

# Rectal stricture in a bonnet monkey (*Macaca radiata*) : A case report

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## Abstract

A six-year-old female bonnet monkey was noticed with a bloated abdomen seven days after experimentation. A plain radiograph was taken to determine the cause of bloating. However, the plain radiograph did not reveal any significant changes except patches of gas in the abdomen. Hence, a contrast radiograph was done with a barium meal. A constriction was observed in the rectal region in contrast radiograph. An emergency laparotomy was done and stricture was surgically corrected by an end-to-end anastomosis.

## Introduction

Rectal strictures are a narrowing of the lumen due to cicatricial tissue. This may be due to the injury from foreign bodies or trauma (eg. bite wounds, accidents etc.), as a complication of inflammatory disease (eg. perianal fistula disease, histoplasmosis, inflammatory bowel disease, anal sacculitis etc.), or due to neoplasia (eg. scirrhous adenocarcinoma etc.). In addition, enlarged prostate and scar tissue after perianal fistula or anal sac abscess may predispose to extraluminal constriction. In small animals, the ano-rectal stricture is more common than rectal strictures, but neither is frequent. Strictures are more common in dogs (Lamoureux *et al.*, 2017). Rectal stricture in cattle may result from trauma, neoplasia or fat necrosis. Rectal strictures in pigs were seen secondary to enterocolitis, after repair of rectal prolapse, and as a sequela of ulcerative proctitis induced by salmonellae (Wilcock and Olander, 1977). No cases of rectal strictures have been reported in monkeys till now. However, several cases of rectal prolapse, protrusion of one or more layers of the rectum through the anus are reported in monkeys. Rectal prolapse is commonly associated with severe/recurrent diarrhea and tenesmus in animals (Lee *et al.*, 2010). Predisposing factors include parasites, rectal trauma, tail docking, neoplasia of the rectum or distal colon, urolithiasis, urethral obstruction, cystitis, and dystocia (Remfry, 1978; Kumar *et al.*, 2004; Ishibashi, 2018). A case of rectal stricture in a bonnet monkey is reported here.

## History

Bonnet monkeys (*Macaca radiata*) are being maintained at the Central Animal Facility, Indian Institute of Science, Bangalore, for biomedical research. These animals are maintained under standard housing conditions as stipulated by the Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA), Ministry of Fisheries, Animal Husbandry and Dairying, Govt. of India. Light and dark cycle of 12:12 hrs is being maintained in the animal facility. These animals are provided with purified water (*ad libidum*) and fed with standard pelleted diet and seasonal fruits daily. One of the female monkeys of approximately 6 years age and weighing 4 kg was used for the reproductive biology experiment. This animal was super stimulated with gonadal hormones to understand the ovarian follicular development and was continuously monitored through ultrasonogram every alternate day from the day of treatment. The follicular growth was monitored by using a rectal probe (2.5 MHz). Animals were anesthetised with Ketamine and Xylazine (10 mg/kg and 2 mg/kg, IM), respectively. Rectal probe was lubricated with jelly adequately and inserted in the rectum for monitoring the follicular growth. Four days after the 3<sup>rd</sup> scanning, the animal started showing symptoms of abdominal distention. The animal was anorexic and dull. Upon examination, it was found that gas accumulated in the abdominal area. Vital parameters such as body temperature, heart rate, respiration were normal. A plain radiograph was taken to ascertain the

cause for abdominal distention (Fig. 1) but it did not reveal any significant changes. Hence, contrast radiography was done using barium meal (2 ml/kg orally). A constriction at the proximal end of the rectum was noticed (Fig. 2).

### Treatment

Based on the observation, the animal was subjected to laparotomy. The animal was anesthetized with Ketamine and Xylazine (10 mg/kg + 2 mg/kg, IM) respectively and a midline incision (3 inches) was made and the colon and rectum was exposed. A stricture was observed at the proximal end of the rectum and was found to be obstructing the movement of gastric contents. Further, the area adjacent to the constriction on either side was excised and the gastric contents was emptied, including the gas. An end-to-end anastomosis was done using 3-0 non-absorbable suturing material. Subsequently, all the layers (peritoneum, muscles) were sutured using 2-0 absorbable suturing material, and the skin was sutured using 2-0 non-absorbable suturing material. After the recovery from anesthesia, the animal was administered with analgesics (Meloxicam @ 0.2 mg/kg SC) and antibiotic (Enrofloxacin 5 mg/kg IM) and the treatment was continued for three days. The animal was maintained on a liquid diet for five days. The animal completely recovered after seven days. No symptom of bloot was observed in the animal thereafter.

### Discussion

It has been reported in other animals that injury to the rectum is one of the predisposing factors for stricture. In this case, the animal was repeatedly subjected to Ultrasonogram by using the rectal probe. Probably, inadequate lubrication of the rectal probe and may be prolonged usage of the probe in the same region might have resulted in damage. Heat generated by the rectal probe may also be one of the reasons of damage. This heat generated by the probe might have damaged/burnt the rectal tissue to a considerable extent. As a consequence of the healing process, the patency of the tract narrowed/occluded over a period of time. Hence, extreme precautions are required while using the rectal probe in monkeys and making sure the probe is adequately lubricated before inserting into the rectum. In addition, the rectal probe should not be placed in the same place or retained in the rectum for a prolonged duration as it may damage the soft tissue.

### Conclusion

Prolonged and/or improper use of rectal probe for ultrasonogram in monkeys may damage the rectum. If the operator/investigator is not adequately trained or aware of the consequences, the chances of damage are very high. The benefits and limitations of using transabdominal ultrasonogram should be considered before using rectal probes in the monkeys.



Fig. 1 : Plain radiograph



Fig 2 : Contrast radiograph (arrow indicates constriction)

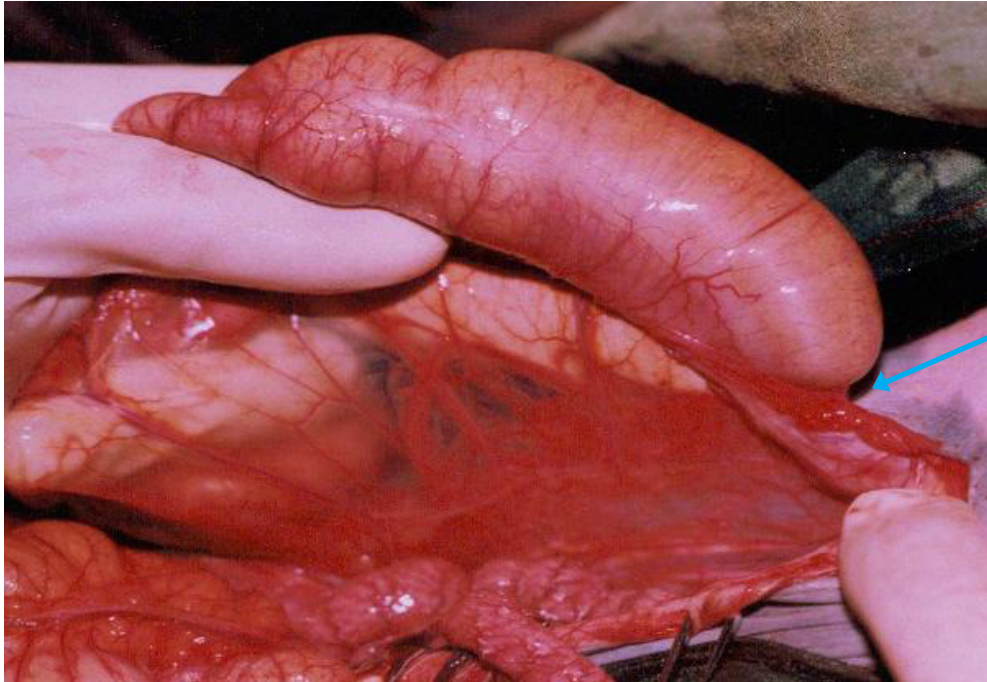


Fig 3 : Rectal constriction (Blue arrow indicates constriction)

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