Segmental posthetomy in a Murgese stallion: extensive excision with preservation of breeding function

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SUMMARY

The sarcoid is a locally invasive neoplasm and it is described as the most common tumor of equines and having an incidence ranging from 12.9% to 67%. Sarcoids have a significant impact on the health and well-being of Equidae and can represent a serious economic-genetic loss when they affect the reproductive system, particularly in subjects with important blood lines and particular morphological value. We describe a neoformation on the external genitals was observed in a Murgese stallion. The stallion was in excellent general conditions and showed no abnormalities, at general examination, while examining the genital apparatus, a large neoformation on the external genitals was observed. On palpation and ultrasonographic examination, the glans of the genital apparatus were normal. External physical examination showed a hyperkeratotic proliferative-verrucous neoformation, both ulcerated and infected. Clinical appearance was suggestive of proliferative cutaneous lesions as sarcoids and/or summer sores. Surgical treatment was achieved with a segmental posthetomy, performed with the horse anesthetized and in dorsal recumbency, as previously described. The dimensions of the stretched mass were about 22 x 11 centimeters and weighed 600 grams. Histopathological examination allowed a tissue level diagnosis of an equine sarcoid, but the excised mass was also positive to species-specific PCR for Habronema microstoma, a frequent cause of cutaneous and mucocutaneous habronemiasis. After two-year post-surgery the stallion is normally employed in breeding season. The collection of seminal material with an artificial Missouri vagina and during two jumps were carried out one hour apart, whose parameters and their characteristics resulted within physiologic ranges. The fertility data provided were excellent. In the described clinical case, segmental posthetomy, a specific procedure for neoformations of the internal preputial lamina, proved to be valid in the treatment of a large circumferential sarcoid located on the outer lamina of the fold and the preputial ring, with minimal complications.

KEY WORDS

Stallion; preputial lamina; segmental posthetomy; Habronema; mucocutaneous habronemiasis.

INTRODUCTION

The Murgese breed of horse, hailing from the Murge (area in the provinces of Taranto, Bari and Brindisi) is the only Italian breed still bred in purity. The breed currently consists of 4879 individuals[1] distributed throughout Italy. The breed is generally used for country riding, harnessing and dressage, where it is achieving impressive results, giving more importance to animals with high reproductive value.

CLINICAL CASE

Signalment

A Murgese stallion 5 years old registered in the stud book, was referred to the Veterinary Teaching Hospital of the University of Teramo, with an imposing mass against its sheath. The stallion was in excellent general conditions with typical breed characteristics.

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History

The stallion, used for breeding since the age of 30 months, had excellent fertility data, with a foal birth rate of 90%.

Specific examination of the external and internal genital apparatus

Physical examination of the external reproductive tract showed a hyperkeratotic proliferative-verrucous neoformation, ulcerated and infected, surrounding the outer lamina of the fold and the preputial ring but not the inner lamina, the glans or the free part of the rod. There were also other smaller neoformations scattered around the inguinal region (Fig. 1, 2).

Rectal examination, transrectal and transcutaneous ultrasound examination of inguinal lymph nodes were unremarkable.

Removal of the lesions was required due to the impairment of the reproductive activity. The wide extension of the major lesion suggested surgical excision under general anaesthesia.

Treatment

Premedication was achieved with acepromazine (30 mg/kg IM), sedation with medetomidine hydrochloride (7 µg/kg IV) and general anesthesia with ketamine hydrochloride (2.2 mg/kg IV) and diazepam (0.04 mg/kg IV), through a jugular catheter.

Figure 1 - Subject: Murgese stallion.

Once recumbent, the trachea was intubated and the patient was hoisted onto a surgical table in dorsal recumbency. Maintenance of anaesthesia was obtained with isoflurane and a continuous rate infusion (CRI) of medetomidine (3,5 μg/kg/h IV) and dobutamine (0.5 μg/kg/min IV).

Surgical Technique

After catheterization of the urethra, the penis was extended by traction with a loop of gauze around the collum glandis; the glans and proximal free part of the penis were covered in a sterile bandage, a latex tourniquet was placed at the base of the penile shaft proximal to preputial ring. The penis, prepuce, and the surrounding ventral abdomen were aseptically prepared and the area draped.

Distally and proximally to the lesion, two parallel incisions, through the preputial epithelium were made; the distal circular incision was made at the limit between the inner lamina of the preputial fold and the preputial ring, and the proximal incision at the level of the external preputial orifice. The integument between the incisions was completely removed (Fig. 3), together with the tourniquet, the bleeding vessels cauterized. The subcutis and the skin were sutured with an absorbable monofilament material in a simple interrupted pattern[2].

Aftercare recommendations were systemic antibiotic (sulphamidic 30 mg/kg PO), and antinflammatory therapy (suxibuzone 3,3 mg/kg PO), stall rest for 5 days, isolation from mares for 2-4 weeks and wearing a stallion ring for at least 2 weeks. Regular exercise (10-15 min of daily hand walk) was also suggested.

The stretched mass measured 22 x 11 cm and weighed 600 gr.

Figure 2 - External physical examination.

Figure 3 - Stretched mass after excision.

Complications included partial suture dehiscence and a mild colic syndrome. The minor neoformations were excised at the same time along with the application of a cytotoxic ointment. Histopathological examination allowed a diagnosis of an equine sarcoid, and a positivity to PCR for Habronema microstome.

No recurrences occurred in 2 years follow-up. The stallion was regularly employed for reproduction, and all the phases of the physiological mating were carried out regularly.

The collection of seminal material allowed the macro- and microscopic evaluation of the seminal material and the characteristics of the urethral pulse at the beginning of two breeding seasons following surgery (years 2006 - 2007); for semen collection, two jumps were carried out one hour apart. Seminal characteristics in 2006 and 2007 are shown in Table 1[3].

Table 1 - Semen parameters and their characteristics, respectively for the years 2006 and 2007.

Year 2006			Year 2007		
Subject	**1° collection**	**2° collection**	**Subject**	**1° collection**	**2° collection**
Reaction time (min.)	3 minutes	5 minutes	Reaction time (min.)	2	4
Volume before filtration (ml)	90	70	Volume before filtration (ml)	70	75
Volume gel-free volume (ml)	75	60	Volume gel-free volume (ml)	60	64
Color	milky	milky	Color	milky	
Smell	heated metal	heated metal	Smell	heated metal	heated metal
pH	7,3	7,3	pH	7,2	7,1
Motility (%)	80	85	Motility (%)	80	85
Vitality (%)	90	90	Vitality (%)	95	90
Concentration (X 10^6/ml)	320	210	Concentration (X 10^6/ml)	330	325
Total number of sperm for ejaculate (X 10^9)	24	12,600	Total number of sperm for ejaculate (X 10^9)	19,800	20,800
Room temperature motility (h)	2	2,30	Room temperature motility (h)	3,30	3,00
Primary morphological abnormalities (%)	7	6	Primary morphological abnormalities (%)	8	7
Secondary morphological abnormalities (%)	11	10	Secondary morphological abnormalities (%)	25	6

DISCUSSION AND CONCLUSIONS

Segmental posthetomy, a specific procedure for neoformations of the internal preputial lamina, is indicated for the removal of preputial neoplasms, granulomas or extensive scars. This method allows the conservation of the rod, if the lesion does not affect the underlying albuginea tunic. The procedure is described in geldings; whereas there are few reports in active stallions, above all for the major concern about the secondary impotence[4].

The sarcoid is a locally invasive neoplasm, with an incidence ranging from 12.9% - 67%[5]. Sarcoids have a significant impact on the health and well-being of Equidae and can represent a serious economic-genetic loss when they affect the reproductive system, if affecting subjects with important geneaology and morphological value. The absence of significative findings at rectal and ultrasound examination of inguinal lymph nodes reflects the locally invasiveness of the disease[6]. In addition, inguinal lymph nodes are difficult to explore in the horse and often not macroscopically reactive until the later stages of neoplastic conditions[7-10].

In the described clinical case, segmental posthetomy proved to be a valid treatment of a large circumferential sarcoid located on the outer lamina of the fold and the preputial ring, with minimal complications.

For equine sarcoids there are no treatments that are described as 100% effective. Combining different treatment modalities the results can be improved and recurrences can be reduced[6].

From the literature examined, there are no reports on the successful treatment of such extended sarcoids of the external genitalia in breeding subjects[11].

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