fractures does temporary reduce the deltoid muscle tension. The effect of the botulinum toxin is known to last approximately 3–6 months and the injected muscle always recovers strength and function.⁵ Patients should be warned of this prolonged recovery, but its use should result in a pain-free and functioning reverse arthroplasty.

References

1. Nolan BM, Ankerson E, Wiater JM. Reverse total shoulder arthroplasty improves function in cuff tear arthropathy. *Clin Orthop Relat Res* 2010; **469**: 2,476–2,482.
2. Smith CD, Guyver P, Bunker TD. Indications for reverse shoulder replacement: a systematic review. *J Bone Joint Surg Br* 2012; **94(5)**: 577–583.
3. Rouleau DM, Gaudelli C. Successful treatment of fractures of the base of the acromion after reverse shoulder arthroplasty: case report and review of the literature. *Int J Shoulder Surg* 2013; **7(4)**: 149–152.
4. Dressler D, Saberi FA, Barbosa ER. Botulinum toxin: mechanisms of action. *Arg Neuropsychiatr* 2005; **63(1)**: 180–185.
5. Shen J, Ma J, Lee C *et al*. How muscles recover from paresis and atrophy after intramuscular injection of botulinum toxin A: study in juvenile rats. *J Orthop Res* 2006; **24(5)**: 1,128–1,135.

Radiolucent triangle and U-bolster for lower leg positioning for circular frame application

F Awad, T Jennison, A Hughes

Royal Devon and Exeter Hospital, Exeter, UK

CORRESPONDENCE TO

Fady Awad, E: fady.awad@nhs.net

doi 10.1308/rcsann.2018.0122

BACKGROUND

Application of a circular frame to the tibia is a procedure in common usage for both trauma management and elective deformity correction. The ring-first technique uses temporary reference wires to position the ring in the required orientation relative to the bone axis, prior to definitive fixation.^{1,2} Instability of the fractured limb can pose technical challenges for accurate ring positioning and fixation.

TECHNIQUE

We advocate positioning of the leg using the following technique. A radiolucent triangle and U-bolster are sterile wrapped in a Mayo cover and sealed with an adhesive plastic drape. After skin preparation and sterile draping, the supports are placed as demonstrated in Figures 1 and 2.

After appropriate positioning of the leg, the surgeon can then proceed to definitive fixation, as shown in Figure 3.

Figure 1 Nonsterile positioning of the leg.

Figure 2 Sterile positioning of the leg.

Figure 3 Circumference access for ring positioning.

DISCUSSION

The advantages of this technique are that it allows unencumbered circumferential access, minimises fracture movement and facilitates accurate positioning of the ring prior to definitive fixation.

References

1. Tafazal S, Madan S, Ali F *et al*. Management of paediatric tibial fractures using two types of circular external fixator: Taylor spatial frame and Ilizarov circular fixator. *J Child Orthop* 2014; **8(3)**: 273–279.
2. Harbacheuski R, Fragomen A, Rozbruch S. Does lengthening and then plating (LAP) shorten duration of external fixation? *Clin Orthop Relat Res* 2012; **470(6)**: 1,771–1,781.