Vaginal Atresia with Transverse Septum in a Cat

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(Received 10 April 1997/Accepted 8 July 1997)

ABSTRACT. A six and half-year-old nulliparous mixed breed cat which had the complaints of vomiting, abdominal distention and depression was presented to the Veterinary Teaching Hospital of Osaka Prefecture University. She was suspected of pyometra by clinical signs and tests. By laparotomy, it was clarified that both uterine horns and vagina showed distension by the accumulation of secretions, and the vagina ended blindly leaving a tough connective tissue at the border between cranial and caudal part of the vagina. Postoperative contrast-radiograph of the remaining vagina proved it had no persistence of the hymen. From these findings, the condition was diagnosed as a feline atresia vaginalis with the transverse vaginal septum which is caused by the embryonic failure of canalization of the paramesonephric duct between the end of the Müllerian duct and the urogenital sinus. — KEY WORDS: feline, transverse vaginal septum, vaginal atresia.

Atresia vaginalis is caused by the embryological insufficiency of the canalization of the paramesonephric duct between the end of the Müllerian duct and the urogenital sinus [1, 4]. The human case has been reported and two types known to be included [3]. The first is vaginal atresia with the transverse vaginal septum, and the second is the persistence of the imperformation of the hymen. In small animals, the condition has been reported on the canine [2, 9], however, few reports could be found on the feline. Our case was diagnosed as the same condition as the former type of human atresia vaginalis by the clinical signs and the results of exploratory laparotomy. This report deals with the macroscopical and histopathological observations on the feline atresia vaginalis with a transverse vaginal septum.

The patient was a 6.5-year-old mixed breed cat weighting 4.3 kg. She was presented to the Veterinary Teaching Hospital in Osaka Prefecture University with the complaints of depression, abdominal distention and vomiting. She was nulliparous, however, regularly showed estrous behavior when she was in the season. The owner recently observed her estrous behavior and she was suspected of pregnancy.

Her body temperature was 38.4°C, and her evacuation and urination were normal. Her hair had no sheen. By abdominal palpation a large elastic mass could be felt. No vaginal discharge could be detected. Her blood analysis showed her WBC count and BUN value were increased (Table 1). Her x-ray and ultrasonic examinations proved it had no persistence of the hymen. From these findings, the condition was diagnosed as a feline atresia vaginalis with the transverse vaginal septum which is caused by the embryonic failure of canalization of the paramesonephric duct between the end of the Müllerian duct and the urogenital sinus. — KEY WORDS: feline, transverse vaginal septum, vaginal atresia.

Transfusion of the fluid and medication of the antibiotics were continued for several days after operation. The condition of the disease quickly recovered to normal base and the sutures were removed at day 7 from operation. The patient was released from the hospital at day 10 after operation with no complaints.

The removed uterus was hyperplasia and dilated. The size was 20.7 cm long, 7.5 cm width and 5.5 cm thick. The perimetrial vessels were hyperplasia and congested. The uterine gross appearance seemed to be pyometra. The vagina was also dilated and cystic or sacked. The size was 11.5 cm long, 7.5 cm width and 4.0 cm thick. The vaginal wall was thinner than that of uterus with no vascular reactions (Fig. 2). The contents of both the uteri and vagina were watery thin and colored bloody brown. The endometrium looked like velvet or pseudomembrane, however, vaginal mucosa was wet and smooth without hyperplasia. No bacteria was detected by the culture of the contents from both the uteri and vagina. Both ovaries were normal in their gross appearance and contained several functional corpora lutea.

The removed organs were fixed in a buffered formalin solution and microscopical preparations which were stained by hematoxylin and eosin were made. Uterine histology revealed a slight endometrial hyperplasia by the vascularization with severe zonal or focal hemorrhages of the superficial layer and mild edema of the stroma. Mild hyperplasia of the uterine glands could be seen in the stroma especially around the nests of hemorrhage (Fig. 3). Vaginal...
mucosa was relatively thin and composed of from three to five layers of the squamous epithelial cells which sometimes showed ballooning with slight inflammation. However, no lesions of hemorrhage like those found in the uterus could be observed (Fig. 4). The ovaries had some functional corpora lutea and immature follicles. It was supposed these histological findings were due to the phasic changes of the early luteal stage.

Congenital abnormality of the development of the Müllarian duct system in the cat is relatively rarer than in swine and cattle [4]. A few reports on congenital aplasia and hypoplasia or acquired and unknown-caused hypoplasia
of the uterus in cats are available [5–8], however, the reports on abnormality of the vagina especially on the atresia vaginalis in the cat was difficult to find.

From findings of the laparotomy, the present case was judged a very rare case of feline vaginal atresia. In the human disease, two types of vaginal atresia are known, i.e., with transverse vaginal septum or with imperforation of the hymen [3]. In this feline case, the vagina was blindly terminated at the cranial part and separated from the caudal part of the vagina by the persistence of the obstructed segment composed of a tough connective tissue. Postoperative contrast-radiograph and vaginal endoscopy of the remaining vagina proved it had no persistence of the hymen (Fig. 5). This condition was diagnosed as the same
type as the human vaginal atresia with transverse vaginal septum. This is considered to be resulted from the embryonic insufficiency of the canalization of the paramesonephric duct between the end of the Müllerian duct and the urogenital sinus [1, 4].

In this case, the uterus and vagina had bloody secretions in their lumina. This patient showed estrous behavior at every season, however, no conceptions could be seen in spite of attracting males. These facts may mean that the ovaries might have had almost normal function and might have been able to recur the estrous cycles, however, fertilization failed due to the blockage in the genital tract and contrary discharge from the uterus was disturbed. These may be the cause of a long-termed accumulation of the fluid in the uterine and vaginal cavities. This condition is known as hematometra or hematocolups in the human vaginal atresia. Usually human patients complaint of recurrences of lower abdominal pain at monthly intervals by the newaddition accumulation of the menstrual blood [3]. This present feline patient’s complaints were: unexpected depression, anorexia and vomiting with abdominal distention at the time of the first presentation. These symptoms might be amplified by further uterine dilatation according to the additional accumulation of the uterine fluid from the latest estrus just before she was referred.

This case had the similarity of clinical signs to the closed pyometra and difficulties of the differential diagnosis from it. However, this patient showed no severe syndromes such as the closed pyometra with acute or chronic disturbance of the kidney, and her recovery after operation was very quick because uterine infection did not occur yet.

REFERENCES