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VETERİNER FAKÜLTESİ
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Case Report

JOURNAL OF VETERINARY CASE REPORTS

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A Case of Cystic Endometrial Hyperplasia and Open Cervix Pyometra Due to *Mannheimia haemolytica* in a Queen

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Abstract: This case report investigated a case of cystic endometrial hyperplasia and open cervix pyometra (CEH+P) in a 5-year-old, unspayed, nulliparous tabby cat complaining of vaginal discharge, anorexia, and high fever. According to the patient's owner's anamnesis, it was reported that the cat had no appetite, was stagnant, and had purulent discharge from the vagina. On ultrasound examination, the cat was diagnosed with cystic endometrial hyperplasia. Because the recurrence rate was high despite treatment of the disease, an ovariohysterectomy was performed with the owner's consent. After surgery, samples were collected from the uterus under sterile conditions for microbiological examination. In the microbiological examination, *Mannheimia haemolytica* (*M. haemolytica*) was isolated and the conventional bacteriological diagnosis was confirmed by molecular examination. In conclusion, *M. haemolytica* may be the etiologic cause of cases of cystic endometrial hyperplasia and open cervix pyometra (OCP) in tabby cats.

Keywords: Cystic endometrial hyperplasia pyometra complex, *Mannheimia haemolytica,* Ovariohysterectomy, Progesterone.

INTRODUCTION

Progesterone is a steroid hormone that causes increased secretion in the endometrial glands. This secretion from the endometrial glands creates a suitable environment for bacterial growth in the uterus. Although progesterone is the most important hormone in the pathogenesis of the cystic endometrial hyperplasia and pyometra (CEH+P) complex (1), it is thought to play an important role in estrogen formation (2,3). Estrogen hormone causes dilation of the cervix during the estrous cycle, and the resulting opening predisposes bacteria found in the normal flora of the vagina to colonize the uterus (1). Purulent inflammation occurs as a result of increased bacterial contamination and colonization (1,4). Number of births, age, estrus, and controlled of ovulation (suppression or delay) have been found to predispose to CEH+P. The incidence of cases is particularly high in queens that have never given birth and older than 5 years (1).

Acinetobacter spp., *Actinomyces* spp., *Corynebacterium* spp., *Escherichia coli (E. coli), Haemophilus* spp, *Klebsiella* spp, *Lactobacillus* spp, *Staphylococcus* spp, and *Streptococcus* spp constitute the vaginal flora of healthy queens. The

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most commonly isolated bacterial species are Coagulase-Negative *Staphylococci* (CNS)*, Streptococcus canis (S. canis), and E. coli* (5). *M. haemolytica*, which causes some respiratory diseases in cattle (6) and mastitis in sheep (7), is also one of the reported pyometra agents. *M. haemolytica*, an opportunistic pathogen found in the flora of the oral cavity, nasopharynx, and tonsils of cats and dogs, was isolated from a queen with closed cervix pyometra (CCP) (8).

Surgical and medical treatment are the two main therapeutic options in the treatment of CEH+P. In medical treatment, prostaglandin F2α (PGF2α) and/or aglepristone (9) can be administered to queens with overt cervix pyometra (OCP) (1). However, there is a possibility of disease recurrence with medical treatment. Because of this possibility, the surgical procedures of endometrial curettage or OHE (1) are preferred. In addition, treatment should be supplemented with fluid therapy because of the possibility of developing endotoxemia (10).

The purpose of the presented case is to identify the bacterium that causes CEH+P, as well as the clinical course of these cases and the points to consider in treatment.

CASE REPORT

A 5-year-old queen, which had not previously delivery, showed regular estrus, and was not taking exogenous hormone, was brought to the emergency clinic of the Faculty of Veterinary Medicine, Atatürk University, complaining of a disturbance in general condition. Preliminary examination revealed that the body temperature was high (39.6°C), moderate dehydration was present, and the response to stimuli decreased. The queen's owner stated that the animal showed signs of anorexia and apathy. It was also learned that the sick queen had been found with a neutered male cat and had mated with the male cat 4 days ago. During the first intervention at the emergency clinic and fluid therapy (0.9% isotonic sodium chloride in the form of a 150-mL i.v. infusion) was started to correct dehydration. On the second day after the first procedure, the queen's owner contacted us again complaining of abnormal vaginal discharge (dark green color).

After a preliminary diagnosis of pyometra was made, an ultrasound examination was performed transabdominal with a convex probe (7.5-mHz). The examination performed revealed a folded, echogenic, and enlarged endometrium in addition to mild fluid accumulation in the uterus (Figure 1A). To substantiate the diagnosis, a smear sample was taken for cytological examination. The collected smear sample was evaluated at the Diagnostic and Analysis Laboratories of Ataturk University, Faculty of Veterinary Medicine. Intense neutrophilic infiltration was present on cytological examination and bacteria were seen in the microscopic scan area.

Fluid therapy (0.9% isotonic sodium chloride in the form of an infusion of 150 mL + 50 mL of Ringer's lactate) was continued because the dehydration symptoms noted the previous day continued to worsen. An antibiotic containing 35 mg clavulanic acid and 140 mg amoxicillin trihydrate was administered subcutaneously at a dose of 8.75 mg/kg. Anesthesia was induced with 5 mg/kg propofol 40 minutes after preanesthesia with 0.03 mg/kg medetomidine intramuscularly. Continuity of anesthesia was provided with 6% sevoflurane and 1 L/min oxygen. After a median laparotomy, the pathologically enlarged uterus was reached and removed along with the ovaries (Figure 1B). An antibiotic solution containing 5 mg metronidazole per milliliter was administered i.v. as an infusion in a total dose of 125 mg (25 mL). The surgical line was closed with absorbable 2/0 surgical suture material from the inside to the outside.

An incision was made in the removed uterus under sterile conditions, which included all layers. A sterile swap was inserted through the incision line and a bacteriological culture sample was collected and sent to the laboratory. The collected swap sample was inoculated onto 7% sheep blood agar and Mac Conkey agar. As a result of incubation, S-type and hemolyzed colonies were obtained on blood agar under microaerophilic conditions, whereas no

growth occurred on Mac ConkeyAgar (Figure 2A). Gram-negative rods were detected as a result of Gram staining from pure culture (Figure 2B).

Catalase and oxidase assays were performed from the colonies. Then, biochemical tests and sugar tests were performed and incubated at 37 ℃ for 24 hours. As a result of incubation, the test results were evaluated and the pathogen was found to be *M. haemolytica*. To determine the antibiotic susceptibility of the pathogen, the Kirby-Bauer disk diffusion method was used according to the Clinical Laboratory Standards Institute (CLSI) standards (CLSI 2006). The antibiogram revealed that the bacterium is sensitive to the antibiotics amoxicillin+clavulanic acid, marbofloxacin, ceftiofur, tetracycline, cefovesin, cefoxitin and gentamicin (Figure 2C).

DNA extraction from *Mannheimia haemolytica* culture was performed, followed by Polymerase Chain Reaction (PCR) and gel electrophoresis to confirm that the isolate was *M. haemolytica* (Figure 2D).

After the surgery, feeding with wet food was recommended, and the general condition (body temperature, appetite, interest in the environment) was observed for 72 hours. Within a week after treatment, the symptoms of the disease returned to normal.

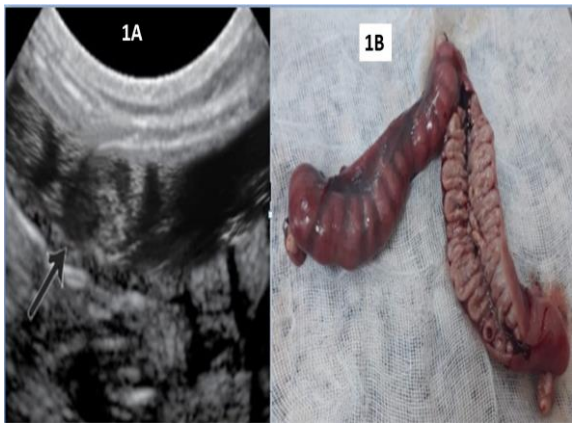


Figure 1A: Ex- vivo view of the folded, echogenic, and thickened endometrium **1B:** Hyperplasic uterus on transabdominal ultrasound

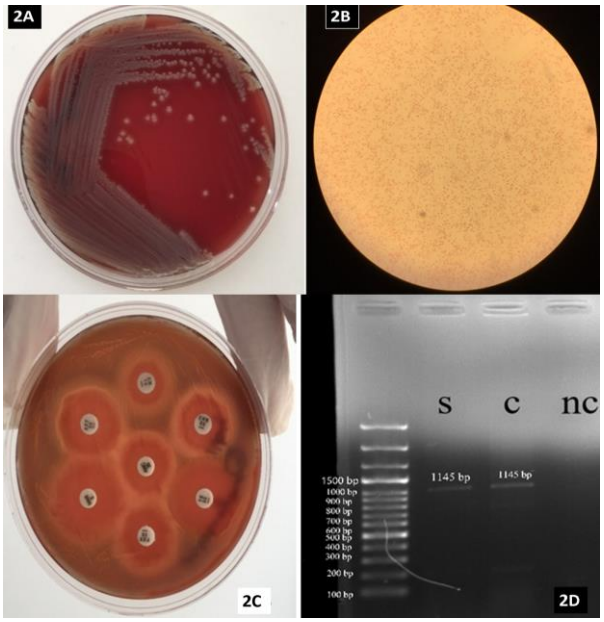


Figure 2A: Growth image of *M. haemolytica* on blood agar **2B:** Gram stain image of *M. haemolytica,* **2C:** Antibiogram image made by Disk Diffusion Method, **2D:** *M. haemolytica* gel electrophoresis image; S: Sample, C: Control, n.c: Negative Control

DISCUSSION

Although common in bitches, this disease, which is rare in queens, has a high mortality rate (11). In this case, a 5-year-old queen was found to have CEH+P. CEH+P complex usually occurs in nulliparous queens older than 3 years of age (1). In the case report presented, the fact that the sick queen is 5 years old and has never given birth confirms this feature of the disease. Lethargy, anorexia, vomiting, dehydration, abdominal distension, cervical dilation, vaginal discharge, polyuria, polydipsia, and high fever are the symptoms observed in patients with CEH+P complex (1,10). On the other hand, polyuria and polydipsia have been reported to be more common in bitches than in queens (1). In this case, all symptoms except polyuria and polydipsia were observed. Transabdominal ultrasonography is the preferred diagnostic method in the diagnosis of CEH+P complex in queens and bitches (12).

Clinical signs in queens can occur within 4 weeks of ovulation stimulation by mechanical, spontaneous, or mating (13). Mating with a neutered male cat at home in the case resulted in an increase in

progesterone following provoked ovulation and subsequent formation of CEH (14). An increase in estrogen during estrus causes the opening of the cervix and the migration of bacteria to the uterus (1). On the other hand, the dilation of the endometrial glands and the accumulated secretions in the uterus create a suitable environment for bacterial growth (12).

Various bacteria have been isolated in CEH+P cases (5). *M. haemolytica*, an opportunistic pathogen found in the flora of the oral cavity, nasopharynx, and tonsils of cats and dogs, causes inflammatory changes in the respiratory tract, urogenital system, and mammary gland. *M. haemolytica*, previously isolated from a queen with CCP (8), was detected by PCR after a pure culture was established in a queen with OCP in the present case. Moreover, the antibiotic susceptibility of *M. haemolytica* was determined by antibiogram. Since the results of PCR and antibiogram, which are among the definitive diagnostic methods for the etiologic agent, take time, antibiotics may be preferred for prophylaxis, and for this purpose a combination of amoxicillin+clavulanic acid may be preferred (15). In this case, the combination of amoxicillin + clavulanic acid was preferred and was found to be sufficient for postoperative recovery.

Bacterial toxins and inflammatory products that are absorbed from the uterus and enter the bloodstream are known to cause sepsis, endotoxemia, and shock (10). Considering that the general condition may deteriorate after surgery, fluid therapy was administered for 5 days postoperatively. Consequently, *M. haemolytica* may predispose to the development of the CEH+P (OCP). In addition, the symptoms present in the case report, the diagnosis and the treatment methods used were explained in detail

Conflict of Interest

The authors declare that they have no conflict of interest.

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Case Report

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Evaluation of Enrofloxacin Toxication in A Tabby Cat

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Abstract: This case report, it was aimed to give information about enrofloxacin toxicity in a cat. The case material consisted of an 8-month-old tabby female cat, weighing 1.4 kilograms, brought to the emergency department with complaints of vomiting, diarrhea, weakness, tremor, dyspnea and inability to walk. According to the anamnesis, it was stated that the appetite of the animal was not good and that he received antibiotic treatment. It was stated that after the treatment, the inability to walk and the incoordination took shape. It was determined by us while taking the anamnesis information that the patient's owners were continuing the antibiotic treatment. Likewise, it was learned that 0.7 ml (35 mg) of the preparation containing the active ingredient of enrofloxacin was administered. This dose was found to correspond to 5 times the normal dose of "0.14 ml (7 mg)". An ophthalmological examination was not performed. However, it was observed that he did not respond to the pupillary reflex. The case was evaluated as enrofloxacin toxicity. As a result, it was evaluated that high-dose enrofloxacin may result in vision loss, as in this case.

Keywords: Blindness, Cat, Enrofloxacin, Toxicity.

INTRODUCTION

Enrofloxacin is a bactericidal antibiotic belonging to the fluoroquinolone group. It is widely used in veterinary medicine. This group of antibiotics acts by inhibiting bacterial DNA transcription. The thawed bacterial DNA cannot be read, and the cell dies (1). Fluoroquinolone-group antibiotics are removed from the body by renal and hepatic routes. It has a 100-1000 times greater effect on bacterial cells than it does on eukaryotic cells. The reason for this difference is that for the enzyme analogue of bacterial DNA gyrase, the sensitivity of gyrase inhibitors is higher in prokaryotic cells (2).

Enrofloxacin was approved for use in cats in 1990 at a dose of 2.5 mg/kg in the United States. It has also been used in dogs and cattle in the ongoing process. FDA approved enrofloxacin after passing mandatory toxicological testing in dogs and cats. In 1992, it was stated that it was safe to use in young cats at doses of 5, 10, and 25 mg/kg. On the other hand, in 1997, the flexible use of a per oral (PO) dose of 5–20 mg/kg became widespread. Vision problems in cats were later reported. These problems have been reported as total or partial blindness and mydriasis (3).

Researchers suggested a possible link between enrofloxacin administration and vision problems in cats in two reports published between 1999 and 2001. Then, during the study conducted by the American College of Veterinary Ophthalmologists, fundic symptoms were observed 1 week after the most severe ocular effect of 50 mg/kg/day (approximately 2.5 times the approved dose range). No change was observed in cats administered 5 mg/kg/day (ie, the lower limit of the approved dosage range). In 2001, the FDA approved an oral dose of 5 mg/kg/day for cats. There is a link between the use of high-dose enrofloxacin in cats and vision problems (4,5). The use of the aforementioned active

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substance is quite common in the field of feline medicine. The aim of this case report is to reveal the pathologies that may occur due to the use of high-dose enrofloxacin to break the resistance that develops due to antibiotic use.

CASE REPORT

An 8-month-old, 1.4 kg, female, tabby breed cat was brought to Atatürk University Veterinary Faculty Animal Hospital with a complaint of dyspnea. In clinical examination, 160/min (pulse), 35.5 °C (rectal temperature), and 60/min (respiration) are the first findings. Salivation, lacrimation, and abdominal respiration were detected on clinical examination. Vomiting and diarrhea were among the findings obtained while taking anamnesis information. At the same time, it was learned that it received treatment for loss of appetite and that the treatment was administered by the patient's owner. In addition, loss of reflex and abnormal gaze were detected in the eye. During the examination, it was determined that it created threat reactions. It was determined that the retina did not react to the light source held on the pupil. There was a lack of in body involvement. In addition, it was determined that it did not avoid the object slowly brought closer to the eye. It was determined that the antibiotic was used while taking the anamnesis, and it was determined that the antibiotic was a commercial preparation containing the active ingredient (Baytril-K 5%, 50 mg enrofloxacin in 1 ml) and was administered sc at a dose of 0.7 ml (35 mg enrofloxacin). Considering the weight of the cat, the dose to be administered was determined as 0.14 ml (7 mg enrofloxacin). The administered dose was 5 times the normal dose. As an emergency intervention, 100 ml isotonic IV administration was started. Oxygen therapy and treatment of hypothermia were aimed by taking her to the intensive care unit. In addition, hot water tampons were applied. Furosemide was used at a dose of 3 mg/kg (Diuril®) and mepyramine maleate at a dose of 1 mg/kg (Histavet®) IV. Because there was no antidote for enrofloxacin, the patient's stability was monitored. Before treatment, whole blood analysis was performed. For this purpose, blood was collected from *vena cephalica antebrachii* in a sterile tube containing EDTA (Vacutainer, K2E 3.6 mg, BD, UK). The results of the analysis are given in Table 1.

Table 1. Hematological findings of the case and normal reference values.

PARAMETER	RESULTS	NORMAL REFERENCE (7)
WBCs	12.6 $x10^3$/mcL	5.5-19.5 $x10^3$/mcL
LYM	5.10 $x10^3$/mcL	1.5-7 $x10^3$/mcL
NEU	7.42 $x10^3$/mcL	2.5-12.5 $x10^3$/mcL
EOS	0.02 $x10^3$/mcL	0-0.8 $x10^3$/mcL
RBCs	6.36 $x10^6$/mcL	5-10 $x10^6$/mcL
HGB	9.4 g/dl	9.8-15.4 g/dl
PLT	227 x103/mcL	300-800 $x10^3$/mcL



Figure 1. Clinical examination

DISCUSSION and CONCLUSION

Enrofloxacin is a kind of antimicrobial with bactericidal properties. It is widely used in pet animals such as cats and dogs. It has been reported that when used above the recommended dose, it impairs the transmission of nerve impulses of the retina and adversely affects neurological functions (5).

Blood values were evaluated in a study in which high-dose enrofloxacin was administered orally in cats. It was stated that there was no significant difference between the experimental groups and the control group. No specific changes were observed in

the reported case. The rectal temperature has been reported to be variable. It was stated that the number of heartbeats was higher than the control group. Likewise, it was reported that the respiratory rate increased, but did not show variable results between days. The cat in this case suffered from hypothermia. The heart rate and respiratory rate were both above the normal reference range (6).

In the same study, it was reported that oral use of enrofloxacin in cats caused blindness and abnormalities in the neurological, and musculoskeletal systems. It was stated that especially the female cats in the study experienced weight loss and were more sensitive to toxication. It has been stated that tense and threatening body hold is formed due to visual impairment. The resemblance of similar findings in the presented case explains the precision of our diagnosis (6).

The absence of fundoscopic examination in case reporting may be insufficient for diagnosis. However, it was thought that the case could be evaluated in terms of toxication in light of the anamnesis and clinical examination findings. This case report showed the reader the detrimental effects of high doses of enrofloxacin, such as vision loss.

Conflict of Interest

The authors declare that they have no conflict of interest.

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Case Report

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Treatment of Lateral Luxation of the Maxillary Canine Tooth with Extraction and Mucoperiosteal Flap Application in Anatolian Shepherd Dog

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Abstract: Dentoalveolar traumas are frequently encountered various animal species. Cause of these traumas; biting a hard object, car accidents, blows, or fights with another animal. As a result of these traumas, various scales of damage may occur in the teeth and - or the surrounding tissues. In this case report, a 3-year-old male weight 70 kg Anatolian Shepherd dog, was brought with complaints of nasal swelling and intraoral bleeding, which occurred as a result of fighting with another dog. According to clinical examination, the maxillary right canine tooth of the dog was laterally luxated. It was decided to extract the tooth due to causes of poor oral hygiene, alveolar socket damage, and lasering of the mucogingival tissue. After tooth extraction, the operation area was closed with mucoperiosteal flap application. Following the postoperative two weeks, the patients recovered without any complications.

Keywords: Dental Trauma, Canine, Dislocated Tooth, Extractione.

INTRODUCTION

The Dental traumas are common in pets. These cases should be considered as dental emergencies and treatment options should be rapidly evaluated.(1) Tooth luxation defined as clinically and radiographically significant displacement of the tooth in the alveolar socket.(2)

In pets typically fractures of the alveolar bone and rupture of mucogingival tissues have been reported. Lateral and incomplete extrusive luxation in dogs causes inability to close the mouth completely. In the treatment of dentoalveolar trauma, manual tooth repositioning, soft tissue repair, splinting, and delayed endodontic treatment or extraction may be required.(3) Tooth luxations are more common observed than tooth fractures in animals.(4)

One study reported in cats and dogs a frequency of 17.3% of all traumatic dentoalveolar injuries. It has been reported that approximately half of all luxation injuries occur in animals under the age of three.(5) It has been suggested that at this age, the supporting periodontal ligament is more flexible and low mineralization of the alveolar bone is more conducive to luxation injuries than tooth fractures. (6)

If a healthy maxillar canine tooth is extracted, alveolar bone should be removed. This process it may be called an “alveolectomy”. In alveolotomy, two incisions are made on the gingiva in the buccal part

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of the tooth. These incisions should be in the rostral and caudal parts of the tooth. The mucoperiosteal flap is loosened from the underlying alveolar bone. Then the apex should be loosened by placing an elevator on the rostral and caudal parts of the root. When the apex is relaxed, the tooth should not be forced medially. This increases the risk of oronasal fistula formation. Finally, extraction forceps are used to extract the tooth. Care should be taken not to damage the medial bone plate. No connection should be made with the nasal cavity. This sometimes results in unilateral (on the involved side) nosebleeds. The cavity is washed, the bone edges are smoothed, and the soft tissue is closed with a mucosal flap.(7)

CASE REPORT

A 3-year-old male Anatolian Shepherd dog, weighting 70 kg, was brought to Atatürk University Veterinary Faculty Animal Hospital with complaints of swelling around the nose and bleeding in the mouth as a result of a fight with another dog. Based on clinical examination, the maxillary canine of the dog was luxated laterally. It was observed that the tooth was almost completely removed from the alveolar socket, the alveolar bone was fractured and there was a serious injury in the mucogingival area (Figs. 1 and 2). In the anamnesis information obtained, it was understood that more than 12 hours had passed since the case. It was also observed that the patient's oral hygiene was poor. Hemogram and routine biochemistry analyzes were within reference values. The patient was fasted 12 hours before the operation. A 20 gauge intravenous (IV) catheter (Novacath, Turkey) was placed into the left vena cephalica antebrachi and 10 ml/kg/h of lactated Ringer's solution (Polifarma, Turkey) was administered during surgery. Preoperatively, 20 mg/kg IV Cefazolin sodium (Cezol 1 Gr, Deva, Turkey) was administered. The animal was received IV 0.3 mg/kg butorphanol (Butomidor, Interhas, Turkey) and IM 100 µg/kg medetomidine (Domitor, Zoetis USA) for premedication and analgesia. Anesthesia induction was achieved with 6 mg/kg IV propofol (Lipura, B. Braun Germany). After intubation, anesthesia was continued with isoflurane (Forane Liquid, England). The patient's vital parameters were monitored with a veterinary monitor (ePM 12M Vet, MINDRAY, China) throughout the operation. Infraorbital nerve blockade was performed with 2.5 mg/kg bupivacaine (Buvicaine, Polifarma, Turkey). Antisepsis of the operation area was achieved with 0.12% diluted chlorhexidine clohexidine gluconate solution (Hibitanol, Kimpa, Turkey). The periodontal ligament was separated from the mucogingival tissues with the use of a perostal elevator. The damaged tissue in the alveolar bone was removed from the area by alveotomy. The canine was removed with tooth extraction forceps (Figure 3). Irrigation of the extraction socket was performed with 30 ml of lactated Ringer's solution (Polifarma, Turkey), and a gentle curettage was performed. The operation area was closed with a mucoperiosteal flap using monofilament 3-0 absorbable (monocryl, Eticon, USA) suture material (Figure 4). In the clinical examination performed two weeks later, the patient was healed without any complications.



Figure 1: Mucogingival Laceration and Luxated Tooth



Figure 2: Root Surface of Dislocated Tooth



Figure 3: Exracted Maxillar Right Canine Tooth



Figure 4: Soft Tissue Closure with a Mucoperiosteal Flap

DISCUSSION and CONCLUSION

This case report showed that tooth extraction can be a successful treatment option for lateral canine luxation in dogs. The time elapsed over the case, the size of the fracture in the alveolar bone, and the vitality of the periodontal tissues play a major role in determining the treatment modality in the lateral luxation of the canine tooth. In such cases, placement of the tooth in the socket, repair of mucogingival tissues and splinting or endodontic treatment options using various materials can be evaluated.(3)

Such treatments should be applied as soon as possible after trauma, ideally within 30-60 minutes. In cases where time has passed, the success rate of treatment decreases. It has been reported that inflammatory root resorption, dentoalveolar ankylosis, and root replacement resorption may occur among long-term complications following the treatment of dental luxations. In cases where time has passed, the periodontal ligament and alveolar bone are severely damaged, and mucogingival tissues are lacerated, fixing the tooth may lead to treatment failure or various complications. For this reasons, extraction of the luxated tooth is also a treatment option in delayed cases.(8)

Extraction of the affected tooth has been reported to provide an excellent prognosis, as the lesioned area is removed and the affected mucosal wound heals rapidly after repair.(9) Concordant with previous studies, this case also showed improvement without complications after tooth extraction. On the other hand, it should be kept in mind that excessive curettage of the nasal cavity in extraction procedures of maxillary canine teeth may cause intranasal fistula formation.

Conflict of Interest

The authors declare that they have no conflict of interest.

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JOURNAL OF VETERINARY CASE REPORTS

Case Report

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Effectiveness of Using A Single Dose of Selamectin in The Treatment of Sarcoptic Mite Infestation in A Rabbit

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Abstract: Sarcoptic mange in rabbits caused by *Sarcoptes scabiei (S. scabiei)* is a highly contagious and severe disease. In this case report, it is reported that the efficacy of 15 mg/kg topically applied selamectin in the treatment of an 8-month-old female, non-neutered, 1 kg weight, wild rabbit (*Lepus europaeus*) with clinical symptoms such as itching on the feet and around the nose, alopecia and white dry crusts. By microscopic examination of the skin scraping, clinical improvement was observed on the 15th day after a single topical application of 15 mg/kg to the rabbit diagnosed with S. scabiei. As a result, it was determined that one dose of topically applied selamectin without the need for additional treatment is a safe, easy and practically effective option in the treatment of sarcoptic mange.

Keywords: Rabbit, Sarcoptes scabiei, Selamectin.

INTRODUCTION

The Sarcoptic mange caused by *S. scabiei* is one of the contagious and very severe infestations caused by ectoparasites that affect many mammals including rabbits (1). This zoonotic disease infects an average of 300 million people worldwide every year (2). Lesions caused by *S. scabiei* are mostly seen in the feet, auricle, nose and genital area (3). It has characteristic clinical signs such as intense itching, alopecia, seborrhea, hypersensitivity reaction, crust formation and hyperkeratosis in rabbits (4). This disease, which has a zoonotic feature, is transmitted to humans by direct contact with infected animals or their environment (5). Options such as selamectin, ivermectin, doramectin and moxidectin are used reliably in the treatment of this disease. In some cases, these drugs may need to be used more than once (every 10-30 days, approximately 4-6 times) for treatment (6–8).

CASE REPORT

An 8-month-old, non-neutered, 1 kg live-weight hare (*Lepus europaeus*) was presented with clinical signs of itching, alopecia, and white dry crusts on the feet and around the nose (Figure 1, 2). *S. scabiei* mites (Figure 3) were detected in the microscopic examination (at 10x magnification) of the scraping sample treated with 10% potassium hydroxide after deep skin scraping from 3 different areas with a sterile scalpel (9). At the same time, it was learned that the patient's owner had itchy lesions. A single dose of selamectin (Stronghold® 6% 15mg; Zoetis) at a dose of 15mg/kg was applied topically to the rabbit between the two shoulder

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blades (8). On the 15th day, clinical improvement was observed (Figure 4).

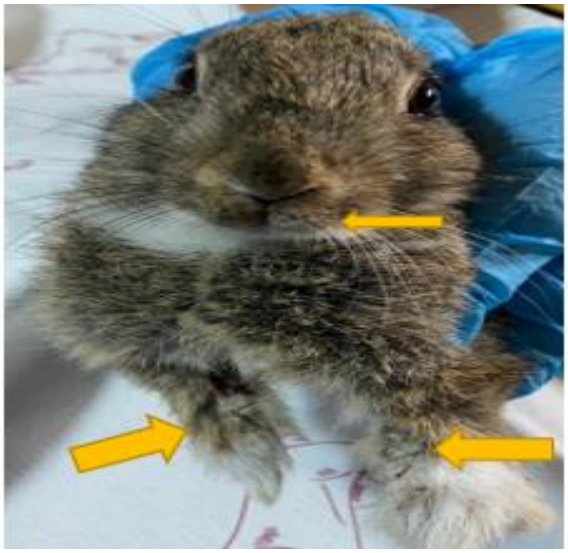


Figure 1: Skin lesions due to sarcoptic scabies detected before treatment (arrows).

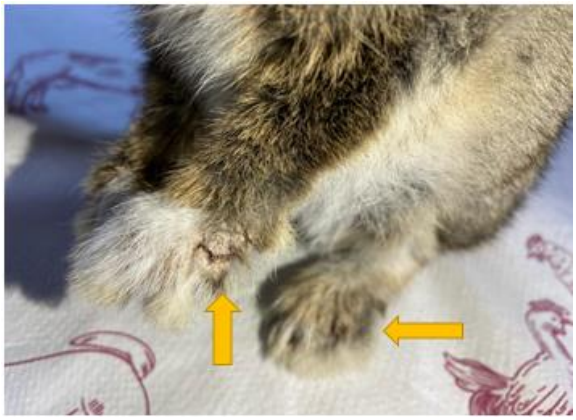


Figure 2: Close-up view of skin lesions due to sarcoptic scabies detected before treatment (arrows).

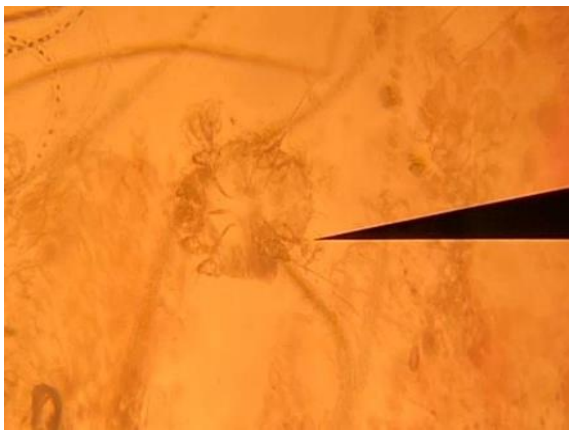


Figure 3: Microscopic image (10 x magnification) of a *Sarcoptes scabiei* mite detected from a skin scraping.



Figure 4: Day 15th after administration of a single dose of selamectin.

DISCUSSION and CONCLUSION

In this case report, the efficacy of a single dose topical selamectin administration in clinical recovery in a wild rabbit (*Lepus europaeus*) infected with *S. scabiei* was reported. These and similar studies (8,10,11) suggest that a single dose of topical selamectin may be effective in clinical improvement. Therefore, no second dose was administered in the presented case.

Selamectin, which is a common endectocide used in cats and dogs, has been reported in studies to be safe and effective against various ecto and endoparasites, including *S. scabiei* (10,12). Although detailed toxicity studies on the use of the active ingredient selamectin in rabbits have not been

reported, it has been reported to be safe in cats and dogs (13,14). In this study, as Mctier et al. (2003) stated, a single dose of selamectin in rabbits was proven to be effective against ectoparasites, as an important advantage (15).

The results of this case report show that although no additional treatment is required for the eradication of mites in rabbits, a topically applied dose of selamectin at a dose of 15mg/kg can eliminate lesions within 15 days without any adverse clinical signs. It has been seen that the single point and topical application of selamectin to the skin is safe, easy and practical. In conclusion, the ease of application of selamectin makes it an effective treatment option in the treatment of *S. scabiei* infestations.

Conflict of Interest

The authors declare that they have no conflict of interest.

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JOURNAL OF VETERINARY CASE REPORTS

Case Report

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Surgical Management of Congenital Recto-Vaginal Fistula with Atresia Ani in a Calf

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Bedir AG: Surgical Management of Congenital Recto-Vaginal Fistula with Atresia Ani in a Calf. Atatürk University J. Vet. Sci., 2(1-2): 16-20, 2022.

Abstract: In this case report, a 1-day-old female calf brought to the Ataturk University Faculty of Veterinary Medicine Animal Hospital with rectovaginal fistula and atresia ani is presented. As a result of clinical examination, abdominal tension, tenderness, depression, stronguria, absence of stool output, meconium mixed urine droplets coming out were detected in a 1-day-old calf. In the radiographic examinations, the blunt end of the rectum was detected very close to the skin and the operation was decided. After the preoperative preparations, a circular incision was made into the skin to reveal the blunt end of the rectum. The rectal pouch was grabbed and opened. The edges of rectal mucosa were sutured with skin to maintain the patency of opening. At the same time, the vulvas were expanded with plastic surgery and the urinary tract was detected and probed. Similarly, the edges of fistula within the vagina were also refreshed and sutured by using simple interrupted suture pattern. After 7 days of post operative care calf got recovered successfully.

Keywords: Atresia Ani, Calf, Rectovaginal Fistula.

INTRODUCTION

Rectovaginal fistula is the congenital or acquired connection between the rectal mucosa and the vaginal mucosa, usually as a result of difficult delivery in cattle and rarely as a complication of atresia ani in calves (1). Atresia is the most frequently reported anomaly of the anus and rectum in calves (2). Anal atresia is the failure of the anal membrane to break down to make an anal orifice and it has been reported as the most frequently encountered anamoly in calves (3). The causes of this congenital defects may be genetical or environmental of both, but in many cases the cause is unknown. The most common factors are thought to be teratogens from the plants that cattle ate during pregnancy and viral diseases (4). The vast majority of defects in calves are inherited (5). Atresia ani is one such developmental anomaly due to autosomal recessive gene, characterized by absence of anus and may be associated with recto-vaginal fistula, rectocystic fistula, vagino urethral agenesis, taillessness, hypospadias, and diphallus (4-6). Four major types of anal and rectal atresia were reported including congenital anal stenosis (Type I), imperforate anus alone (Type II), or combined with more cranial termination of the rectum as a blind pouch (Type III) and discontinuity of the proximal rectum with normal

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anal and terminal rectal development (Type IV) (7). In type I atresia, a mucosal obstruction is seen within the intestinal lumen. In animals with type II atresia, the proximal segment terminates at a blunt end and the distal segment is similarly joined by a fibrous cord that does not contain two end lumens. Type III atresia is similar to type II except that the proximal and distal blunt ends are completely separated and there is a mesenteric defect corresponding to the missing segment in the bowel. Animals with type III b atresia have a coiled distal intestine section. Type IV atresia includes more than one site of atresia (8). Occasionally, rectum becomes ruptured due to abdominal straining of animal forming a recto-vaginal fistula, that allows the excreta to pass out through vulvular opening (9).

CASE REPORT

The material of this case consisted of a 1-day-old female calf brought to Atatürk University Animal Hospital with complaints of absence of anus and passing stool from vulva. Absence of anal opening, tenesmus, cambering in the anal region, and expulsion of stool between the rectal floor and the vaginal roof were observed in the perineal examination (Figure 1). After straining movements with abdominal tension, slight bulging was observed in the perianal area. Radiographic examination was applied to determine the ending part of the large intestine (Figure 2). Besides, exploration through vagina revealed presence of abnormal opening between rectum and vagina on which approximately 1-2 cm wide fistula present 3-4 cm at cranial and right dorso lateral aspect of vulva. The case was diagnosed as atresia ani and rectovaginal fistula condition and immediately planned for surgery.

First of all the perineal region below the base of the tail was prepared for aseptic surgery. After preoperative preparation, the calf was restrained in dorso ventral position on surgical table. Incision site was desensitized after circular lidocaine HCL (L-Anestine, Alke, 20 mg/ml) local anesthesia infiltration. Xylazine HCL (XylazinBio %2, Bioveta, 20mg/ml) was administered at a dose of 0.05-0.1 mg / kg as a preanesthetic. After sedation was provided, general anesthesia was administered with 4 mg / kg Ketamine. After development of anesthesia, a circular incision was made on the skin at the bulging area and the rectal cul de sac was identified by exploration (Figure 3). The rectum was opened, the meconium expelled to outside and cleared. The fistulous defect of vaginal wall was identified and closed using with 2/0 vicyrl (Polyglactin 910, Ethicon, USA) continous suture. Besides the vagina was not fully shaped, the calf had difficulty urinating and the ureters were probed with a catheter and urine output was provided (Figure 4). Then catheter within the ureters was fixed to the vaginal floor together (Figure 5). The anal opening reconstruction was made by suturing rectal mucosa along with perianal skin using 2/0 (Ipek, 2/0 20 mm ½ round, Dogsan, Trabzon Turkey) silk at circular interrupted sutures to maintain anal opening. Post operatively, surgical wound was cleaned and antibiotics- analgesics were administered for a period 5 days respectively. Urine catheter was removed after 3 days and skin sutures were removed on 10^{th} postoperative days.

The calf showed significant improvement in defecation and general behavior within the 5th day of surgery and predictable recovery within the 10th post-operative day. The calf recovered in good condition without any recurrence for a follow-up of 1 months (Figure 6).



Figure 1. A female calf with Rectovaginal Fistula and Atresia A



Figure 2. Radiographic examination of the pelvic region in lateral aspect



Figure 4. Cathetering ureters to drain bladder



Figure 3. Circular skin incision with finger guided rectal sac identification



Figure 5. Fixed urether to the vaginal roof



Figure 6. Post-operative 1 month view in calf

DISCUSSION AND CONCLUSION

Congenital malformations of the rectum and anus are common reported in all species of animals. Congenital rectovaginal fistula is characterized by the communication between the dorsal wall of the vagina and the ventral portion of the rectum, so that the vulva functions as a common opening to the urogenital and gastrointestinal tracts and is usually associated with type II atresia ani, in which the rectum ends as a blind pouch immediately cranial to the imperforated anus which was also presented in this case (4). Agenesis of vagina, urethra, anus and rectum are discovered rarely and are attributed to the faults lying in chromatin material (10). Observed clinical findings Bademkiran et al. is consistent with the findings of the study. (4). Two surgical techniques commonly used in the treatment of recto-vaginal fistula and atresia ani, In one method, the defects of rectum and vulvular lips are closed individually after isolating and transecting the fistula (11). The anal opening is reconstructed later on. In the second method, the trisection of the rectum is made just in front of the fistula, the defective rectal part is excised, then the last rectal part is sutured with the skin edges of the incised opening in the possible anal region and the procedure is completed. Abnormalities noted in Mahlar and Williams of study were also observed in this case (11).

In cases where clinical examination and physical symptoms are insufficient, radiographic examination helps to make a diagnosis. The most successful treatment of such anomalies is by surgical methods. At the same time, it should be aimed to prevent financial losses by informing the owner about the future situation of the patient

Conflict of Interest

The authors declare that they have no conflict of interest.

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