Case Report

A deer miss

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A patient arrived to the emergency department with a right knee injury following a collision with a deer while riding a motorcycle. He was assessed according to ATLS principles and had an isolated knee injury which was initially managed as an open fracture, with co-amoxiclav and a tetanus booster. Radiographs of the knee revealed an unexplained foreign body in the knee, which was removed in theatre and identified as the tip of an antler. The case was discussed with microbiology, and given the high risk of septic arthritis due to contamination with anaerobic organisms, he was switched to ceftriaxone and metronidazole. He recovered well and regained good function. This case highlights the importance of correlating clinical findings with radiographic evidence in the assessment of injuries, and the value of involving the MDT in these atypical cases.

Background

Open fractures are a common trauma presentation, occasionally with foreign material in the wound but rarely an animal part impaled into the joint. A literature review and clinical experience demonstrate comparatively few occasions where penetrating injuries are implicated in joint trauma. The most extensive review by Reginato et al. [1] was a case series published in 1990. This detailed 26 occurrences of penetrating foreign bodies from fish bones to urchin spikes, with the most common being thorn injuries to the hands. There were no cases of antlers penetrating a joint.

The risks posed by contamination with animal material include both the localised inflammatory response to foreign material, but more importantly the seeding of bacterial and fungal organisms into the joint space and development of septic arthritis [2]. Thus, penetrating injuries should always be considered due to their need for prompt management and the index of suspicion should be high in traumatic injuries involving wildlife.

Case presentation

A young male patient presented to the emergency department as a trauma alert following a 40 mph motorbike collision with a deer. He was fully immobilised on a spinal board with 3-point cervical spine immobilisation. There were no airway or breathing concerns, and he was haemodynamically stable. Primary survey demonstrated a possible head injury, with a GCS 14 (E4 V4 M6) on arrival and a suspected open right tibia and fibula fracture. A trauma CT did not reveal any acute pathology apart from a distal third clavicle fracture which was managed conservatively. IV co-amoxiclav and Revaxis tetanus booster was given in light of the suspected open fracture. Subsequent radiographs of his right knee demonstrated the presence of a large foreign body, with lucency equivalent to that of the adjacent bone (Figs. 1 and 2). The patient was taken to theatre for exploration. An uncomplicated open washout was performed; the foreign body was removed and identified as an antler tip Fig. 3. The articular cartilage was scuffed at the point of entry of the antler but no delamination. The patient was transferred to the ward and given the absence of existing antibiotic guidance in such cases, was discussed with microbiology. It was advised that broader coverage was indicated, given the high probability of deep anaerobic contamination, so was switched to ceftriaxone and metronidazole. He remained stable with no rise in inflammatory markers and was discharged with good ongoing recovery to complete a seven day course of co-amoxiclav.
Investigations

Trauma bloods, plain radiographs, trauma CT and microbiology.

Differential diagnosis

Open fracture or foreign body from patient, bike, road or animal.
Outcome and follow up

The patient was followed-up at 2 weeks and discharged at 6 weeks symptom free with no sign of active infection.

Discussion

This was an interesting case because the patient was initially diagnosed as an open tibia and fibula fracture, which would be in keeping with his mechanism of injury. However, on assessing the knee clinically, it appeared that the wound over the proximal fibula was directly perpendicular to the skin and unusually had remained open. Furthermore, the x-ray films could easily have confounded the case, given that the lucency of antler was equivalent to that of the bone, which would have been more in keeping with an atypical fracture. Finally, in this kind of unusual case there is no clear precedent as to appropriate clinical management, and thus it was important to involve other experts in the holistic care. There are key learning points here:

Learning points

1. Always keep an open mind to injuries that don’t present in a typical fashion. Correlating clinical examination findings with mechanism of injury and with imaging is key.
2. X-ray imaging although important is not the be all and end all of diagnostics in orthopaedic trauma and cannot substitute direct visualization during exploration in theatres.
3. When dealing with unusual or atypical cases it is important to consider carefully the wider implications of injury other than fracture. In these instances it is important to gather the advice from other specialist teams.

References

[1] A.J. Reginato, J.L. Ferreiro, C.R. O’Connor, C. Barbasan, J. Arasa, J. Bednar, et al., Clinical and pathologic studies of twenty-six patients with penetrating foreign body injury to the joints, bursae, and tendon sheaths, Arthritis Rheum. 33 (12) (1990 Dec) 1753-1762 [Internet]. [cited 2018 Jun 4]. Available from http://www.ncbi.nlm.nih.gov/pubmed/22609997.

[2] C. Anderson, R. Stitt, J. Roberts, Foreign body synovitis in the Pacific, Hawaii J. Med. Public Health 73 (11 Suppl 2) (2014 Nov) 37–40 [Internet]. University Clinical, Education & Research Associates. [cited 2018 Jun 4]. Available from http://www.ncbi.nlm.nih.gov/pubmed/251478302.