Prevalence, assessment of radiographic healing and outcome of slab fracture of the third and central tarsal bone diagnosed on presale radiographs of juvenile Thoroughbred horses

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Introduction

The authors have recognized incomplete and complete slab fracture of the third (T3) and central tarsal bone (Tc) on survey and repository radiographs, yet the prevalence and significance of this finding has received little attention, and whether lesions improve or resolve between survey and repository examination has not been assessed. Instead, reports concerning T3 and Tc fractures describe stress fractures and partial or complete slab fractures that occur occasionally in horses in race training, presumably when the bone has not adapted to the loading environment. We aimed to determine the prevalence, radiographic appearance at initial diagnosis and after continued pasture turnout, and prognosis for racing for T3 and Tc fractures diagnosed on survey and repository radiographs of juvenile Thoroughbred horses.

Materials and Methods

Retrospective case-control study using database of presale radiographs.

Results

Fractures were identified in 186 tarsi (128 unilateral and 29 bilateral: 184 T3 only, 1 Tc only, 1 T3 and Tc) of 157 horses (155 T3 only, 1 ipsilateral T3 and Tc, 1 contralateral T3 and Tc) from 8275 radiographic examinations. The prevalence of T3 and Tc fracture was 2.51 and 0.36 per 100 radiographic examinations respectively. Survey radiographs taken at 11.1 +/- 1.3 months were available for 119 horses and fracture was diagnosed at this examination in 85.7% (102/119) cases. Two T3 fractures and one Tc fracture were complete. All other fractures were incomplete, mostly involved the distal articular surface and were best seen on D55-65° MPLO view. Fracture score improved (p<0.001), dorsal modelling (0<0.001) increased and osteoarthritis score increased in the distal intertarsal joint (p<0.001) but not the tarsometatarsal joint between survey and repository examination. Fractures healed by repository examination in 72% tarsi with >6 months paddock turnout between examinations. There was no difference in sale price, and horses with healed T3 fractures had more 2-year-old wins (p=0.044) and no difference in other parameters of racing success when 2 or 3-years-old compared to maternal sibling controls.

Relevance to Australian clinical equine practice

Tarsal slab fractures are uncommon but can occur in weanlings. Most heal with continued pasture turnout of >6 months. Further investigation is required to determine risk factors, optimal management and before making firm conclusions regarding the prognosis for racing and long-term soundness.