

## Monolateral chronic orchitis in a stallion

Ippolito De Amicis<sup>1\*</sup>, Roberta Bucci<sup>1</sup>, Brunella A. Giangaspero<sup>1</sup>, Nicola D'Alterio<sup>2</sup>, Abigail R. Tracht<sup>1</sup> and Domenico Robbe<sup>1</sup>

<sup>1</sup>Faculty of Veterinary Medicine, University of Teramo, Località Piano d'Accio, 64100 Teramo, Italy.

<sup>2</sup>Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise 'G. Caporale', Campo Boario, 64100 Teramo, Italy.

\*Corresponding author at: Faculty of Veterinary Medicine, University of Teramo, Località Piano D'Accio, 64100 Teramo. Tel.: +39 0861 XXXXX, e-mail: ideamicis@unite.it.

*Veterinaria Italiana* 2020, **56** (2), 133-135. doi: 10.12834/VetIt.2330.13219.1

Accepted: 27.04.2020 | Available on line: 30.06.2020

### Keywords

Chronic orchitis, Calcified seminiferous tubules, Stallion.

### Summary

Orchitis and epididymo-orchitis are inflammatory lesions of the testicle. We herein describe a case of monolateral chronic orchitis which occurred in a Tiro Pesante Rapido (TPR) stallion, born in 2002, with a history of good fertility. The stallion was healthy and asymptomatic although the left testis was found to be smaller as compared with the right one and was hard in consistency. Histopathology examination revealed tubular atrophy and parenchymal sclerosis. Scattered foci of calcification and chronic inflammation, the latter dominated by macrophages and lymphocytes, were also observed. Although lesions were clearly present, the semen was demonstrated to be of good quality. This study highlights the need for periodic clinical and ultrasound evaluation of stallions, in order to preserve their reproductive performance.

### Introduction

Orchitis can occur in stallions as an asymptomatic inflammatory reaction, not necessarily associated with infertility (Edwards 2008). Diagnosis of chronic asymptomatic orchitis requires a testicular biopsy, as no negative influence of the condition on sperm quality has been demonstrated.

Orchitis can be caused by infectious pathogens, both bacterial and viral, arising from the ascending route such as *Chlamydia* spp., *E. coli* and other Enterobacteriaceae, or through the hematogenous route, such as *Mycobacterium* spp. and *Brucella* spp. (Carmen Ferreras *et al.* 2007)

Sterile orchitis and granuloma formation are also common events, occurring after trauma or obstruction of the genital tract. Overall, the etiology of chronic orchitis often remains unknown.

### Case description

A 17-year-old TPR stallion was presented to the breeding program of the University of Teramo. As per routine, the stallion underwent a clinical evaluation with particular focus on the reproductive apparatus. The stallion appeared clinically healthy, showing no relevant clinical signs. However, at visual evaluation of the scrotum a significant asymmetry of the testicles was observed (Figure 1). In particular,

the left testicle was reduced in size and hardened, although no pain was observed at palpation. Ultrasound examination revealed the presence of scattered, hyperechogenic areas (Figure 2).

Thereafter, the semen was collected and evaluated, showing no evidence of infertility. Due to the hard consistency of the testis, the collection of a diagnostic biopsy was not feasible. Therefore, the surgical removal of the entire left testicle was chosen. To this aim, the stallion was premedicated with 0.05 mg/kg of acepromazine (i.m); 20 min later, detomidine (0.01 mg/kg) and butorphanol (0.02 mg/kg) were administered (i.v). Anesthesia was induced

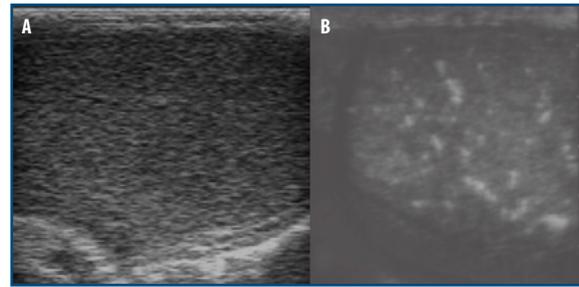


**Figure 1.** Clinical examination. The left testis clearly appeared smaller as compared with the right one.

with diazepam (0.05 mg/kg) and ketamine (2.2 mg/kg) (i.v), and then maintained with thiopental (0.5 mg/kg). The testicle was infiltrated with 5 ml of 2% lidocaine before the incision, and the surgery was performed with the use of emasculator using an 'open approach'.

The direct inspection confirmed that the testicle was reduced in size and very hard. In the cut section, the parenchyma appeared fibrotic and calcified. The epididymis was proportionally increased both in volume and consistency. There was a small hemorrhage on the surface of the testicle, probably due to biopsy sampling or vaginal incision during orchiectomy (Figure 3).

The testicle was promptly fixed in 10% neutral buffered formalin and routinely processed for microscopic investigations. Histopathology (hematoxylin and eosin stain) examination revealed tubular atrophy and parenchymal sclerosis. Scattered foci of calcification and chronic inflammation, the latter dominated by macrophages and lymphocytes, were also observed (Figure 4). Based on the collected evidences, a unilateral, chronic orchitis of unknown origin was diagnosed. Two months post-surgery,

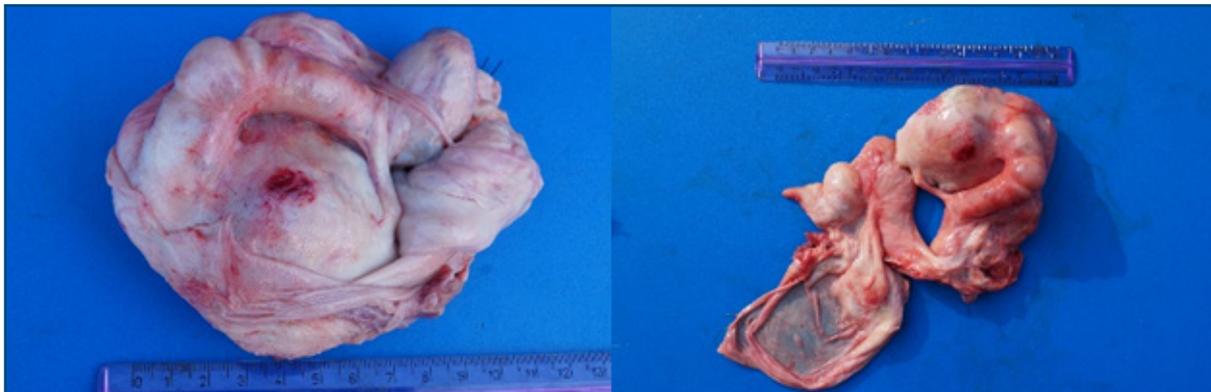


**Figure 2.** Ultrasonographic images. **A.** Right testicle: the ecostructure of the normal testicular parenchyma is characterized by fine and thickened echoes, arranged with high homogeneity. Portions of the vaginal cavity are visible as anechoic borders whereas the parietal vaginal tunic is observed as a thin white line outside the vaginal cavity. **B.** Left testicle: the testicular parenchyma is heterogeneous with a granular aspect.

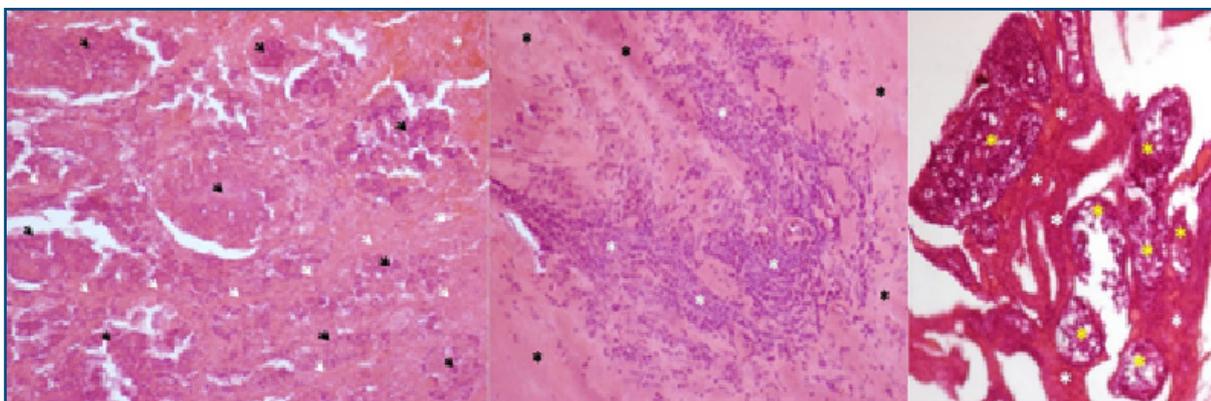
the semen was reexamined and confirmed to be of satisfactory quality (Table I).

### Discussion

Macroscopically, hypoplasia of the testicle is distinguished from degeneration/atrophy as it



**Figure 3.** Left testicle. The epididymis appears relatively larger as compared with the small testis.



**Figure 4.** Histological evaluation of the testicle. Histologically, tubular atrophy, parenchymal sclerosis, scattered foci of calcification and an inflammatory infiltrate dominated by macrophages and lymphocytes are visible, confirming a diagnosis of chronic orchitis.

**Table 1.** Semen collection. Two months after surgery, the semen was proved to be of good quality both in terms of concentration and vitality.

Subject	1°	2°
	collection	collection
Reaction time (min.)	10 minutes	15 minutes
Volume before filtration (ml)	100	80
Volume after filtration (ml)	85	70
Color	Milky	Milky
Smell	Heated metal	Heated metal
pH	7.3	7.3
Motility (%)	85	90
Vitality (%)	90	95
Concentration (X 10 <sup>6</sup> /ml)	210	145
Total number of spermatozoa for ejaculate (X 10 <sup>9</sup> )	17	10.150
Motility at environmental temperature (h)	2	2.30
Primary morphological abnormalities (%)	10	7
Secondary morphological abnormalities (%)	12	9

has a proportionally smaller epididymis relative to the hypoplastic testis and occurs in cases of cryptorchidism and intersexuality. On the other hand, a degenerate testis is associated with an epididymis that is relatively large in size as compared

to the testis (Edwards 2008). In fact, the testicle in the case herein described was reduced in size, whereas the dimensions of the epididymis appeared normal, leading the case to be considered as a testicular degeneration arising from chronic orchitis. This hypothesis was confirmed by the histological evaluation after surgery.

The collection of seminal material allowed for the description of the macro and microscopic characteristics. The urethral pulse characteristics were also evaluated two months post-surgery and were demonstrated to be within the norm. Such findings further confirm that chronic orchitis can, in some cases, occur asymptotically, making a correct clinical evaluation very difficult. In fact, several grades of testicular fibrosis did not influence the seminal quality in a case of salmonellosis in a bull, described by Pinho and colleagues (Pinho *et al.* 2012, Pinho *et al.* 2013).

In terms of other causes of testicular calcification, in the case herein reported, the etiology is unknown and further analyses are currently ongoing.

In conclusion, the case herein described underlines the usefulness of periodic clinical and ultrasound evaluation for stallions, in order to preserve their reproductive performances.

## References

- Edwards J.F. 2008. Pathologic conditions of the stallion reproductive tract. *Anim Reprod Sci*, **107** (3-4), 197-207.
- Ferreras Mdel C., Muñoz M., Pérez V., Benavides J., García-Pariente C., Fuertes M., Adúriz G. & García-Marín J.F. 2007. Unilateral orchitis and epididymitis caused by *Salmonella enterica* subspecies *diarizonae* infection in a ram. *J Vet Diagn Invest*, **19**, 194-197.
- Pinho R.O., Costa D.S., Siqueira J.B., Martins L.F., Neto T.M., Tavares do Nascimento Pereira J.V., Facioni-Guimarães S.E. & Guimarães J.D. 2013. Testicular fibrotic lesions and semen quality in adult montana tropical compound bulls. *Rev Bras Med Vet*, **35** (2), 105-110.
- Pinho R.O., Martins L.F., Siqueira J.B., Domeneck F., Miranda Neto T. & Guimarães J.D. 2012. Avaliação da qualidade do sêmen fresco de touros jovens da raça Composto Tropical Montana e suas correlações com o teste hiposmótico. *Acta Vet Bras*, **6** (3), 192-198.