



## CASE REPORT

### Rectal Tear with Hematoma after Accidental Breeding as a Cause of Peritonitis and Recurrent Colic in a Mare

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#### ABSTRACT

Rectal tears are relatively common in horses after rectal examinations for diagnosis of gastrointestinal disorders or reproduction. We present the case of a mare that was freely bred and started with colic 8 hrs later. A rectal tear was produced by accidental rectal penetration of the stallion penis with a secondary septic peritonitis. Conservative medical treatment was made. Four days after the accident, the mare presented repetitive colic episodes that were associated with a huge hematoma that almost close the rectum lumen and caused feces retention.

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#### INTRODUCTION

In the horse, examinations per rectum of the gastrointestinal tract for colic diagnosis or of the reproductive tract are the most common etiologies of rectal tears (Eastmann *et al.*, 2000; Claes *et al.*, 2008; Delesalle *et al.*, 2009). Other common causes are enema administration, dystocia or vertebral fracture. They can also be secondary to an ischemic/necrotic damage of the rectal wall due to thromboembolism (Guglick *et al.*, 1996). Spontaneous rupture is described in a minimal amount of cases. The present article describes the case of an Arabian mare which underwent a rectal penetration of a stallion penis, causing a rectal tear. Although the tear healed a huge hematoma that involved both rectum and vagina induced recurrent episodes of colic several weeks later, associated with feces retention.

**History, clinical examination and treatment:** A 15-year-old mare was received at the Equine Sport Medicine Centre of the School of Veterinary Medicine of the University of Córdoba for breeding with a resident stallion. The mare has no history of previous breeding and she was closed to ovulation (confirmed on arrival by transrectal ultrasonography). The mare was bred by natural mount. During the mount, it was observed that the penis of the stallions penetrated into the anus of the mare. The mount was stopped and the mare was monitored in a box. Eight 8 hours after, the mare started showing signs of mild to moderate abdominal pain, lying down consistently and sweating. The mare was depressed and exhibited

tachycardia (52 beats/min; reference: 28-44 beats/min), tachypnea (36 breaths/min; reference: 10-14 breaths/min), slight fever (rectal temperature 38.8°C; reference: 37.3-38.6°C), diminished intestinal peristalsis, pale mucous membranes and increased capillary refill time. Packed cell volume (PCV; reference: 32-45%) was 48% and total solids (TS; reference: 6.4-7.7 g/dl) were 6.4 g/dl. Transrectal ultrasonography revealed that ovulation had not happened, and moderate to severe acute hematochezia was observed upon rectal examination. Abdominal ultrasonography revealed large amount of echogenic peritoneal fluid located ventrally in the abdomen. In the abdominocentesis a reddish fluid with no apparent presence of feces was found. Total white cell count in peritoneal fluid reached 400,000 cells/ $\mu$ l. The history, clinical signs and abdominocentesis supported a diagnosis of rectal tear and subsequent septic peritonitis. The owner was offered to refer the mare to an equine hospital for further evaluation and possible surgery, but this option was declined because of economical constraints.

Conservative medical therapy was immediately started, consisting in antibiotics, IV (intravenous) sodium penicillin (40,000 IU/ml every 6hrs, Penilevel®, ERN Laboratory, Barcelona, Spain), IV gentamicin (6.6 mg/Kg, every 12 hrs, Braun Vet-Care®, Barcelona, Spain), analgesics, IV flunixin meglumine (1.1 mg/Kg, every 6 hrs, Norbrook®, Karizoo Laboratory, Barcelona, Spain) and, IV phenylbutazone (4.4 mg/Kg, every 12 hrs, Butasyl®, Pfizer, Madrid, Spain) and cryotherapy for control of laminitis. Digital pulse was present in the four limbs during the first 10 days. On the 2<sup>nd</sup> day after the accident, the

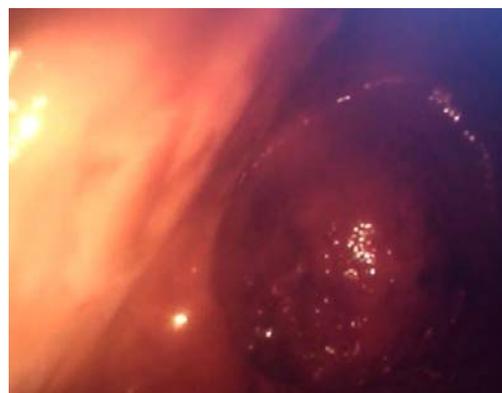
administration of flunixin meglumine was reduced to antiendotoxic doses (0.25 mg/kg IV, every 8 hrs). Pain disappeared and a dark 'toxic' line was observed in the oral mucose. On the 4<sup>th</sup> day, IV phenylbutazone was discontinued and changed to oral administration, 1g 2 every 12 hrs and after 1g every 24 hrs. On the 8<sup>th</sup> day, IV antibiotics were discontinued and substituted by intramuscular procaine penicillin (20 mg/kg, every 12 hrs, 7 days, Espes®, Carlier Laboratories, Barcelona, Spain). No manual emptying of the rectum was performed, as the mare started to pass small amount of hard feces when controlled access to hay was allowed on day 3<sup>rd</sup>. In order to soften the feces, 40 ml of sunflower oil were administered with every meal from day 4<sup>th</sup> to 21<sup>st</sup>. At that point the mare's condition maintained severe but stable during the following 3 days. During these three days, PCV and TS decreased progressively, reaching the lowest values in the evening of day 3<sup>rd</sup> (PCV 36%; TS 6.2 g/dl).

On days 4<sup>th</sup>, 6<sup>th</sup> and 9<sup>th</sup>, the mare suffered three episodes of mild colic. In all the cases, nasogastric intubation was unproductive, the mare was not dehydrated, intestinal peristalsis was normal or slight decreased and no abnormalities were detected with abdominal ultrasound. Hematology revealed low PCV (31%) and TS (6.0 g/dl) with a normal leukogram and increased fibrinogen concentrations (500 mg/dl; reference: 130-300 mg/dl). Abdominal free fluid, observed the 1<sup>st</sup> day, was not found in the ultrasonographic exam. One liter of paraffin was administered with nasogastric tube on day 4<sup>th</sup>. The three episodes of colic were of mild intensity and resolved immediately after defecation.

On day 4<sup>th</sup>, a mass of great size was found in the rectal examination. This mass has the origin in the dorsolateral aspect of the rectum wall, and about 15 cm cranial to the sphincter. The mass was occluding almost completely the rectum lumen. A rectal endoscopy was made to evaluate the aspect of the mass (Fig. 1). No tear could be observed at that moment. A small diverticulum, approximately 1.5 cm diameter, was palpated about 1-2 cm cranial to the rectal sphincter. The vagina was also explored endoscopically and a hematoma was found on the dorsal aspect of the vaginal cavity located about 10-15 cm cranial to the genital opening. Medical treatment was maintained. On day 14<sup>th</sup>, a second endoscopic evaluation was made. The mass had reduced greatly in size, allowing the pass of normal amount of feces through the rectum lumen (Fig. 2). The caudal diverticulum could still be palpated. Oral non-steroid-antiinflammatory drugs and antibiotics were discontinued. The mare was discharged on day 17<sup>th</sup> and the owner reported later that she was eating and defecating normally and she has not shown more colic episodes so far. Currently, she is pregnant.

## DISCUSSION

Rectal tears have been described in cows in association with dystocia (Tyler *et al.*, 1998) and recently, a fatal perforation in a boar after a boar-to-boar mounting with anal penetration has been reported (Ulrich *et al.*, 2012). Most of rectal tears, however, have been described in horses. In this species, approximately 60% of the rectal tears are iatrogenic, after rectal examinations of the gastro-



**Fig. 1:** Rectal endoscopy performed on day 4<sup>th</sup> post-accidental breeding. A dorsolateral mass with aspect of hematoma was found. The mass was occluding almost the rectum lumen.



**Fig. 2:** Rectal endoscopy performed on day 14<sup>th</sup> post-accidental breeding. The mass was almost completely disappeared, and normal feces were passing through the rectum lumen.

intestinal tract in cases of colic or the reproductive tract (Eastmann *et al.*, 2000; Claes *et al.*, 2008). Other causes include student palpation accidents (17%), owner palpation accidents (5%), breeding accidents (5%), enemas (5%), dystocias (2%), pelvic and vertebral fractures (2%), trailer accidents (2%) and spontaneous ruptures (2%) (Claes *et al.*, 2008; Delesalle *et al.*, 2009). In this paper, we describe the case of a mare which experienced an accidental penetration of stallion's penis in the rectum. The most remarkable facts were: 1) It did not require surgical treatment and 2) The trauma led to a huge hematoma that caused repetitive colic episodes associated with feces retention and painful defecation.

Rectal tears can be classified in grades 1 to 4. Grade 1 tears only affect to the mucosa and submucosa, whereas the rest of the tissue layers remain intact. Grade 2 tears affect only to the muscular layers, and both the upper (mucosa and submucosa) and lower (serosa and mesorectum) layers remain unaffected. Grade 3 tears can be subdivided into grade 3a, where the serosa is the only unaffected tissue layer and grade 3b, always dorsal, only the mesorectum remains intact. In grade 4 tears, there is a complete interruption of the rectal wall and a full communication with the abdominal cavity. In this case, the lesion was believed to be grade 3 or 4 due to the intense hematochezia after rectal examination and the subsequent peritonitis.

No feces were found in the abdominal fluid, confirming no communication between rectal lumen and abdominal cavity. Despite not palpating the tear's exact location, the big mass seen on endoscopy was situated in the right dorsal aspect of the wall. This location has been described to be the most common place for this type of lesions because of the presence of blood vessels of great diameter weakening the muscular layer in that area, forming a *locus minoris resistentiae* (Claes *et al.*, 2008). The small caudal diverticulum could be palpated in both endoscopic examinations, but it could not be visualized due to its proximity to the sphincter. This diverticulum could be an accidental finding or could be the result of the same traumatic episode.

Medical treatment was the only viable alternative because of economical concerns. Rectal palpation was avoided in order to prevent further damage and a conservative medical therapy started immediately. The peritonitis responded to the antibiotic treatment. After 4 days, the amount of abdominal fluid seen on ultrasound diminished and an inflammatory leukogram was not found. The reduction of PCV and TS indicated an initial loss of blood into the abdomen. The decrease of these parameters was attributed to hemodilution after fluid intercompartimental movements in order to compensate hypovolemia. The hyperfibrinogenemia found during the first four days indicated inflammation, because fibrinogen is a slow reacting positive acute phase protein. Increased fibrinogen concentrations rejected the presence of

disseminated intravascular coagulation, commonly associated with endotoxemia (Dolente *et al.*, 2002).

The repeated episodes of colic experienced by the mare the days following the traumatic event were attributed to the physical obstruction of the rectum lumen caused by the hematoma. We observed that the pain episodes were linked to straining and disappeared after defecation.

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