CASE REPORT

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Uterine intussusception in immediate postpartum in bitches: case report

Intussuscepção uterina no puerpério imediato em cadelas: relato de caso

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ABSTRACT

Uterine intussusception is a rare condition in bitches. This study aimed to report an unusual case of prolapsed uterine intussusception in a female dog. A 2-year-old American Bully bitch was received with labor history of large fetus requiring manual traction. The animal presented mucosal prolapse through the vulva, unproductive contractions and abdominal discomfort. After partial correction of mucosal prolapse, the dog was referred to ovary-hysterectomy surgery to correct prolapsed mucosa. During the surgical procedure, surgeons observed that the uterine horns were invaginated into the uterine body, rotated, and the tissue was slightly devitalized and congested. As previously described, this condition occurred during the immediate postpartum period. Thus, we suggest that this period can be a facilitator for the establishment of uterine intussusception.

Keywords: Animal reproduction. Dogs. Invagination of the uterine horn. Puerperium.

RESUMO

A intussuscepção uterina é uma condição rara em cadelas. Portanto, este estudo tem por objetivo relatar um caso incomum de intussuscepção uterina prolapsada em fêmea canina. Uma cadela American Bully de dois anos de idade com histórico de parto de feto absoluto grande no qual necessitou de auxílio por tração manual foi apresentada. O animal exibiu um prolapso de mucosa através da vulva, contrações improdutivas e dores abdominais. Após a retração parcial do prolapso de mucosa, a cadela foi encaminhada para a ovário-histerectomia que teve por objetivo, também, corrigir a mucosa prolapsada. Durante o procedimento cirúrgico, foram verificados os cornos uterinos invaginados no corpo uterino, rotacionados, com o tecido levemente desvitalizado e congesto. Assim, como poucos casos encontrados na literatura, esta condição ocorreu durante o puerpério imediato. Dessa forma, sugere-se que este período, embora não seja um fator determinante para o estabelecimento da intussuscepção uterina, pode ser um facilitador no estabelecimento dessa condição.

Palavras-chave: Reprodução animal. Cães. Invaginação de corno uterino. Puerpério.

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Intussusception is a condition generally described for intestinal organs and is relative to the invagination of an intestinal segment over another. Importantly, intussusception may cause arterial occlusion of the affected tissue, leading

to devitalization and necrosis (Levitt & Bauer, 1992). Although this disease is commonly related in intestines, similar conditions have already been observed in other contractile tubular organs, such as stomach and esophagus (Brady et al., 2017; Shibly et al., 2014; Torad & Hassan, 2015) and uterus (Ağaoğlu et al., 2012; Izquierdo & Cueto, 2010; Pinto et al., 2015).

Regarding uterine intussusception, the most observed clinical signs are unproductive contractions and abdominal discomfort (Izquierdo & Cueto, 2010). However, since it is a rare condition, predisposition is still unknown, which leads to diagnosis difficulties. Therefore, this study aimed to report an unusual case of prolapsed uterine intussusception in a female dog and to establish the factors involved in the development of this disease in dogs.

A primiparous American Bully 2-year-old bitch weighing 24.6 kg was referred to the Department of Animal Reproduction of the School of Veterinary Medicine and Animal Science - São Paulo State University in Botucatu. The medical history was exposure of the mucosa through the vulva after the birth of a single, stillborn and large fetus. Moreover, during parturition, the owner performed intervention, which promoted traction of the fetus. The owner reported that after extraction, the animal continued to present abdominal contractions.

The animal was in a regular general condition, presenting vital parameters (i.e. cardiac frequency) within physiological reference values for the species. Despite an intense abdominal discomfort during palpation, no abdominal contractions were observed. However, there was a prolapsed mucosa presented through the vulva, the mucosa was congested, but without ulceration areas (Figure 1). Brief ultrasonography examination was performed aiming to discard retained fetuses, and no signs of uterine intussusception were observed.

For resolution of the prolapsed mucosa, the tissue was first cleaned with 0.9% NaCl solution. Then, an ice pack was immediately administered, and sugar dissolved in 0.7% chlorhexidine-based ointment was applied. After local edema reduction, it was possible to perform partial reduction of the prolapsed mucosa (Figure 1).

Blood samples were collected for hematological (hemogram and leukogram) and biochemical analyses (blood urea nitrogen and serum creatinine) using hematological (Model pocH-100iV Diff™, Sysmex, Japan) and biochemical analyzer (Model Bs-200E, Mindray, China). Results were analyzed using reference values (Kaneko, 1997; Meinkoth & Clinkenbeard, 2000). No abnormalities were found in blood test results, except for hematocrit (33%, reference range: 37-55), total number of red blood cells (4.82x106/µL, reference range: 5.50-8.50) and hemoglobin (11.2 g/dL, reference range: 12-18).

The animal was then submitted for ovary-hysterectomy to assist the treatment for the prolapsed mucosa. The surgical procedure was performed as previously described (Headlund, 2008). The anesthetic protocol consisted of methadone (0.17 mg/kg, IM) as pre-anesthetic medication, propofol (4.87 mg/kg, IV) and midazolam (0.25 mg/kg, IV) for anesthetic induction and isoflurane for maintenance. There were no surgery complications. Omeprazole (0.8 mg/kg, 7 days), sodium dipyrone (20 mg/kg, 5 days) and cephalexin (20 mg/kg, 7 days), meloxicam (0.16 mg/kg, 3 days) and metergoline (0.08 mg/kg, twice a day, 5 days) were administered.

During the surgical procedure, we verified that, although the animal was in puerperium, it was not possible to externalize the reproductive tract. This phenomenon occurred since uterine horns were highly distended into the abdominal cavity due to invagination and rotation of both uterine horns. Both horns were covered by the uterine body (Figure 2), reaching depth of approximately 5 centimeters (Figure 2), but no adherence areas were observed.

Figure 1 – (A) Everted mucosa over vulvar rhyme. It is possible to note that the mucosa is congested; however, without evidence of ulcerated tissue (white arrow); (B) Prolapse partially reduced.

Then, an external assistant pressed the prolapsed mucosa, which was essential to carry out a cautious manual reduction of the invaginated uterine segment. Only after this procedure was it possible to continue the ovary-hysterectomy technique. The uterine segment in which invagination occurred presented a slightly congested and irritated surface (Figure 3). This segment showed the placental insertion, anatomically with larger diameter and thinner wall, when compared to other uterine segments (Figure 3). Furthermore, during visual inspection, ovaries presented no changes.

Although there are few reports about uterine invagination, the uterus should be considered as a potential organ for intussusception. This possible invagination can occur because the uterus is contractile (Gogny et al., 2010; Young, 2007) and assumes a tubular anatomical shape (Barbosa et al., 2013; Yeager & Concannon, 1990). Moreover, we believe that certain physiological conditions, such as the postpartum period, may contribute to the pathogenesis of uterine intussusception in bitches, since in this period, the uterine ligaments are distended and inhibition of uterine quiescence occurs by the decrease in progesterone concentrations (De Cramer & Nöthling, 2018; Gogny et al., 2010).

In fact, cases of uterine intussusception have been reported to occur in the immediate postpartum period. There is a case

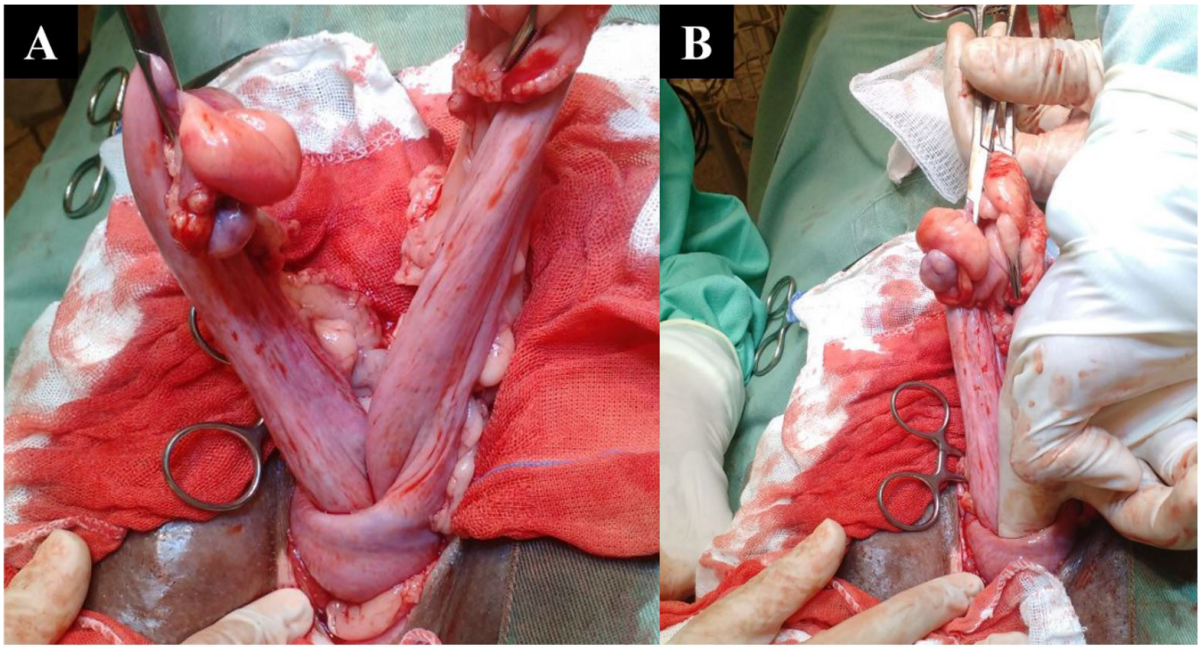

Figure 2 – (A) Left uterine horn invaginated under the body of the uterus and slightly rotated in the right direction; (B) It is possible to observe the depth of the invaginated segment.

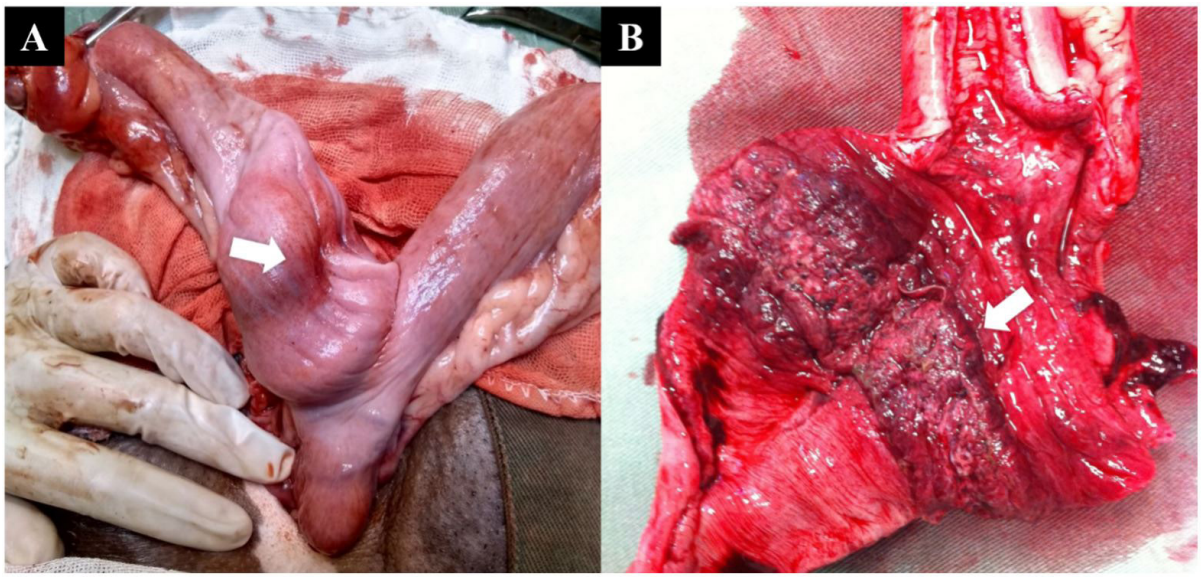

Figure 3 – (A) Uterus after manual correction of intussusception presenting slightly congested and irritated surface (white arrow); (B) The site that underwent the uterine invagination in the placental insertion (white arrow).

report of uterine intussusception also diagnosed after laparotomy in a bitch two days after labor, and with unproductive and persistent uterine contractions, similar to the present case (Izquierdo & Cueto, 2010). Pinto et al. (2015), after conducting drug induction with oxytocin in a bitch with unproductive contractions, verified invagination of one uterine segment after laparotomy (Pinto et al., 2015). Furthermore, as in the present report, invagination of both uterine horns was observed previously during an ovary-hysterectomy applied as a therapeutic method for correction of partially prolapsed mucosa (Ağaoğlu et al., 2012).

Although there was no prior evaluation of the prolapsed tissue, we believe that was probably the uterine mucosa, which was observed through the vulva, a phenomenon rarely described in dogs (Nelissen, 2015), but similarly observed in cases of intestinal intussusception, in which the rectal prolapse is often viewed (Oliveira-Barros & Matera, 2007). Furthermore, we highlight that vagina and uterus can prolapse, during or immediately after delivery in female dogs (Alan et al., 2007; Gouletsou et al., 2009; Nelissen, 2015).

In this scenario, we hypothesized that the forced traction of the fetus performed by the owner could be an important factor for the establishment of this condition, since the invaginated segment had a placental insertion site. In addition, we believe that the prolapse can be related to uterine intussusception. This condition may be associated with uterine reflex contraction, as previously described (Izquierdo & Cueto, 2010).

In the present report, after traction of the invaginated segment during ovary-hysterectomy, it was possible to observe the external wall of the uterine horn slightly devitalized and congested. Such findings suggest involvement of vascular stasis because of uterine intussusception. This scenario may promote devitalization of the affected segment, as verified in cases of intestinal intussusception (Atray et al., 2012). Therefore, in the absence of conservative treatment to reduce invagination, immediate surgical intervention was suggested (ovary-hysterectomy) to avoid ischemic processes that could compromise the general condition of the patient.

In conclusion, the present report described uterine intussusception in the immediate postpartum period. Thus, we suggest that this physiologic period can be a facilitator for the establishment of this condition. Therefore, since information regarding uterine intussusception in bitches is scarce, we anticipate that the present work can contribute to the epidemiology, risk factors, pathogenesis, diagnosis, prognosis and treatment for this condition.

Conflict of Interest

Authors declare no conflict of interest.

Ethics Statement

Authors declare no Institutional Animal Care and Use Committee (IACUC) or other approval was needed.

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