

## Pyocolpos in a Pinscher bitch: a case report

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### Abstract

Diseases related to the urogenital system in both males and females, are common in clinical routine of small animal and represents important causes of morbidity and mortality in dogs and cats. Pyocolpos is a cystic dilatation of the vagina due to the accumulation of pus resulting from the genital tract obstruction. The main cause of obstruction is imperforate hymen, transverse vaginal membrane, or vaginal atresia. We present a case of a three-year-old female Pinscher with a history of constipation for four days, even after administration of laxatives and enema, and estrus for ten days without a report of cover. Physical examinations were performed, which revealed increased abdominal size. Ultrasound confirmed the presence of large amounts of vaginal fluid. Exploratory laparotomy was performed, which confirmed the diagnosis of pyocolpos. Although pyocolpos is a rare congenital malformation in female domestic animals, this report of its existence underscores the importance of more accurate clinical research when increased abdominal size is noted by veterinarians.

**Keywords:** dog pinscher, Pyocolpos.

### 1 Introduction

Congenital anomalies of the vagina and vulva are not frequently seen in routine clinical veterinary care. However, when they occur their consequences are severe (QURESHI, IQBAL, WAHAB et al., 2005). These anomalies are classified into six categories, four of them related to the vaginal vestibule vestibular-vaginal area and two to the vulval vestibule (TSUMAGARI, TAKAGI, TAKEISHI et al., 2001).

The differentiation of the embryo occurs in three main stages: stabilization of the sexual chromosome, gonadal development and sexual phenotype development (MIYERS-WALLEN and PATTERSON, 1989). The tubular bodies of the female domestic mammals originate from the Mullerian ducts (oviducts, uterus and vagina) and urogenital sinus (vestibule, urethra and urinary bladder).

The fusion of the Mullerian ducts with urogenital sinus gives rise to the hymen, which in female domestic animals usually disappears before birth (JUBB and KENNEDY, 1970; SADLER, 1985; McENTEE, 1990). However, abnormal formation or disappearance of the hymen can result in a vertical band of fibrous tissue or an annular narrowing in the vestibule-vaginal junction (WYKES and SODERBERG, 1983; QURESHI, IQBAL, WAHAB et al., 2005; TSUMAGARI, TAKAGI, TAKEISHI et al., 2001).

Several studies in humans show imperforate hymen as a cause of hydrometrocolpos and hydrocolpos in newborn babies or during puberty (REZENDE, MATSUSHITA and REZENDE, 1996; NUSSBAUM, SANDERS and GEARHART, 2001; CAILLÉ, MICHEL, MIGEON et al., 2003; TRAN, ARENSMAN and FALTERMAN, 2007; TSENG, HO, CHEN et al., 2008).

Barba, Ogawa, Tanuri et al. (2004) reported a case of hydrocolpos in a newborn infant caused by ureteral ectopia

and an oblique vaginal septum, with concomitant occurrence of renal dysplasia and contralateral uretero-hydronephrosis. The authors argued that the presence of maternal hormones in the blood of the newborn is responsible for the intense secretion of mucus glands above the cervical and vaginal obstruction.

In sonographic studies for prenatal diagnosis of cystic lesions of the abdomen of human fetuses in the third trimester of pregnancy, Betancourt, Cruz, Martinez et al. (2004) reported a cystic image of variable echogenicity located in the pelvis between the urinary bladder and rectum and found an association with genitourinary, gastrointestinal, cardiac and skeletal anomalies.

The aim of this study was relate a case of pyocolpos in a three-year-old German Pinscher bitch.

### 2 Case report

A three-year-old German Pinscher bitch, seen at a veterinary clinic in the city of Rio de Janeiro, Brazil, was reported by her owner to be experiencing difficulties in defecation, even after the administration of laxatives and enemas, and of being in heat for ten days without mating. Upon examination, the dog presented abdominal swelling, tympanic sound on percussion and the presence of an imperforate hymen.

Further physical examinations were performed, revealing increased abdominal size (Figure 1), and ultrasound imaging were carried out for differential diagnosis of fecal impaction and closed pyometra. The images confirmed the presence of a cystic lesion in the abdomen, with a variable echogenicity pattern depending on the presence of debris.

Because of the imaging results, we decided to perform an exploratory laparotomy (Figure 2) for diagnostic confirmation. The large volume of fluid in the uterus and vagina confirmed the diagnosis of pyocolpos. Later, we performed a bilateral ovariectomy.

### 3 Discussion

The vagina is a very important structure in the genital tract of female domestic animals, and its anatomical integrity is imperative for normal reproduction, allowing the economic exploitation of these animals and, more importantly, to preserve the physiological activity of the urogenital tract to preserve their well-being.

Bitches with defects of the vagina and vulva usually show vulvar discharge, chronic vulvar licking, or attract male dogs

(MIYERS-WALLEN and PATTERSON, 1989). Root, Johnston and Johnston (1995) described inability to breed naturally, dysuria, ambiguous external genitalia, and dystocia as the primary clinical signs of vaginal stenosis.

Congenital malformations involving the tubular organs are rare in domestic female mammals (QURESHI, IQBAL, WAHAB et al., 2005). However, when present they are serious because of their obstruction of the vaginal vestibule and vulval vestibule (TSUMAGARI, TAKAGI, TAKEISHI et al., 2001).

Studies in humans (REZENDE, MATSUSHITA and REZENDE, 1996; NUSSBAUM, SANDERS and GEARHART, 2001; CAILLÉ, MICHEL, MIGEON et al., 2003; TRAN, ARENSMAN and FALTERMAN, 2007; TSENG, HO, CHEN et al., 2008) reveal that the imperforate hymen is one of the most common hydrocolpos



Figure 1. Photomacrograph showing abdominal distension revealed by the clinical examination.

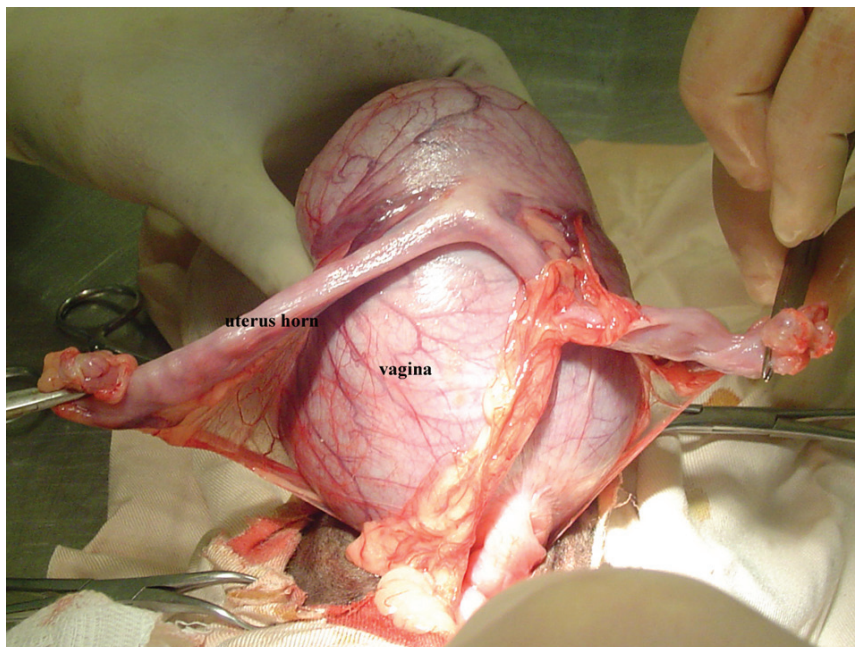


Figure 2. Photomacrograph showing laparotomy for diagnostic confirmation and bilateral ovariectomy.

in children, in line with reports (WYKES and SODERBERG, 1983; QURESHI, IQBAL, WAHAB et al., 2005) for female pets, as observed in this case report. However, in veterinary medicine there are no studies confirming the participation of maternal hormones in the pathophysiology of pyocolpos and hydrocolpos, as well as of renal dysplasia lesions and contralateral ureteral obstruction and hydronephrosis, as reported in humans by Barba, Ogawa, Tanuri et al. (2004).

Also there are no reports in female pets of an association of genitourinary, cardiac and skeletal anomalies, as those observed by Betancourt, Cruz, Martinez et al. (2004) in humans and these anomalies were not observed in this case.

Although pyocolpos is a rare congenital malformation in female domestic animals, this report of its existence underscores the importance of more accurate clinical research when increased abdominal size is noted by veterinarians, because bilateral ovariectomy surgery is not indicated. Instead, only surgical ablation of the imperforate hymen is necessary when this diagnosis is confirmed, besides the required therapeutic intervention. These procedures are less invasive procedure and does not render the animals unable to reproduce. In our case, a bilateral ovariectomy was performed at the option of the dog's owner, because there was no interest in keeping her fertile.

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