

ORTHOPAEDIC MANAGEMENT OF A TIBIAL FRACTURE IN A JUVENILE ARABIAN ORYX (*ORYX LEUCORYX*)

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The Arabian oryx (*Oryx leucoryx*), widely known as Wadehi by Bedouins of the Arabian peninsula, became officially extinct in 1972 when the last known surviving specimen was exterminated in the Jiddat Al Harasis in Oman (Henderson, 1974). Fortunately, conservation projects were established throughout the Middle East with the aim of breeding this species in captivity for future reintroduction programmes. Currently, there are five reintroduced populations in four different countries all under different degrees of protection (Harding *et al*, 2007). This species is also widely kept in private collections throughout the region.

HH Sheikh Sultan bin Zayed Al Nahyan created a wildlife sanctuary at Wrsan, Ajban, Abu Dhabi, approximately 15 years ago. The collection includes a large number of Arabian oryx. The current number in the collection is 310 individuals.

In mid January 2008, a juvenile male Arabian oryx (3 - 4 weeks old) weighing 13.4 kg was found in its enclosure recumbent and unable to stand. The oryx was anaesthetised with isoflurane in oxygen for further examination. A survey latero-lateral radiograph showed a closed low energy midshaft oblique fracture of the left tibia (Fig. 1). Ungulates, but in particular males, sustaining fractures on the hind limbs are very commonly euthanased as the management of similar fractures can be cumbersome and the prognosis reserved or poor. Similar fractures of the ulna and radius in smaller ungulates (e.g. *Gazella g. cora*) have been repaired successfully at our facility using external skeletal fixators types 1 and 2, but we have never previously attempted to repair fractures on the hind limb of a larger species.

The fracture was reduced under anaesthesia and was immobilised by the placement of two 5/64" positive profile threaded pins on the proximal and distal fragments and tie-in using a bar and clamps. A topical agent to promote healing was placed around the pins on a dry dressing and the whole surgical site covered using a flexible conforming bandage. The post-operative treatment included 1ml of a non-steroidal analgesic and anti-inflammatory agent IM, SID for three days and 3ml of a long-acting antibiotic IM. The oryx was offered 150 ml of a home made milk substitute four times a day, but also had access to fresh hay and a proprietary pelletised feed formulated for oryx ad libitum. Immediately after surgery the oryx was able to stand and started placing some weight on the affected leg. Human contact was subsequently kept to a minimum.

Six days after surgery the oryx was found holding the leg up and not been able to place any weight on it. A close examination and a follow up radiograph revealed that the proximal pin on the proximal



Figure 3. Oryx calf with external fixator device.

fragment had become loose causing a displacement of the fragments. The other three pins were holding firmly. The loose pin was removed and replaced about 10mm proximally from the original insertion site. In addition, an extra pin was placed proximally to this pin in order to provide extra strength. The conforming bandage was replaced this time using a thermoplastic tape firmly anchored around the bar and clamps providing a reinforcement to the external skeletal fixator. A follow up survey radiograph obtained after the second procedure showed a near-perfect alignment of the bone fragments and abundant callous formation around the fracture site (Fig. 2). As in other similar cases healing was completed in three weeks. However, the thermoplastic casting was first removed and then the pins were gradually removed to transfer pressure to the newly healed fracture site over a period of two weeks. The oryx recovered uneventfully showing no signs of lameness. The oryx was placed together with other young newly weaned oryx to avoid imprinting and will be gradually introduced to one of the herds maintained at Wrsan.

This report demonstrates that it is possible to repair fractures of the hind limb in juvenile ungulates using external skeletal fixators as described in domestic species (Egger, 1993). Careful post-operative care together with the necessary behavioural considerations would allow fracture repair in juvenile ungulates and the subsequent integration with breeding companions. Similar techniques can probably be adapted to repair similar fractures in sub-adult and even adult individuals.

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Figure 1. Latero-lateral radiograph of the left tibia of a juvenile male Arabian oryx (*Oryx leucoryx*) showing a closed low energy midshaft oblique fracture. Note the growth plates typical of a growing ungulate.

Figure 2. Latero-lateral radiograph of the same specimen one week after the second surgery. Note the three positive profile threaded pins in the proximal fragment and the two pins in the distal fragment. There is radiological evidence of callous formation around the fracture line.