Audevard clinical case competition: Jasmin Brooks

History, presenting complaint and clinical findings

A 10-year-old gelding presented following accidental trauma with a pitchfork resulting in two puncture wounds over the dorsal aspect of the left hind pastern. The horse was examined later that day after becoming acutely non-weightbearing lame.

On presentation the gelding was non-weightbearing lame (AAEP grade 5/5) on the left hindlimb (LH). Two small puncture lesions were noted one along the coronary band dorsally (Figure 1) and a further dorso-laterally 3cm proximal to the coronary band (Figure 2) which was extruding some serous material. There was marked effusion of the coffin joint. No other abnormality was detected on palpation of the limb. Hoof testers were applied to the sole which showed no response. Vital parameters were elevated with a heart rate of 64 beats per minute and temperature of 39.1 degrees centigrade.

Diagnostic approach

Due to the marked distension of the distal interphalangeal joint and the puncture wounds over the dorsal and dorso-lateral pastern radiography was performed to assess for osseous injury, intra-articular gas, and evidence of hoof abscessation. The gelding was sedated with intravenous detomidine (0.02mg/kg, Equimidine, Zoetis) and butorphanol (0.02mg/kg, Torbugesic, Zoetis) for chemical restraint. Non-weightbearing images were acquired with the shoe still in place due to the gelding's discomfort. Two projections were obtained which included a lateral-medial (*Figure 3*) and a dorsal plantar (*Figure 4*).

Radiography revealed marked effusion of the distal interphalangeal joint (*Figure 3*). Whilst the shoe is still in place there is no evidence of gas pocketing of an abscess. Furthermore, there is no evidence of gas tracking because of a penetrating injury into the distal interphalangeal joint, however this cannot be ruled out without further synoviocentesis.

Synoviocentesis was next performed aseptically using the dorsal approach. Upon sampling significant pressure was released from the distal interphalangeal joint space. Laboratory analysis of the fluid revealed a white blood cell count reading of 'Hi' and a total protein of 58g/L. A manual white blood cell reading was taken with a 60% neutrophil count. This was consistent with a septic osteoarthritis of the distal interphalangeal joint.

Treatment and outcomes

The gelding was referred to the hospital for investigative arthroscopy of the left hind distal interphalangeal joint. The gelding was started on gentamicin (Gentadug, 85mg/ml, Duggan) intravenously and penicillin (Primopen, 300mg/ml, Fatro) intramuscularly.

Examination of the dorsal pouch of the left hind coffin joint arthroscopically revealed that the joint was filled with fibrin and synovial hypertrophy. However, there was no evidence of a puncture or foreign material within the joint space. Examination of the medial side revealed an unstable fracture of the medial margin of P2 (*Figure 5*). This was debrided from its soft tissue attachments and removed in multiple pieces (*Figure 6*). The joint was lavage extensively and medicated with 200mg amikacin. There were no intra-operative complications and the gelding recovered well from anaesthesia with a cast in place.

A computed tomography (CT) scan was performed the following day with standing sedation. This confirmed complete fracture removal. There was a defect on the distal dorsal medial aspect of P2, approximately 7mm x10mm (*Figure 7)*.

Forty-eight hours post-operatively the synovial WBC had decreased to $11.19x10^9$/L and the gelding was sound at walk. The gelding was discharged for 3 weeks stable rest followed by 3 weeks small paddock turnout. Full turnout was then allowed. The gelding was examined during this period of full turnout, and the owner reported no post-operative complications or lameness. Ridden work will commence 4 months post-surgery.

Discussion

Acute intra-articular fractures should be considered an important differential diagnosis in horses presenting with severe synovitis following periarticular trauma, even when synovial cytology suggests sepsis. Recent evidence demonstrates that acute fractures may produce marked elevations in total nucleated cell count and total protein, potentially mimicking septic arthritis (Mason, O'Neill, Bladon., 2025). In this case arthroscopy was both diagnostic and therapeutic, allowing exclusion of penetrating trauma while facilitating minimally invasive fragment removal. Recognition of this presentation may prevent misdiagnosis and guide appropriate surgical intervention. In future the author would desensitise the hoof using an abaxial nerve block to improve radiographic quality to aid confidence with diagnosis.

The presentation has been documented previously in Quarter horses due to stresses from sudden turns and slides (Turner and Gabel., 1975). Previous studies have reported lag screw fixations for P2 fractures (Turner and Gabel., 1975). However more recently it has been described that smaller fragments can be removed arthroscopically (Watkins and Glass., 2022). This approach to fragment removal is documented (McIlwraith, Nixon and Wright., 2015) however clinical cases are poorly represented in literature. This case shows a successful recovery of a horse following small fragment removal.

References

- Mason, S.J., O'Neill, H.D. and Bladon, B.M. (2025) "Synovial fluid parameters following acute articular fracture in the horse," *Veterinary surgery*, 54(4), pp. 751–756.
- McIlwraith, C.W., Nixon, A.J. and Wright, I.M. (2015) *Diagnostic and surgical arthroscopy in the horse*. 4th ed. St. Louis: Mosby/Elsevier.
- Turner, A.S. and Gabel, A.A. (1975) "Lag Screw Fixation of Avulsion Fractures of the Second Phalanx in the Horse," *Journal of the American Veterinary Medical Association*, 167(4), pp. 306–309.
- Watkins, J.P. and Glass, K.G. (2022) "Fractures of the Middle Phalanx," in I. Wright (ed.) *Fractures in the Horse*. Chichester, UK: John Wiley & Sons, Ltd, pp. 365–387. Available at: https://doi.org/10.1002/9781119431749.ch18.

Appendices



Figure 1: wound over dorsal aspect of coronary band left hindlimb.



Figure 2: wound over dorsal lateral aspect of pastern 3cm proximal to the coronary band.



Figure 3: Non-weightbearing lateral-medial view of the distal phalanxes. Exposure: 60kVp, 5mA. Focus film: 100cm.



Figure 4*: non-weightbearing dorsal plantar view of the distal phalanxes. Exposure: 60kVp, 5mA. Focus film: 100cm.*

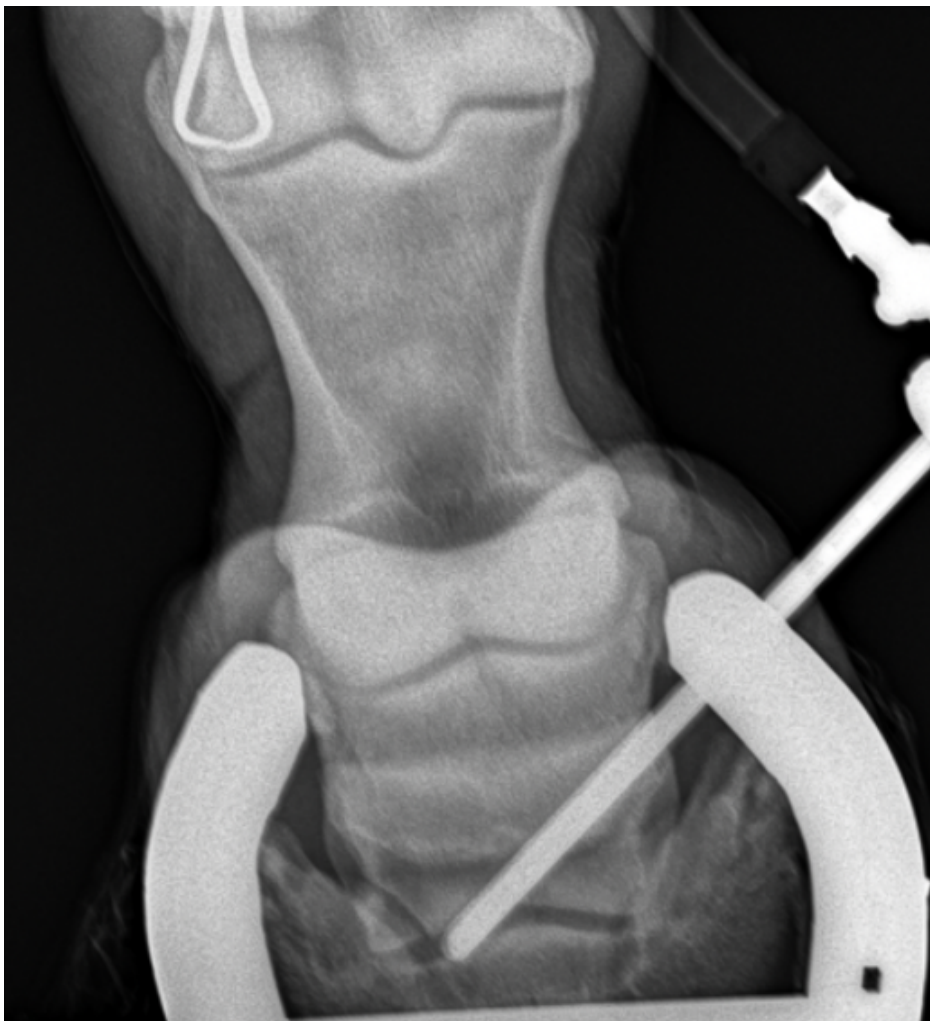


Figure 5: fracture of the medial border of the distal aspect of P2

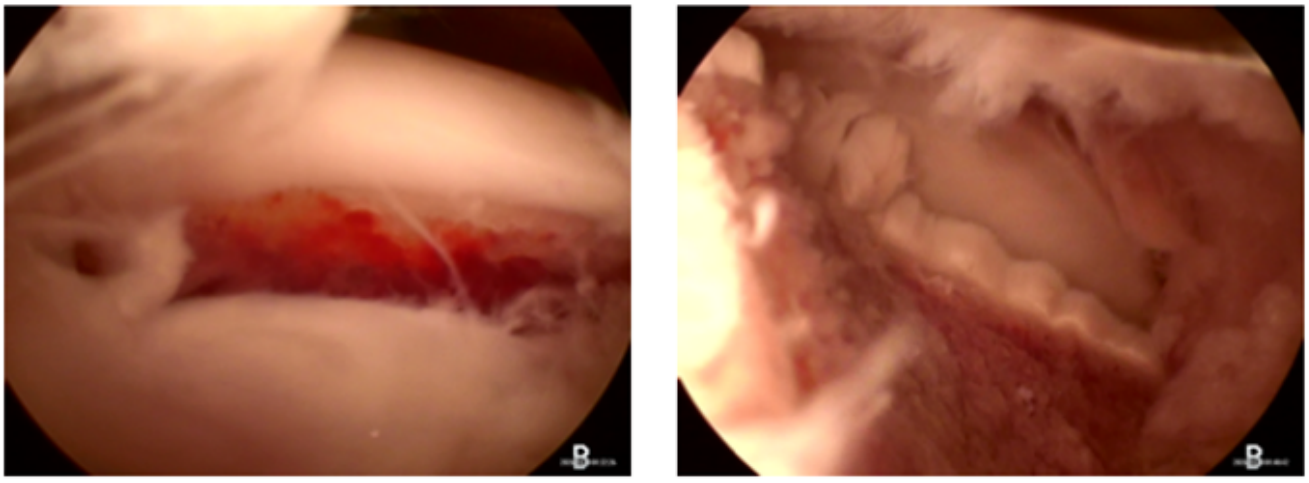


Figure 6: The P2 fracture fragment before and after removal.

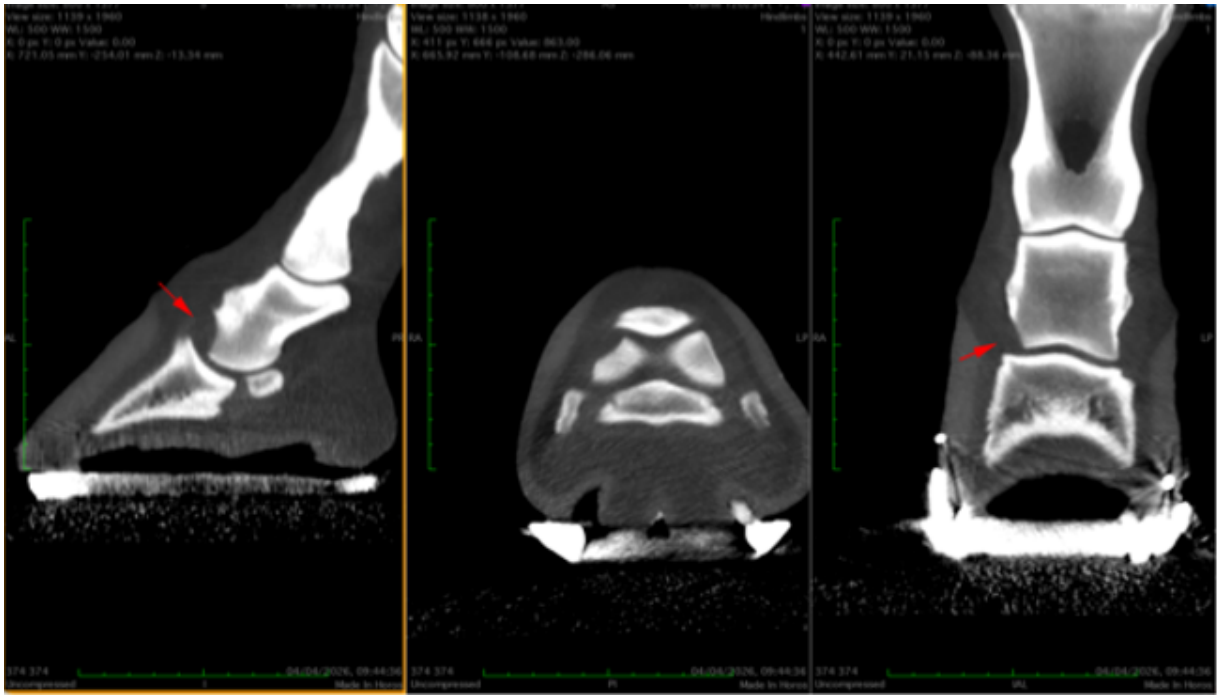


Figure 7: CT showing complete removal of the P2 fragment.