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Transcervical Femoral Neck Fracture in a Native Stallion (A Case Report)

[1]J. Ashrafihelan, [1]A. Shahbazfar, [2]B. Ghasempanahi and [1]H. Mahpeykar

[1]Department of Pathobiology, Faculty of Veterinary Medicine, University of Tabriz, Tabriz, Iran
[2]Department of Animal Science, Faculty of Agriculture,University of Tabriz, Tabriz, Iran

Abstract: Fractures of proximal femur are divided into intracapsular and extracapsular. Most femoral fractures follow a severe traumatic event, such as a fall or a kick. Surgical repair is difficult to achieve, especially in adult horses. A 10 years old native mix breed stallion was referred to Teaching and Research Veterinary Hospital of University of Tabriz, with a history of acute onset of severe lameness and loss of appetite after a falling down, one month before the refer . Femoral head fracture was diagnosed based on clinical examinations. The animal was euthanized because of poor body condition and poor prognosis. Necropsy revealed a chronic untreated transcervical femoral neck fracture in right hind limb. Cachexia and serous atrophy of fatty deposits were obvious. A thick fibrovascular tissue was present at the ventral portion of the femoral neck. There was a little change in the osseous structure of femoral head. Degenerative lesions and remodeling of the femoral head and acetabulum was at least. Fractures of the femur are observed in horses at any age but proximal femoral fractures (Head and neck) are exclusively almost seen in foals and are so rare in horses at ages older than one year. Most of the femur fractures are clinically discovered but must be differentiate from other reasons of lameness in horses. The main reason of the lesion is severe trauma most of the times but equine osteodystrophy because of over consumption of phosphorus, copper deficiency and fluorine toxicity are among the probable causes.

Key words: Femoral Neck · Transcervical Fracture · Stallion · Histopathology

INTRODUCTION

Fractures of proximal femur are divided to intracapsular and extracapsular. Intracapsular fractures are subdivided to capital epiphyseal, capital physeal, subcapital and transcervical. Extracapsular fractures are classified as basilar neck, trochanteric, intertrochanteric and subtrochanteric [1]. Most of femoral fractures follow a severe traumatic event, such as a fall or a kick [2]. There is usually an acute onset of non-weight-bearing and lameness, crepitus may be felt [3] and obvious swelling on muscles might be observed [4]. There maybe some pelvic asymmetry, muscular atrophy with chronic fractures [5]. Diagnosis is not difficult to make in most cases [2]. Surgical repair is difficult to achieve, especially in adult horses [3]. Repair of displaced fractures requires open reduction to reposition the head and the neck before pinning [4]. Prognosis largely depends on the age of the horse, type of fracture and the horse's intended use. Generally prognosis in horses older than yearling is so poor [4] and it is not worth while considering surgery [3]. Of course, in other animals it can be completely different. For example in cats femoral capital physeal fractures have a good prognosis for returning to normal function and lameness recovery after surgery [6]. One of the most important complications is avascular necrosis of the femoral head [7]. Femoral fractures are more common in foals, especially yearlings, but can be observed sometimes in adults. In this report, we describe gross and microscopic findings of an untreated chronic transcervical femoral neck fracture in a mixed local stallion.

Case: A 10 years old native mix breed stallion was referred to Teaching and Research Veterinary Hospital, Faculty of Veterinary Medicine, University of Tabriz with a history of acute onset of severe lameness and loss of appetite after a falling down one month before the refer. The animal was recumbent while was referred to us. The disorder was diagnosed as femoral head fracture based on clinical examinations. The animal was euthanized because of old age, poor body condition and weak prognosis of any treatments. Necropsy was performed and tissue specimens were collected from hind limbs and viscera for histopathology.

Corresponding Author: Javad Ashrafihelan, 29th Bahman Blv, University of Tabriz, Faculty of Veterinary Medicine, Tabriz, East Azerbaijan.Iran. Postal code: 51666-14779.

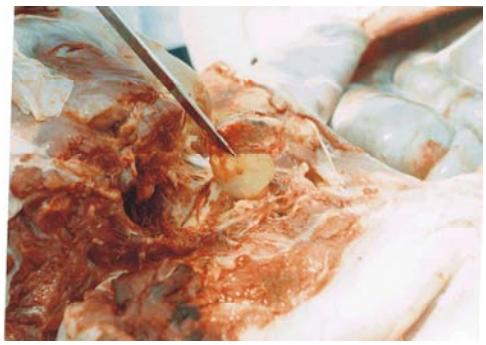

Fig. 1: Femoral neck in an old native stallion that is transcervically fractured.

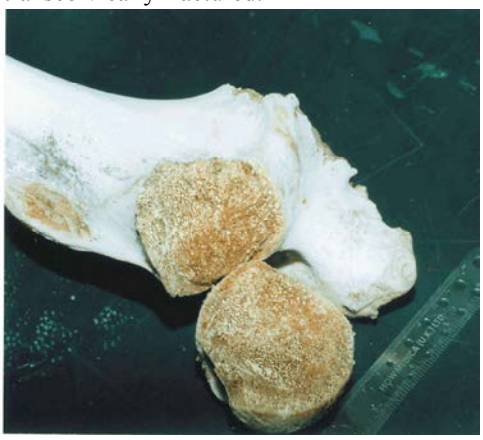

Fig. 2: Transcervical femoral neck fracture after cleaning and processing of the femur.

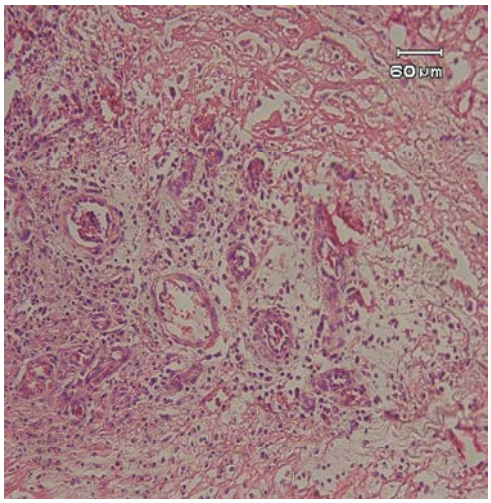

Fig. 3: Granulation tissue with numerous fibroblasts, blood vessels and young collagen fibers. H&E staining (200x).

At necropsy, cachexia and serous atrophy of fat deposits were obvious. Mild hyperemia of lungs, a drenals, spleen, heart and kidneys was observed.

Fig. 4: Congestion and edema in the striated muscle fibers of muscles around of the fracture. H&E staining (100x).

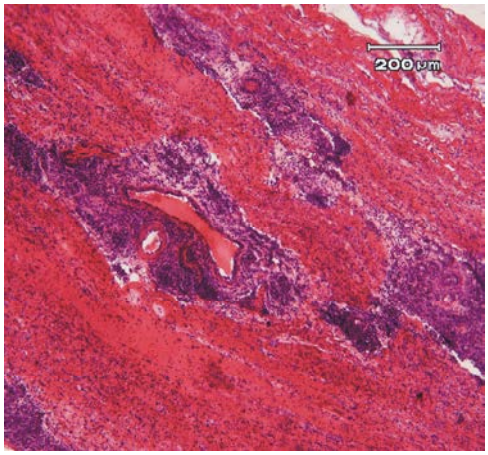

Fig. 5: Congestion, edema and severe inflammation with neutrophilic infiltration in the striated muscle fibers of muscles around of the fracture. H&E staining (100x).

The stomach was empty and contracted. Transcervical fracture of the femoral neck was observed in right hind limb (Figures. 1 and 2). A thick fibrovascular tissue was present at the ventral portion of the femoral neck. There was a little change in the osseous structure of femoral head. Degenerative lesions and remodeling of the femoral head and acetabulum was at least.

Histopathology revealed mild hyperemia in the tissues. In the kidney, medulla was hyperemic. Edema in adrenals and lungs was present. Subepicardial and subendocarial focal hemorrhages were present. In the fractured femoral neck, fibrovascular tissue which consisted of granulation tissue with young collagen fibers and plenty of blood vessels was present (Figure. 3).

Edema in adjacent muscles (Figure. 4) and severe neutrophilic inflammation around the fractured area was observed too (Figure. 5). No new bone formation or calcification was observed.

DISCUSSION

Fractures of the femur occur primarily in foals and weanlings. In one survey of 18 years observation from 25 horses with femoral head and neck fractures no caseswere above one year of age [5] and proximal femoral fractures (Head and neck) are seen almost exclusively in foals [2, 5], although they can be rarely found in a horse at any age. Most of the femur fractures are clinically discovered [4] but must be differentiated from other reasons of lameness in horses like foot injuries because of stable floor problems, over crowding of stable, shipping trauma, nutritional deficiencies, skeletal deformities and hoof problems [8].

Radiography can be useful for diagnosis in foals, but it is not useful for adults [3]. In some cases, finding the etiology of fracture is not that much simple. Of course the main reason is severe trauma most of the times but equine osteodystrophy due to over consumption of phosphorus, copper deficiency and fluorine toxicity are among the probable causes [8]. In the present report, gross and microscopic findings indicated an untreated chronic transcervical femoral neck fracture after a falling down that caused acute onset of severe lameness.

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