Left Temporomandibular Joint Luxation in a Boer Goat - A Case Report

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Rec. Date: Apr 15, 2015 21:46
Accept Date: May 11, 2015 06:22
Published Online: May 25, 2015
DOI 10.5455/ijlr.20150511062231

Abstract
This clinical case reports the diagnosis of left temporomandibular joint luxation in a Boer goat and the justification of culling due to welfare, practicality and cost efficient in the small ruminant industry. A one year-old female Boer goat weighing 15.5kg was presented with primary complaint of inappetance and losing weight. The most prominent abnormality observed was displacement of mandible to the right side. The goat was unable to open the jaw. The lower incisor teeth were also found to be misaligned. For the diagnostic work-up, the skull was radiographed in dorsoventral, left lateral and right lateral oblique views. The radiograph findings revealed loss of delineation of the normal caudal left mandible in dorsoventral and right lateral oblique views. Based on the physical examinations and x-ray findings, the goat was diagnosed to have luxation of left temporomandibular joint. Due to the poor growth performance of this goat, the farmer was advised to cull this animal.

Key words: Boer Goat, Mandible Fracture, X-Ray, Culling

Introduction
The Boer goat (Capra hircus) is commonly considered by farmers as one of the most desirable goat breeds as it has excellent body conformation, fast growing rate, and good carcass quality. Due to these characteristics of the breed, farmers worldwide try to incorporate this breed into their herds via cross breeding to improve the productive performance of their herds. In addition, a Boer does achieve ideal breeding weight at 35-45kg at 7 months of age (Christopher 2002). The temporomandibular joint is the joint that connects the mandibular condyle to the temporal bone. Luxation of the temporomandibular joint is characterized by displacement of the mandibular condyle out of the glenoid fossa, anteriorly to the
articulareminence(Hale1972).Thisconditionmaycausedamagetothejointligaments,capsule,and
discduetotheprotective spasmodic contracture that is responsible for its maintenance (Merrill 1992).
Malfunctionofthistjointwillresultinadifficultyinprehension and mastication of food, especially in
production animals due to pain and loss in function (Merrill 1989). Literature data suggest very low
incidence of temporomandibular joint luxation in small ruminants, but the small number of these reports
in the database could be related to the difficulty in diagnosing disease of the temporomandibular joint
luxation rather than a low prevalence of disease. This clinical case reports the diagnosis of left
temporomandibular joint luxation in a Boer goat and the necessity of culling due to welfare, practicality
and cost efficient in the small ruminant industry.

Case Report

History

A one year-old female Boer goat weighing 15.5kg was presented with a primary complaint of inappetance
and losing weight. This goat had a history of abscess formation on the left mandible joint three months
before being presented to University Veterinary Hospital, Universiti Putra Malaysia.

Clinical Examination

Clinical evaluation revealed that the goat was dull and depressed with 5% dehydration. The most
prominent abnormality observed was the lower mandible that was displaced towards the right side (Figure
1). Upon extension of the jaw, it was found that the goat was reluctant to open its jaw. The lower incisor
teeth were also found to be misaligned during oral examination (Figure 2).

![Figure 1: Lower mandible displacement towards the right side.](image1)
![Figure 2: Misalignment of the incisors](image2)

Diagnostic Work-up

Based on the history and physical examination, the differential diagnoses at that time were
temporomandibular joint luxation and left mandibular fracture. Therefore, radiography was indicated in

Hosted@www.ijlr.org DOI 10.5455/ijlr.20150511062231
this case. The skull was radiographed at dorsoventral, left lateral and right lateral oblique views. The radiograph findings revealed loss of delineation of the normal caudal left mandible on dorsoventral (Figure 3) and right lateral oblique views (Figure 4). In addition, there was increase in radiolucent at the cranial region of the left mandible in dorsalventral view. There was no significant finding in left lateral view (Figure 5). Based on the physical examinations and radiograph findings, the goat was diagnosed with left temporomandibular joint luxation leading to degeneration of cranial part of the mandible causing misalignment of the lower incisors. Due to the poor growth performance and loss in production in this goat, the farmer was advised to cull this animal.

Discussion

Dislocation of the temporomandibular joint is the displacement of the mandibular condyle out of the glenoid fossa, anterior to the articular eminence (Hale 1972). The condition can occur partially (sub-luxation) or completely (luxation), bilateral or unilateral, acute, chronic protracted or chronic recurrent (Bakardjiev 2004). Temporomandibular joint luxation in goats is a disease with very little or almost no documentation. Among the farm animals, goats were reported to have the lowest incidence at 5.5 %, followed by horse 8%, camel 15% and cattle 25.5% (Kushwaha et al 2010). Nevertheless, the goat in this case report was successfully diagnosed with unilateral temporomandibular joint luxation on the left side by the aid of radiography.

Predisposing factors of temporomandibular joint luxation in farm animals include age, falling from height, overcrowding and environmental hazards (Fubini et al 2004; Kushwaha et al 2010). Studies done by Kushwaha et al (2010), revealed that hit (71.43%) and fall from a height (28.57%) contribute to the
occurrence of temporomandibular joint luxation in goat. Overcrowding is also one of the factors that contribute to temporomandibular joint dislocation. In this case report, the goat was kept in an overcrowding environment where fighting or environmental hazards might be the cause of temporomandibular joint luxation. It has also been reported that temporomandibular joint dislocation occurs in younger animals than in the adults (Fubini et al 2004).

According to Christopher (2002), Boer does achieve ideal breeding weight at 35-45kg at 7 months of age. They then have a higher twinning rate with kids weighing 3-4kg. The culling of this animal was justified firstly because it was not gaining weight leading to loss of production as would take much longer for this goat to reach breeding weight, and it will likely have breeding complications due to insufficient energy intake. Secondly, the treatment for temporomandibular joint luxation is not economical to be carried out on a production animal as it includes long term physiotherapy, splints, or surgeries such as external stabilization using dental acrylics or joint reduction surgery (To 1991; Kendall et al 1996; Guven 2005). Thirdly, as this goat eats slower and less than the other goats, it will be unable to compete for feed in an intensive feedlot system. In addition, being smaller in size, it will also be bullied by other goats in the pen making it a welfare concern (Kushwaha et al 2010).

**Conclusion**

In conclusion, this was a case of temporomandibular joint luxation where the Boer goat was having difficulty in prehension and mastication leading to failure in putting on weight and production. Although treatment protocols do exist, they are not practical or cost efficient to perform on this animal. Therefore due to loss in production with a possible welfare concern, this animal was recommended to be culled.

**Acknowledgement**

The authors wish to acknowledge staff of University Veterinary Hospital (UVH), and Faculty of Veterinary Medicine, Universiti Putra Malaysia in particular Mohd Jefri Norsidin for his technical assistance.

**Reference**


