



Clinical Reports

Gravid hysterocele in bitch: case report

Histerocele gravídica em cadela: Relato de caso

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ABSTRACT

An inguinal hernia may result in protrusion of the uterus through the hernial ring, thus being called a hysterocele. If the female is pregnant, the fetuses' viability may be compromised, through the incarceration of the uterus in the hernial ring, in addition to harming the female's systemic homeostasis. Complementary imaging tests, such as ultrasound, are of fundamental importance for the diagnosis and prognosis of the case, with surgery being the recommended treatment. The aim of the present work is to report the case of an eight-year-old female pinscher, diagnosed with a gravid hysterocele, treated by inguinal herniorrhaphy. The patient reached the end of pregnancy with viable fetuses.

RESUMO

Palavras-chave:

Hérnia inguinal

Histerocele

Prenhez

A hérnia inguinal pode ter como consequência a protusão do útero pelo canal herniário, denominando-se, assim, histerocele. Caso a fêmea esteja gestante, a viabilidade dos fetos pode ser comprometida, por meio do encarceramento do útero no canal herniário, além de prejudicar a homeostasia sistêmica da fêmea. Exames complementares de imagem, como ultrassom, são de fundamental importância para diagnóstico e prognóstico do caso, sendo a cirurgia o tratamento preconizado. Objetiva-se com o presente trabalho relatar o caso de uma cadela, pinscher, de oito anos, diagnosticada com histerocele gravídica, tratada mediante herniorrafia inguinal. A paciente chegou ao término da gestação com os fetos viáveis.

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INTRODUCTION

The swelling in the inguinal region may be indicative of breast neoplasms, mastitis, lipomas, lymphadenopathies, hematomas and abscesses, but it can also indicate inguinal hernia (FOSSUM, 2015; NOAKES, 2001; SERIN, 2009). The inguinal hernia can be congenital or acquired and results from a defect of the inguinal ring that allows that abdominal tissues like omentum, adipose tissue, uterus, small intestine, colon, bladder and spleen protrude (SLATTER, 2002). Its greatest occurrence is in middle-aged female dogs, without racial predisposition (SLATTER, 2002; STURION, 2013). In acquired hernias, conditions such as obesity, weakening of the abdominal muscles, hormonal, nutritional and/or metabolite factors may predispose to herniation (RAISER; PIPPI, 1998; SLATTER, 2002; STURION, 2013).

The gravid hysterocele fits into a specific form of inguinal hernia and corresponds to protrusion of the gestational uterus through the hernia ring, in the inguinal ring. Sex hormones have a strong correlation in the formation of these hernias, the uterine horns are more prone to herniation when the pregnancy is established (KALITA, 2012). The production of estrogen modifies the resistance and characteristic of connective tissue, which may weaken or dilate the inguinal rings, (SLATTER, 2002; SIMON, 2013) and, with the increase in abdominal pressure due to pregnancy or obesity, they provide conditions that favor the herniation (READ; BELLENGER, 2003; SERIN, 2009). Females that are in estrous phase are also more susceptible to this disease (SLATTER, 2002).

Abdominal radiographs and ultrasound are tests that help in the diagnosis and identification of the hernia content (SLATTER, 2002; STURION, 2013; SERIN, 2009; FOSSUM, 2015). Herniorrhaphy is proposed as a surgical treatment to correct the hernial ring, and ovariosalpingo-hysterectomy (OSH) is recommended in order to prevent recurrences (FOSSUM, 2015). The objective of the present work is to report a case of gravid hysterocele carried out in a bitch.

MATERIAL AND METHODS

At the Veterinary Hospital of the Federal University of Paraná - Palotina Sector, an eight-year-old female Pinscher, weighing 2.45 kg, presented a major complaint about the increase in volume in the mammary glands.

During the anamnesis, the tutor reported that, four days before, the patient had an acute increase in volume in the region of the inguinal breasts. Thirty days earlier, the bitch showed signs of heat, but the tutor did not know if the dog had mated.

On physical examination, the patient had a heart rate of 110 bpm, a respiratory rate of 40 mpm, pink mucous membranes, capillary filling time in 2 seconds and a rectal temperature of 37.8°C. Abdominal palpation showed that the swelling in the inguinal region was firm. Subsequently, 3ml of blood was collected from the

jugular vein for complete blood count and biochemical analyzes, both without changes.

The patient was taken to the diagnostic imaging sector for additional tests. Ultrasonography revealed the presence of a tubular structure compatible with the uterus, with multiple gestational sacs, filled with anechogenic content and a small echogenic structure inside (embryo), in the inguinal region that presented an increase in volume. The observed organogenesis estimated that the patient was in the middle third of pregnancy (between 23 to 25 days). The ultrasound images obtained were compatible with the diagnosis of inguinal hernia, with the gravid uterus being the herniated content.

In view of the history, clinical and ultrasound findings, the diagnosis of gravid hysterocele was concluded and the patient underwent surgical treatment, after the intramuscular application of 0.2mg/kg pre-anesthetic medication with Methadone¹. For anesthetic induction, 3mg/kg Propofol² was used intravenously; maintenance was performed with Isoflurane³. In the postoperative period, for pain control, Dipyrone⁴ was used at a dose of 25mg/kg, orally, twice a day, for five days, and Meloxicam⁵ at a dose of 0.05mg/kg, orally, once a day, for three days.

The surgical procedure started with the patient being placed in the prone position for the herniorrhaphy procedure (Figure 1). The skin was incised with a No. 24 scalpel in the caudal median abdominal region, cranially to the edge of the pelvis. The dissection of the subcutaneous tissue was performed with a No. 15 scalpel, going deep into the sheath of the rectus abdominis muscle. To expose the hernia sac, digital dissection was performed below the breast tissue and the hernia sac and ring were identified. After all components were properly identified, the reduction was carried out through the ring. For this maneuver to be possible, it was necessary to incise the cranial aspect of the ring to increase it and facilitate the passage of the uterus (Figure 2). The gravid uterus was reduced and the hernia sac was sectioned at its base (Figure 3). The ring was identified and reduced using simple interrupted sutures with 3-0 non-absorbable synthetic thread (Nylon⁶) (Figure 4). Herniorrhaphy was applied over the ring in a simple interrupted suture pattern (Figure 5). Dermorrhaphy was performed with a simple continuous suture using 4-0 non-absorbable synthetic thread (Nylon⁶) (Figure 6).

Once anesthetic recovery was certified, the patient was discharged from the hospital on the same day of the procedure and returned to control seven days later. During this control, the sutures were removed. Upon returning, improvement of the condition could be noted due to the disappearance of the signs. An ultrasound examination was performed, in which it was possible to evidence the presence of two fetuses, with good body formation, presence of heartbeat and fetal movement with normal embryonic attachments in the natural anatomical position of the uterus.

Figure 1 – Photograph showing the increase in volume in the right inguinal region.



Canine patient, female, Pinscher, 8 years old, 2.45 kg, seen at the Veterinary Hospital of the Federal University of Paraná – Palotina Sector, 2017. Source: HV-UFPR Palotina Sector.

Figure 2 – Inguinal ring incision



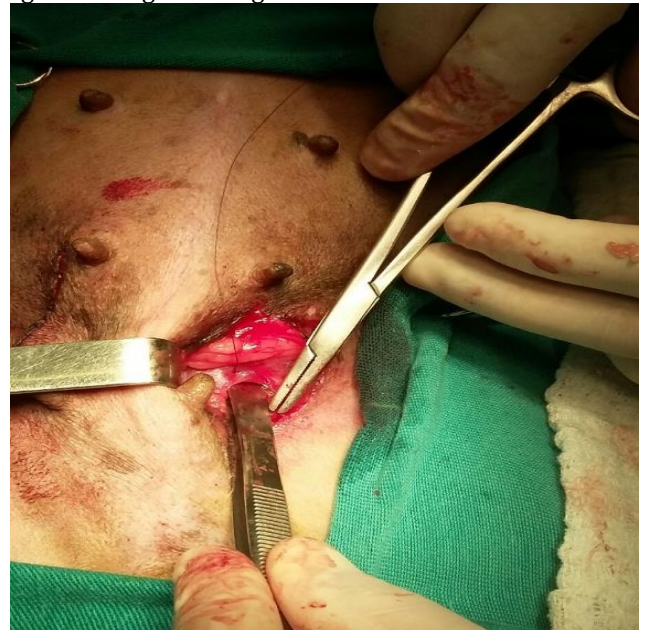
Incision of the inguinal ring to facilitate the passage of the uterus through the ring. Source: HV-UFPR Palotina Sector.

Figure 3 – Exposure of the uterus through the inguinal ring.



Note the hernia sac stuck in hemostat after section. Source: HV-UFPR Palotina Sector.

Figure 4 – Inguinal ring identification.



Identification of the inguinal ring with the aid of an anatomical forceps and beginning of the suture, to reduce the inguinal ring. Source: HV-UFPR Palotina Sector.

Figure 5 – Final appearance after suture to reduce the inguinal ring.



Source: HV-UFPR Palotina Sector.

Figure 6 – Dermorography in simple continuous pattern.



Source: HV-UFPR Palotina Sector.

In fetal organogenesis, cardiac activity and four well-defined chambers were observed, differentiation between lung and liver, fetal skeleton in the calcification phase, gastric and bladder silhouette, gastric and bladder repletion due to anechoic content. According to the images, it was estimated that the patient was in mid-gestational age, between 35 and 38 days. The puppies were born by normal birth and, three months later, an elective ovariohysterectomy was performed.

DISCUSSION

There are few reports in literature about gravid hysterocele in inguinal hernias in bitches. Females that have the uterus incarcerated in the hernial ring are

generally older, as they have a larger diameter inguinal ring (FOSSUM, 2015; DEAN, 1990; FORMSTON, 1990). In these cases, the hernias may be of a chronic nature, and uterine pregnancy or infection may be determining factors in regard to clinical manifestations, as they may not be noticed by the tutors. Cases of incarceration of the uterus end up leading to toxemia, due to the difficulty of blood irrigation and insufficient lymphatic drainage, or even resulting in the rupture of this structure, which is evident in the eyes of the tutors due to the clinical manifestation of pain presented by these patients. (FOSSUM, 2015; TILEY; SMITH, 1997; STURION, 2013). In the present report, the clinical manifestation noted by the tutor was an increase in acute volume in the bilateral inguinal region, due to the development of pregnancy, corroborating with that described in the literature in which older patients, in this case exactly 8 years old and presenting a gravid uterus, have a larger diameter of the inguinal ring, which favored the protrusion and incarceration of this structure.

In twelve cases observed on gravid hysterocele, seven had a pregnant uterus, but in only one of them the pregnancy was carried out and, two months after the eutocic birth, an herniorrhaphy was performed. The other five cases had inguinal hernias that were corrected with herniorrhaphy and ovariohysterectomy (MATERA, 1960/62).

SERIN, in 2009, described a case of gravid hysterocele in which a three and a half years old boxer patient had a progressive inguinal mass on the left side. During abdominal ultrasound, pregnancy was diagnosed and biometrics determined the gestation of two fetuses at around 40 days. Because the uterus was incarcerated, the fetuses did not survive. In the present case, the fetuses were viable, since the increase in volume in the inguinal region was acute and not progressive, which may have been determinant in fetal viability, since it was possible to intervene in order to avoid the incarceration of this uterus.

In 2016, OLIVEIRA reported five cases of inguinal hysterocele, divided into: two which had unilateral pyometra; one with the two uterine horns insinuated within the same hernial ring; and two reported cases of gravid hysterocele, one of which presented unilaterally with the two uterine horns insinuated within the same hernial ring, and the other presented bilateral gravid hysterocele. In the two cases of gravid hysterocele, the fetuses did not survive, whereas in the unilateral gravid hysterocele, there were two dead fetuses, one in the mummification stage. In the patient diagnosed with bilateral gravid hysterocele, the fetuses were mummified. Similar to that reported by Oliveira in the gravid hysterocele, the present report also presented bilateral hysterocele, with both uterine horns insinuated by the inguinal rings, differing by fetal viability and demonstrating that, when the gravid hysterocele occurs and the pregnancy is desired and there are viable fetuses, one can try to shrink the uterus and decrease the

light in the inguinal ring. However, this disease may recur (FOSSUM, 2015).

In the present report, there was an increase in volume in the inguinal region. As a differential diagnosis of gravid hysterocele, we have breast neoplasms, abscesses and local hematomas and/or mastitis (FOSSUM 2015; NOAKES 2001; SERIN 2009). However, after the ultrasound of the mass in this region, the presence of a gravid uterus was found. This demonstrates that complementary ultrasound examinations are indispensable to assist the diagnosis, in addition to an accurate clinical evaluation during the veterinary consultation. After the diagnosis of gravid hysterocele was closed, it was decided to perform the correction by the surgical procedure of inguinal herniorrhaphy. According to FOSSUM (2015), abdominal hernia corrections aim at reducing abdominal content and reducing or narrowing the hernial ring in order to prevent recurrences. Then, after inguinal herniorrhaphy to correct the patient's inguinal ring defect in the present report, the fetuses remained viable and, three months later, an ovariohysterectomy was performed.

CONCLUSIONS

Among the reported cases about gravid hysterocele, a large part opted for herniorrhaphy followed by ovariohysterectomy, for the chances of the fetuses surviving were minimal or, in some cases, unviable, due to the uterine condition in herniation. The significant relevance of this report can be noted, as the patient did not present systemic complications, allowing surgical treatment, which aimed to reduce the uterus into the abdominal cavity. Thus, the inguinal ring was reduced, making it possible to carry out the pregnancy with viable fetuses. This is an atypical case of those described in literature, in view of the high rate of complications and the scarcity of successful reports described for this condition.

REFERENCES

- DEAN, P.W.; BOJRAB, M.J.; COSTANTINESCU, G.M. Inguinal hernia repair in the dog. In: BOJRAB, M.J (ed.). *Current Techniques in Small Animal Surgery*. Lea-Febriger, Philadelphia, 1990. p. 439-442.
- FORMSTON, C. Inguinal hernia in dogs. *Journal of Small Animal Practice*, p. 212. 1990.
- FOSSUM, T.W. *Cirurgia da cavidade abdominal*. In: *Cirurgia de Pequenos Animais*. 4 ed. Rio de Janeiro: Elsevier Editora, 2015. p. 368-379.
- KALITA, D.; CHOUDHURY, M.; SAILO, L. Inguinal Hysterocele and Epiplotele in a Bitch. *Intas Polivet*, Khanapara, 2012. v. 13, p.113-114.
- MATERA, E.A.; STOPIGLIA, A.V.; VELGA, J.S.M. Hysterocele Inguinal da Cadela. *Rev. Fac. Med. Vet. S. Paulo, São Paulo*, v.6, fasc 4, p. 457-467, 1960/62.
- NOAKES D.E. Maternal dystocia: Causes and treatment. In: NOAKES D.E., PARKINSON T.J.; ENGLAND, G.C.W. (eds.). *Arthur's Veterinary Reproduction and Obstetrics*. WB Saunders, Philadelphia, 2001. p. 240-241.

OLIVEIRA, S.N. et al. Alta incidência de hysterocele em cadelas atendidas em um Hospital Veterinário. *Vet. e Zootec, Botucatu-SP*, v. 23, n. 2, p. 231-234, jun. 2016.

RAISER, A. G.; PIPPI, N. L. Abordagem cirúrgica da hérnia abdominal traumática em cães e gatos. *Veterinaria Técnica*, v. 6, p. 38-43, dez.1998.

READ R.A.; BELLENGER, C.R. Hernias. In: SLATTER, D. (ed.). *Textbook of Small Animal Surgery*. WB Saunders, Philadelphia, 2003. p. 446-470.

SERIN, G. et al. An incarcerated inguinal hysterocele in a pregnant bitch: a case report. *Veterinari Medicina*. Adnan Menderes University, Aydin, Turkey, v. 8, p. 382-386. 2009.

SIMON, M. S.; RAMPRABHU, R.; PRATHABAN, S. Surgical Management of Concurrent Inguinal Hysterocele, Cystocele and Epiplotele in a Bitch. *Intas Polivet*. Tamil Nadu Veterinary and Animal Sciences University, Veterinay College and Research Institute, v.14, p. 127-128. 2013.

SLATTER, D. Hérnias Abdominais. In: *Manual de Cirurgia de Pequenos Animais*. 2 ed. São Paulo: Editora Manole, 2002. p. 533-540.

STURION, D. J. et al. Hysterocele inguinal com hematometra em cadela - Relato de Caso, 2013. *Arq. Ciênc. Vet. Zool. UNIPAR, Umuarama*, jul./dez. 2013. v. 16, n. 2, p. 165-168.

TILEY, L. P.; SMITH, F. W. K. *The 5 minute Veterinary consult: canine and feline*. Baltimore: Willians & Wilkins Company, 1997. p. 1287.

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