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Surgical management of carpus valgus in a foal

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This report describes the surgical management of carpus valgus in a foal. Angular limb deformities (varus or valgus) are common in young, growing horses, with carpal valgus being one of the most frequently observed conditions. In a retrospective study of 248 Irish Thoroughbred foals, O'Donohue et al. (1992) reported that 11.3% were treated for developmental orthopaedic disease, with angular limb deformities and physeal dysplasia together accounting for 72.9% of these cases. Similarly, Lepeule et al. (2009) recorded developmental orthopaedic disease in 47% and osteochondrosis in 36% of 378 foals.

Angular limb deformities may be congenital or acquired, arising from mineral imbalances, abnormal weight-bearing, or trauma to the growth plates, leading to asymmetric bone growth. Early correction is essential to prevent long-term lameness and compromised performance. Management may be conservative or surgical, depending on factors such as the type and severity of deformity, its anatomical location, and the age of the animal relative to physeal closure. Conservative approaches include restricted exercise, external support (splints), and corrective hoof trimming or shoeing. Surgical options include periosteal stripping to accelerate physeal growth, transphyseal screw fixation to retard growth, and corrective ostectomy in more advanced cases.

A 3-month-old male foal was presented with bilateral forelimb lameness and marked lateral angular deviation (>20°) of both carpi (Fig. 1). Palpation revealed firm, non-painful swelling of both carpal joints, and the foal's clinical parameters, appetite, and elimination were normal. Radiographs confirmed asymmetric growth of the distal radial physes, with increased medial physeal growth (Fig. 2).

After 12 hr of fasting, anaesthesia was achieved using xylazine (1.1 mg/kg body weight IV), butorphanol (0.02 mg/kg IV), ketamine (2.2 mg/kg IV), diazepam (0.02 mg/kg IV), and maintained with isoflurane (2% in oxygen). Surgical correction involved medial transphyseal bridging and lateral periosteal stripping of the distal radius.

Fig. 1: Severe lateral deviation of both forelimbs below carpus in a 3-month-old foal.

Fig. 2: Asymmetrical bone growth at distal radial epiphyseal growth plate in the preoperative radiographs of right carpal joint.

Fig. 3: Immediate postoperative radiograph with screw placement in metaphysis and epiphysis of distal radius on medial side with an 8 shaped wiring.

On the medial aspect of the right distal radius, a 5-cm incision was made, and the growth plate was

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identified with a 20-G needle. Two holes were drilled, one in the distal epiphysis and one in the metaphysis, and two 4.5-mm cancellous screws were placed. A figure-of-eight tension band wire was applied to compress the physis and retard medial growth. On the lateral aspect, a similar skin incision was followed by a 2.5-cm periosteal incision, and the periosteum was elevated to accelerate lateral physeal growth. The identical procedure was performed on the left forelimb (Fig. 3). Incisions were closed with nylon (1-0) in simple interrupted sutures.

Postoperatively, ceftriaxone–tazobactam (20 mg/kg IV, BID for 5 days) and meloxicam (0.4 mg/kg IV, once daily for 3 days) were administered, along with regular povidone-iodine wound dressing and pressure bandaging.

Radiographs taken every 15 days showed progressive correction, with controlled medial growth retardation and enhanced lateral growth. By day 56, bone growth on both sides of the distal radial physis had equalized. Implants were removed at two months, and limb alignment and function were restored to near normal (Figs. 4, 5). The foal recovered without complications.

Fig. 4: Postoperative day 42 showing reduced limb angulation.

Fig. 5: Near normal limb alignment and function after 2 months.

This case demonstrates the effectiveness of medial transphyseal bridging combined with lateral periosteal stripping in correcting carpus valgus in foals. Previous studies, including Carlson *et al.* (2012), support the combined screw-and-tension-band technique over single screw placement due to reduced risk of physitis or metaphyseal collapse. Early surgical intervention contributed to the successful outcome in this foal.

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