

## Case Report: Rectal Resection and Anastomosis Method as Rectal Prolapse Treatment in Persian Kitten

(STUDI KASUS: PEMOTONGAN REKTUM DAN METODE ANASTOMOSIS SEBAGAI TERAPI PROLAPSUS REKTUM PADA KUCING PERSIA)

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### ABSTRACT

Rectal prolapse is a protrusion or eversion of the rectal mucous membrane from the anus. Prolapse generally occurs in young and old animals caused by relaxation of *spinchter ani*. A kitten was examined at the Udayana University Animal Hospital with complaints of recurrent prolapse, good appetite, and hyperactive. Physical and haematological examination showed that the kitten is proper to get surgery. Kitten being surgery with rectal resection method for rectum which got ulceration, then anastomosis is performed on remaining parts. Around the anus was sutured with a purse string technique. Post surgery treatment is carried out by fluid therapy, antibiotics and anti-inflammatory drugs. The wound was healed on the fifth day after surgery and prolapse does not occur again.

**Keywords:** anastomosis; kitten; prolapse; purse string; rectal resection.

### ABSTRAK

Prolapsus rektum merupakan suatu kondisi keluarnya satu atau lebih lapisan rektum dari anus. Prolapsus umumnya terjadi pada hewan muda dan tua karena relaksasi *spinchter ani*. Seekor kucing dibawa ke Rumah Sakit Hewan Universitas Udayana dengan keluhan prolapsus berulang, nafsu makan baik, dan kucing hiperaktif. Pemeriksaan fisik dan hematologi menunjukkan bahwa kucing layak untuk dioperasi. Kucing dioperasi dengan menggunakan teknik pemotongan rektum untuk mengangkat bagian yang mengalami ulserasi, selanjutnya dilakukan anastomosis pada bagian yang tersisa. Tepi anus dijahit dengan teknik jahitan kantung tembakau/ *purse string*. Perawatan pascaoperasi dilakukan dengan memberikan antibiotik dan antiinflamasi. Kesembuhan luka terjadi pada hari kelima dan tidak terjadi prolapsus kembali.

**Kata-kata kunci :** *anastomosis; kucing; pemotongan rektum; prolapsus; purse string.*

### INTRODUCTION

Prolapse is a protrusion or eversion double layer of rectum through the anal canal which might not be straight or incomplete (Fossum, 2010). It is subdivided into either complete or incomplete rectal prolapse, depending on whether it involves all layers of the

rectum or just the rectal mucosa (Anderson and Miesner, 2008). Prolapse might occur in all breed and sex of animals. Most cases occur in younger animals (Triakoso, 2016). In young animals, prolapse is generally caused by constipation, parasites and diarrhea. In addition, factors of genetics, decreased thrusting of *spinchter ani*, easing of the rectal mucous membrane, tail docking, act of parturition, dystocia, neoplasia, foreign body, and other digestive problems (*tenesmus*, increased intra-abdominal pressure due to bloat, trauma, colitis, proctitis, diarrhea, intestinal parasitism, perineal hernia, and constipation) prostate and urinary tract disorders might be promotor of prolapse occurrence (Andrews and Jones, 1992; Shakespeare, 2000; Thomas *et al.*, 2003; Kumar *et al.*, 2004; Marjani *et al.*, 2009; Jattennavar and Kalmath, 2010; Monsang *et al.*, 2014)

Animals that suffer digestive disorders such as rectal prolapse will generally show *dyschezia* and *tenesmus* associated with anorectal disease or colon inflammation. On physical examination, appears a bulge of the rectal cylindrical mass through out of the anus. Prolapse that has occurred for a long time will cause open mucosa to experience ulceration or necrosis, except at the beginning of prolapse there is no *tenesmus* (Triakoso, 2016).

Diagnose can be made based on history, physical examination, and clinical symptoms. According to Fossum (2010) manx cats are more susceptible to prolapse due to the weakness of their anus muscles. Prolapse can occur to all of age, but most often occurred in young animals. The physical examination can be done by a visual technique/inspection that seeing the mass of the tube, with varying lengths protruding from the anus. If prolapse is diagnosed early, protruding tissue may be short and prolapsed mucosa will appear bright-red and no ulceration. In long-term rectal prolapse, the rectal will appear longer and the mucosa will appear as red or black accompanied by ulceration or necrotic. To achieve permanent healing, the main causes must be diagnosed and treated (Simon *et al.*, 2009). Chronic rectal prolapse without manual treatment usually results in a poor prognosis. The prognosis for cases of prolapse depends on the cause, prolapse level, duration of prolapse, and tissue viability (Triakoso, 2016).

According to Fossum (2010), rectal prolapse in animals can be treated by performing surgery or without surgery. The surgical procedure is performed by amputating and resection of the rectum. Rectal resection is done if prolapse occurs as necrosis while the reposition of the rectum is carried out if the rectal prolapse occurs in a mild degree and the mucosa is only slightly damaged.

Management of rectal prolapse depends on the degree of tissue viability and number of recurrences. Clinical cases presented at the first occurrence along with signs of viable rectal mucosa can be effectively treated by manual reduction followed by application of purse string suture (Fossum, 2010). In this case, the rectal amputation technique was chosen because the rectum that came out had ulcers.

## CASE REPORT

### Signalements and Histories

On August 6<sup>th</sup>, 2018 a physical examination was performed to female Persian kitten named Pissy. The kitten is 2 months old and 0.7 kg of weight. The kitten's fur colour is gray. Based on the owner's information, kitten was infected skin disorders (scabiosis) and was cured. Kitten's feed is fish and rice. Kitten showed hiperactive behaviour. Kitten showed diarrhea, often scream and straining cause protrusion of the rectum. Kitten was previously surgered to repositioning prolapse on July 30<sup>th</sup>, 2018 but prolapse occurred again on August 1st, 2018 (two days after surgery). Kitten have never received vaccinations and deworming.

### Physical and Laboratory Examination

The status present of a Kitten named Pissy is as follows: body weight 0.7 kg, heart rate frequency: 84 beats/minute, pulse frequency: 84 beats/minute, breath frequency: 36 breath/minute, body temperature: 36.4°C, and capillary refill time (CRT): 2 seconds.

The results of the physical examination showed that there was a rectum that came out of the anus 5 cm length. The part of the rectum that comes out appears to have a different colour, the proximal part is pink while the distal part is dark red and the size shrinks. The outgoing portion of the rectum is ulcerated. The consistency of the intestine feels chewy and looks wet. The stool is watery and black. To support the diagnosis, blood tests and stool examination are carried out.

**Table 1.** Results of Haematological Examination of Pissy

Parameter	Result	Reference
Erythrocyte ( $\times 10^{12}/L$ )	5.19	5.0 - 10.0
Hemoglobin (g/dL)	9.2	8.0 - 15.0
Hematocrit (%)	18.2	30.0 - 45.0
MCV (fL)	35.1	39.0 - 55.0
MCHC (g/dL)	50.5	30.0 - 36.0
Platelet ( $\times 10^9/L$ )	538	160 - 700
Leucocyte ( $\times 10^9/L$ )	16.1	5.5 - 19.5
Limphocyte (%)	83.6	20.0 - 55.0

Granulocyte(%)

14.1

55.3 - 89.5

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### **Diagnosis and Prognosis**

From history and physical examination, it can be stated that kitten experienced rectal prolapse due to hyperactive kitten behaviour and too often straining and screaming due to chronic diarrhea experienced by the kitten. The results of stool examination showed no parasites found. The hematological examination shows that the kitten has a good condition for surgery.

### **Treatment**

The treatment chosen is surgery with a rectal resection technique with the purpose of removing the ulcerated rectum. Premedication given was atropine sulfate. Anesthetics that used in this operation contain a combination of ketamine and xylazine. The surgical technique used in this operation was resection of the rectum, the remaining part anastomosed using a simple suture pattern. Post surgery care was carried out by giving amoxicillin syrup 25mg/ml doses of 0,2 ml three times a day for 5 days to prevent secondary infection. Administration of anti-inflammatory dexamethasone was 0,5 mg doses of 0,1 mg for 5 days. Wounds and sutures at the anus are cleaned as often as possible and given a bethasone-N ointment twice a day.

## **DISCUSSION**

Physical examination performed on kitten shows a cylindrical mass protruding from the anus so that the kitten can be diagnosed has rectal prolapse. Blood and fecal tests were performed to determine the hematological status of the kitten. According to Fossum (2010), laboratory examination is not a specific examination for rectal prolapse, but this examination can help to identify the cause and physiological status of the patient. Fecal test results showed no worms or egg worms were found in feces. From the results of blood tests, it was found that kitten had increased lymphocytes. The total red blood cells, white blood cells, hemoglobin, and platelets are still within normal limits, means allowing surgery to do.

Before surgery, the kitten was given premedication. Premedication is an administration of drugs prior to general anesthesia with the main goal of calming down the patient, producing subtle induction of anesthesia, reducing the dose of anesthetics, reducing pain during the surgery and post surgery (Lumb and Jones, 2007). The premedication used in this

operation is atropine sulfate 0.25 mg/ml. Mechanism of atropine in some physiological functions of the bodies such as blocking all cholinergic activity in the eye, causing mydriasis (pupillary dilatation), the eye becomes unreacted to light and cycloplegia (inability to focus for near vision). As for the side effects of atropine depending on the dose, atropine can also cause bradyarrhythmia (Robertson *et al.*, 2018). In addition, administration of atropine sulfate also causes decreased gastrointestinal tract digestive secretion and motility (Papich, 2011).

Anesthetics that used in this surgery contain a combination of ketamine and xylazine. The combination of ketamine and xylazine is the best to induce analgesia (Simon *et al.*, 2009). When the surgery is performed, kitten showed an emetic reflex. Emesis often occurs after administration of ketamine-xylazine, but this can be overcome by administration of atropine sulfate 15 minutes before (Lumb and Jones, 2007). In cats, the use of a combination of ketamine-xylazine can cause a decrease in the absorption of ketamine so it eliminates ketamine for longer, this causes a longer duration of anesthesia (Waterman, 1983).

Before the surgery, kitten was fasting to eat for 12 hours and drink for 4 hours to reduce the vomiting and urination reflexes during surgery. The surgical technique that used in this surgery is resection of the rectum, the remaining part anastomosed by placing four simple suture patterns in the end of rectum with absorbable suture material (Vicryl). This technique is chosen because the rectum in the distal part was ulcerated and prolapse occurs repeatedly. Its correlated with Fossum (2010) in cases of prolapsed mass of longer duration with clinically visible signs of mucosal necrosis, resection of prolapsed rectal stump can be performed (Fossum, 2010). Since there were only mild signs of mucosal necrosis and hence resection was not carried out in the present clinical case. The remaining part then was sutured and repositioned. The edge of the anus then was sutured with a string purse technique with non absorbable suture material. Colopexy was not done in this surgery, because according to Johnson (1943), submucosal resection is the preferred technique if the prolapsed mucosa is necrotic, ulcerated, or traumatized, but the underlying tissue is healthy. Beside that, to do colopexy, laparotomy be done first and it will also provide additional risk to the patient.



**Fig 2.** Part of amputated rectal and the ulcerated part (black arrow)



**Fig 3.** Simple interrupted pattern suture in rectal anastomosis.



**Fig 4.** Condition of anus after repositioned



**Fig 5.** Purse String technique in anal edge

For post surgery care, kitten was given an antibiotic of amoxicillin syrup with the doses of 0.2 ml given 3 times a day and anti-inflammatory of dexamethasone with the doses of 0.1 gram given twice a day. For topical treatment, neomicyn and dexamethasone ointment was given which has anti-inflammatory and antibiotic content. During post surgery care, antibiotics were given to prevent infection in the surgical wound. Amoxicillin works by inhibiting bacterial wall synthesis. Anti-inflammation was given to reduce the inflammatory effect in patients. Dexamethasone is an anti-inflammatory and immunosuppressive which is 30 times more potent than cortisol. The anti-inflammatory effects of this drug are fairly

complex but are most important by inhibiting inflammatory cells and suppressing the expenditure of inflammatory mediators (Papich, 2011).

On the day of surgery and the first day after surgery, fluid therapy was given to maintenance body fluid and as substitution of food. On the third day, kitten was given broth as food. After fourth-day of surgery, foods made to be very soft and watery to help the work of the digestive system. In addition, according to Fossum (2010) animals must be given soft food for two weeks after surgery. Kitten has good appetite and no constipation. On the fifth day after surgery, feces was observed. No blood, no diarrhea, and the color was brownish-yellow. The function of colon and rectum was normally back as before surgery on the fifth day. It is corresponding with Gregory *et al.*, (1990). They proved that physical condition, body weight, blood chemistry panel, fasting and postprandial serum bile acids, serum cobalamin concentration, serum folate concentration, some fecal parameters, and electrolyte concentrations were determined. Enteric function in the surgered cats, in general, was similar to the control cats. Evaluation of wound healing was done every day. Stitches opened on the fifth day. This is in accordance Fossum's statement (2010) which states that string purse stitches can be removed on the third day until the fifth day after the surgery.

### **CONCLUSIONS**

Pissy cats suffered rectal prolapse which is suspected to be caused by chronic diarrhea which causes kitten to experience tenesmus and strain. The treatment chosen was rectal resection because part of the prolapse has been ulcerated. In addition, prolapse has also occurred repeatedly. The purse string stitch was applied to the anus edge to prevent the rectum from coming out again. Sutures were released on the fifth day postoperatively and the rectum was no longer coming out.

### **SUGGESTIONS**

For prevention of recurrent prolapse, kitten is advised not to overact, to be grounded, and to replace food with high protein and soft food.

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