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A 7.5-month pregnant Holstein heifer was brought to our clinic as having a prolapsed vagina. Examination showed a unilateral Bartholin gland cyst on the left side of the vagina. The cyst was punctured, drained, and cleaned with lotagen. No active reproduction was found in the microbiological culture of the cyst contents, but in the biochemical analysis found that albumin was found high. Although this problem is more often seen in cows which are old or had undergone dystocia, and no certain cause was found in this case.

Key words: Unilateral bartholin gland cyst, pregnant heifer,

Gebe Bir Düvede Tek Taraflı Bartholin Bezi Kisti

Prolapsus vagina şikayeti ile kliniğimize başvuran 7.5 aylık gebe Holstein düvenin yapılan muayenesinde vaginanın sol tarafında unilateral bartholin bezi kisti olduğu görüldü. Kist punksiyonla boşaltılıp lotagenle temizlendi. Kist içeriğinin mikrobiyolojik ekiminde herhangi bir etken üremesi olmazken, biyokimyasal analizde ise albumince zengin olduğu tespit edildi. Çoğunlukla yaşlı ve güç doğum şekillenmiş ineklerde görülen problemin bu olgudaki kesin sebebi ortaya konulamadı.

Anahtar Kelimeler: Tek taraflı bartholin bezi kisti, gebe düve.

Introduction

The major vestibular or Bartholin glands were first described in 1677 by Caspar Secundus Bartholin, a Dutch anatomist. His description of the gland, which now bears his name, followed the discovery of the vulvovaginal glands in cattle. There are two Bartholin glands, one on each side, located in the constrictor muscles of the vestibule. They are about 1.5 to 3 cm in diameter. In cows, each of these glands open to lateral wall of the vestibule about 2.5 cm caudal to the vagina by a single duct. The Bartholin glands secrete mucus most actively at estrus, and have a tubuloalveolar structure (1-3).

The presence of estrogens in the blood circulation, stimulates the secretion of the vestibular glands in cows and cats, and enriches the glandular fluid with sialic acid, glycidic radicals and both neutral and sulfated mucins. Such peculiarities of the vestibular secretion have been noted during normal or pharmacologically induced estrus, and are considered to be critical for the survival of spermatozoa. The activity of the vestibular glands can be regulated by the hormones produced by the neuroendocrine cells particularly by serotonin and somatostatin. The mechanical stimulation of the vestibular glands, which normally occurs during coitus, can induce the secretion of serotonin by the neuroendocrine cells of the glands (1).

This gland may enlarge due to the accumulation of fluid, 2 to 10 cm in diameter. The cystic vestibular gland is almost invariably unilateral in occurrence and is seen in older cows and rarely in heifers. There have been reports of the formation of retention cysts arising from an atresia or obstruction of the duct of the gland, which usually opens on the lateral wall of the vestibule at the vulva-vaginal border, and occlusive lesions of the duct, as in metaplasia of the lining epithelium associated with chronic hyperestrogenism in cows with ovarian follicular cysts. Estrogenic hormones induce characteristic lesions consisting of squamous metaplasia in the glandular tissue of the prostate and bulbourethral glands of male animals and in Bartholin glands in females (4). Bartholin gland cysts are rare in cattle (5), but also are commonly encountered in women (6, 7). In fact, they are one of the most common gynecological problems in women, and around 2% of women suffer from these pathologies. In both humans and animals, not only cysts but other pathologies such as metaplasia, abscess and endometriosis can be develop (4-9).

The purpose of this article is to describe a unilateral Bartholin gland cyst seen in a Holstein heifer (Figure 1), and to consider its possible effects on reproduction.

Case Report

A 7.5 month pregnant Holstein heifer was brought to our clinic with a suspected prolapsed vagina. On clinical examination, a round enlargement of approximately, 5 x 7 cm in diameter, covered with vaginal mucosa was noted protruding between the vulvar lips. Examination showed that the cystic walls were thin and well supplied with blood vessels (Figure 2, arrows).

The swelling was soft, fluctuating, and no pain was elicited on palpation. Exploratory sterile puncture with a large bore needle revealed the presence of clear viscid fluid in the cyst. The volume of fluid was around 50 ml. There was no evidence of a pyogenic membrane.



Figure 1. A Bartholin gland cyst.



Figure 2. The blood vessels on the cyst walls (arrows).

There are many ways for treatment of Bartholin gland cysts. These cysts are easily dealt with by making a liberal incision or trocar puncturation. Staining the opened cyst with a Lugol's solution, although it is used commonly on practice, is probably not necessary (3, 6, 9, 10). The cyst responded to the injection of 20 ml of 2 % Lotagen into the cavity following evacuation of the contents.

Discussion

In a study of slaughterhouse material from 200 cows, Fathalla et al. (5) described many urinogenital problems including Garthner gland cysts, but not a Bartholin gland cyst. Thus, the fact that our case is of rare occurrence makes it interesting.

Some authors (3, 5, 10) mentioned that trauma and extension at the time of calving lead to local necrotic vulvo-vaginitis. This condition leading to obstruction of the duct opening, as causes of Bartholin gland cysts seen in older cows. However, their ideas are not applicable once to our case, which involved an animal which was young age and had not previously given a birth.

Roberts (3) stated that when the cystic gland becomes larger than 5 cm in diameter it usually shows between the vulvar lips when the cow is lying down as a round pink mucosa-covered object that is often mistaken for the beginning of a prolapse of the vagina. The findings in this present case are in accordance with this author, as the animal was brought to us as having a prolapsed vagina.

Some authors (3, 10) considered that occasionally when the cyst is large it protrudes through the vulvar lips and becomes covered with feces and dirt. Then when the cow gets up and the cyst returns to the pelvic canal, contamination of the vestibule, vulva and caudal part of the vagina may occur. The presence of the cystic Bartholin gland was unilateral in all cases, the shape of the external genitalia was distorted, and a degree of vaginitis associated with this defect was noted in all cows. However, while it was true in our case that the lips of the vulva were open, there was no pelvic canal contamination or related inflammation in the way that this author describes.

Some researchers (10, 11) stated that the agent of *Brucella melitensis* was isolated when they further carried out microbiological culture of the contents of cysts in both women and cows, and that they detected albumin in biochemical analysis. In our case, no microorganism was isolated upon the culture of the fluid content of the cyst, although biochemical analysis of the fluid revealed the presence of a high albumin content.

Cauvin et al. (12) noted that vaginal cysts in dogs might be caused by tenesmus and that the problem could only be solved by draining the cyst. In our case, however no defecation problems were observed according to anamnesis and clinical findings. The cyst caused no problems at parturition nor did it interfere with conception as stated by Roberts (3) and Fathalla (10). In the present case, the cyst was drained and there was no relapse.

Wang et al. (9) reported that 22 Bartholin gland cysts or abscesses in women responded well to drainage by puncturation. The same technique was used in this case and the response was positive. Thus, drainage of such cysts by puncturation can be an effective treatment.

Although many causes of Bartholin gland cysts are known, no definitive cause could be ascribed in the present case. This is because, as mentioned above, a major cause of such cysts is believed to be old age or trauma to the vagina (3,10), which were not factors in the present case of the animal under study.

There are many different causes, and treatments for Bartholin gland cysts. However, the cysts do not have an adverse effect on fertility or parturition; they are more frequently seen in old cows and in those previously calved yet, but as this case shows, they may also be seen on animals which have not given birth.

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