Clinical

Fixation and Deformity Correction by Plate Osteosynthesis of a Tibial Shaft Malunion after Traditional African Bone Setting

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Abstract
Given the global nature of modern travel and the possibility of deployment to the African continent, it is conceivable that medical officers in the course of their general duties may be exposed to patients managed with traditional bone setting techniques. Whilst these techniques may prove effective for many, complications may still arise and their management may be challenging.

Introduction
Traditional bone setting (TBS) techniques are still popular in certain areas of Africa. Access to health care and distrust of modern techniques leads to the use of herbal splints with spiritual incantations in attempt to achieve fracture fixation. The potential complications of this approach may be severe. Although, a major problem in the developing world, such cases may rarely present to British or other Western healthcare systems. However, with increasing global travel orthopaedic surgeons previously unexposed to such treatment may be required to treat its consequences.

Case Report
We report a case of a 17 year old boy, who presented to us 3 months after sustaining a multi-fragmentary fracture of his midshaft tibia and fibula (AO-4.2A3). The injury occurred playing football and was treated in his native Ghana with traditional bone setting techniques. He presented with an obvious mal-union and a varus deformity of his lower limb (Figure 1).
He was neurovascullarly intact and had evidence of chronic skin changes over the anterior tibia. His mother was a nurse on our elective ward and after consultation with the family re-fixation of the fracture was decided upon due to his poor initial outcome.

A posterolateral approach to the tibia and fibula was used for fracture exposure. Osteoclasis was carried out and the fractures reduced. A 4.5 mm locking plate was used to stabilise the tibia and a small fragment plate for the fibula. Demineralised bone matrix putty was used along with autologous bone graft.

He was kept non-weight bearing for 6 weeks and progressed well with clinical evidence of fracture healing at 6 weeks and callus formation at 3 months (Figure 2). At last follow-up (9 months post-op) he has made a full recovery.

Discussion
Documented in Egyptian times, bone setting for fracture fixation is now unheard of in Western culture. However, due to traditional beliefs, fear of modern medicine and lack of access to health care it is still widely practised, especially in Western Africa. Tight splinting of the affected limb often with herbal dressings is the mainstay of treatment. The cost and incidence of its serious complications are clear and well documented[1 & 2]. The most serious of which, gangrene and auto-amputation, may never reach Western care. With increasing global travel and access to health services, as well as education of patients and relatives exposed to bone setting, British orthopaedic surgeons may well become more exposed to the chronic complications of this form of treatment.

Even without initial bone setting, malunion of tibial shaft fractures are a well-documented complication. Jones and Barnett described cancellous bone-grafting for non-union through the posterolateral approach in 1955[3]. It allows excellent exposure of the fracture sites in order to perform osteoclasis and reduction of the fragments. The internervous plane between gastronemius, soleus and flexor hallucis longus muscles
Conclusion
With the increasing globalisation of health care, British orthopaedic surgeons should be aware of and prepared to treat the complications of traditional bone setting.

References

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