

Case Study

<https://doi.org/10.20546/ijcmas.2019.805.229>

Infertility in a Sahiwal Bull due to Bilateral Testicular Fibrosis

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ABSTRACT

Keywords

Infertility, Sahiwal bull, Testicular fibrosis, Ultrasonography

Article Info

Accepted:
17 April 2019
Available Online:
10 May 2019

The present communication reports a case of Sahiwal cattle bull which was presented with the chief complaint of infertility for last six months. Semen analysis performed on periodic ejaculates revealed watery consistency along with oligospermia. Critical examination using ultrasonography was suggestive of bilateral testicular fibrosis as the chief etiology of infertility. The animal was found unfit for breeding and it's culling from the routine breeding programs was advised.

Introduction

Routine breeding soundness evaluation of bulls is quite an important tool to evaluate the potential bulls for their inculcation in the breeding programs and to point out any abnormality, especially in the reproductive system. The protocol for evaluation includes history of bull, physical examination and semen analysis. However, ultrasonography is an important diagnostic tool to pin point the exact etiologies associated with reproductive problems such as testicular fibrosis (Barth *et al.*, 2008). Testicular fibrosis refers to the formation of excessive connective tissue in the testicle. Moreover, an increase in the

sperm abnormalities has been found associated with the changes in echogenicity induced by scrotal insulation in bulls (Arteaga *et al.*, 2005). Ultrasonographic diagnosis of testicular fibrosis is confirmed by the presence of variable number of hyperechoic foci of variable size. The present case report records similar echogenic changes in ultrasonography caused by bilateral testicular fibrosis.

History and Observations

An eight year old, otherwise healthy Sahiwal cattle bull (Fig. 1) was presented to the University Veterinary Hospital with the chief

complaint of infertility for last six months in spite of several mating attempts. Semen analysis performed on periodic ejaculates collected from animal at field level revealed watery consistency along with oligospermia. Screening of bull for reproductive diseases and chronic diseases causing reproductive problems was also done periodically, with no apparent illness. Semen analysis performed on the ejaculate collected after presentation of the animal showed very less number of spermatozoa with decreased progressive motility and abnormal morphology. It was decided to perform ultrasonography of the reproductive organs, chiefly testes to diagnose the root cause of the ailment (Fig. 2). Ultrasonography of the testes was suggestive of multiple extremely hyperechoic patches, distributed uniformly in the entire testicular parenchyma, thus pointing towards the etiology being testicular fibrosis.

Treatment and Discussion

Fibrotic lesions were found extending from rete testes towards the periphery of the testes, thus covering the entire testicular parenchyma. Entire tubules in both the testes were destroyed with replacement by fibrotic

tissue (Fig. 3). As testicular fibrosis is an irreversible event, no treatment is recommended because the fibrotic lesions cannot be reversed. The animal with bilateral testicular fibrosis is declared unfit for reproduction and culling of the animal from breeding programs is advisable.

The etiology of testicular destruction and fibrosis is variable involving abnormal development of seminiferous tubules to rete-testes connections, infectious diseases affecting testes, abnormal thermoregulation mechanism and trauma (Barth *et al.*, 2008). In young bulls, developmental changes of the testes might be involved in the testicular fibrotic lesions. Infectious agents can cause inflammation of the blood vessels of the testes, thus disturbing the thermoregulation, which can cause tissue necrosis and form fibrotic foci (McEntee, 1990). Various viral infections can also target the sertoli cells and germinal epithelium resulting in tubule damage and fibrous tissue infiltration (Ramirez-Mendoza *et al.*, 1997). Moreover, trauma to the testes caused by blow injury due to kicking or butting has also been proposed as a possible cause of testicular fibrosis (McEntee, 1990).

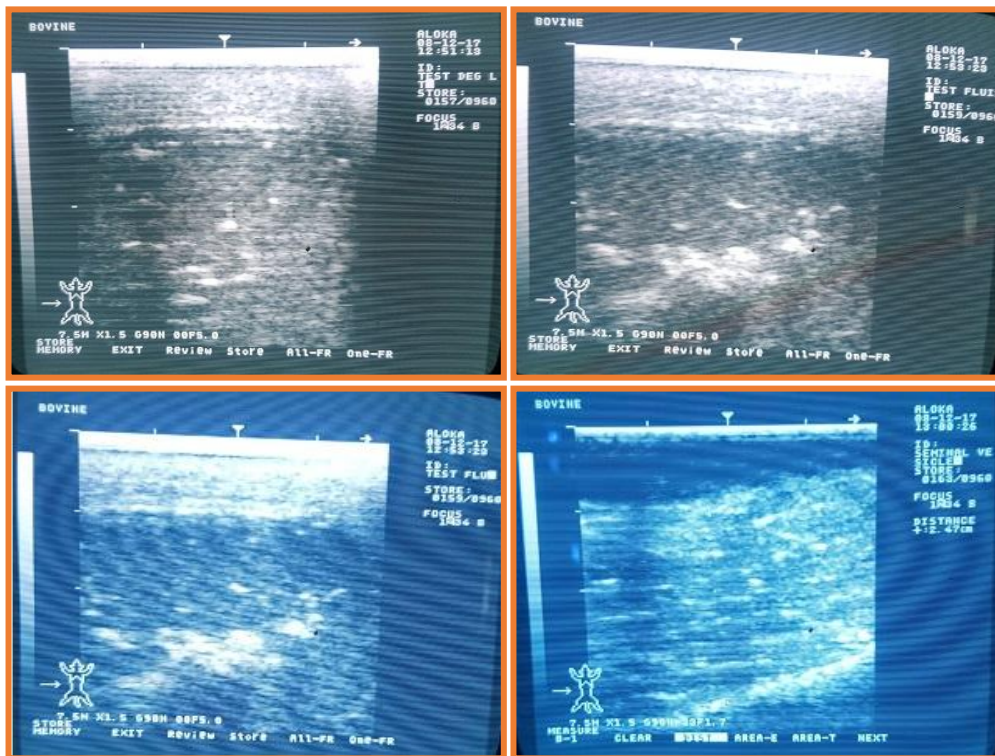
Fig.1 Sahiwal bull which was presented at University Hospital for infertility issue



Fig.2 Testicular ultrasonography of bull



Fig.3 Ultrasonographic images showing variable number of extensively hyperechoic fibrotic foci in the testicular parenchyma



Also, extensive fibrosis is thought to reduce the sperm production and may increase sperm abnormalities. Certain dietary factors such as deficiency of vitamins and minerals are also considered as a cause of testicular pathologies.

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How to cite this article:

Bilawal Singh, Navgeet Singh, Ajeet Kumar, S.S. Dhindsa and Khushpreet Singh. 2019. Infertility in a Sahiwal Bull due to Bilateral Testicular Fibrosis. *Int.J.Curr.Microbiol.App.Sci.* 8(05): 1975-1978. doi: <https://doi.org/10.20546/ijcmas.2019.805.229>