



Successful Management of Unusual Case of Acute Idiopathic Localized Peritonitis in A Goat

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Abstract

The present case report describes the diagnosis and management of a rare presentation of localized peritonitis in a goat presented to the Veterinary Clinical Services Complex, Faculty of Veterinary Sciences and Animal Husbandry, Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir. The goat had been ill for 3 days, the primary complaint being anorexia, tympany, scanty defecation, and abdominal distension. The rectal temperature and rumen motility were within normal range but the mucous membranes were congested and rumen was mushy. The goat had tachycardia and moderate left-side abdominal distension. The peritoneal fluid changes were consistent with peritonitis. The peritonitis was localized to the left caudal area of the abdomen but the cause of peritonitis could not be ascertained. The goat recovered successfully after seven days of treatment with antibiotics, anti-inflammatory drugs, and calcium therapy.

Keywords: Goat, Peritonitis, Peritoneal Fluid, Treatment.

Introduction

Due to the severe loss of production, diseases of the ruminant forestomach, particularly those caused by peritonitis, are the focus of attention almost everywhere in the world. A serious digestive condition, peritonitis is brought on when there is an infection of the peritoneum from a wide range of etiologies, especially the reticular foreign bodies. Peritonitis is one of the leading causes of animal deaths (Dezfouli *et al.*, 2012; Wittek, 2022). The most common clinical signs of peritonitis are pain and fever. However, in cases of acute septic peritonitis, shock, acid-base imbalance, and circulatory collapse also result in quick death (Wittek, 2022). Abdominal pain appears as stiffness of the gait, recumbency, or abdominal guarding (Wittek, 2022).

Although peritonitis is frequently seen in cattle, it has rarely been documented in pigs, sheep, and goats (Constable *et al.*, 2017; Jones and Smith, 2008). In goats, peritonitis has been usually reported as a complication of rumenotomy (Adamu *et al.*, 1991), enterectomy (Nazifi *et al.*, 2000), or laparotomy (Dehghani *et al.*, 2000, Alimi *et al.*, 2020). Although peritonitis in sheep and cattle has been reported in our area (Hussain *et al.*, 2018; Hussain *et al.*, 2022), the existing literature did not reveal any reports of peritonitis in goats from Kashmir. Even though many veterinary professionals believe that peritonitis is uncommon in small ruminants, we describe an extraordinary event in a goat in the current report.

Case History and Clinical Observations

A six-month-old male goat, weighing 22 kg, was presented for evaluation of anorexia, tympany, scanty defecation, and left-side abdominal distension. The goat had developed sudden anorexia and abdominal distension for 3 days. The goat had been treated with rumenototics, anti-bloat medications, and antibiotics but without any successful outcome.

On clinical examination, the goat was dull, slightly dehydrated, and had moderate left-sided abdominal distension. The rectal temperature (103.3°F) was within the reference range for goats. The conjunctival mucous membrane was slightly congested and the heart rate (120/min) was increased. The rumen consistency was altered (mushy) but the rumen motility (4/2minutes) and rumen pH (=7) were normal. The intensity of rumen contractions was severely reduced. Freehand abdominocentesis, using an 18 G needle, at the left and right post-xiphoid sites did not reveal any peritoneal fluid. However, paracentesis in the left para-median area revealed free flowing slightly red color turbid peritoneal fluid (Fig.1 and 2a).

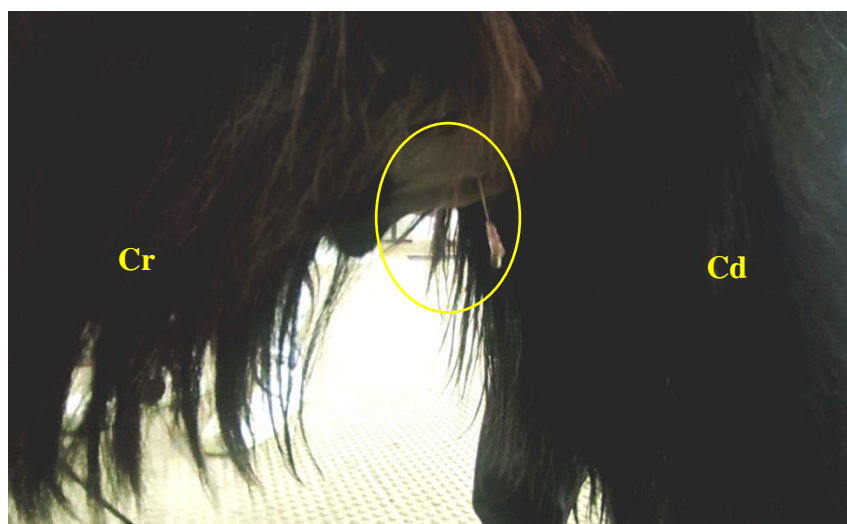


Figure 1: Photograph showing abdominocentesis in the goat at the left para-median site. The peritoneal fluid can be seen hanging from the hub of the 18 G needle. Cr: Cranial end of the animal; Cd: Caudal end of the animal.

The specific gravity (1.028) and total protein (4.5g/dl) concentration of peritoneal fluid measured by refractometer (Fig. 2b) were increased. The total cell count of peritoneal fluid was 6400/ μ L, the majority being neutrophils. The hematological analysis revealed neutrophilic leukocytosis (WBC=13200/ μ L, Neutrophils=67%, Lymphocytes=32%, Eosinophils=1%).

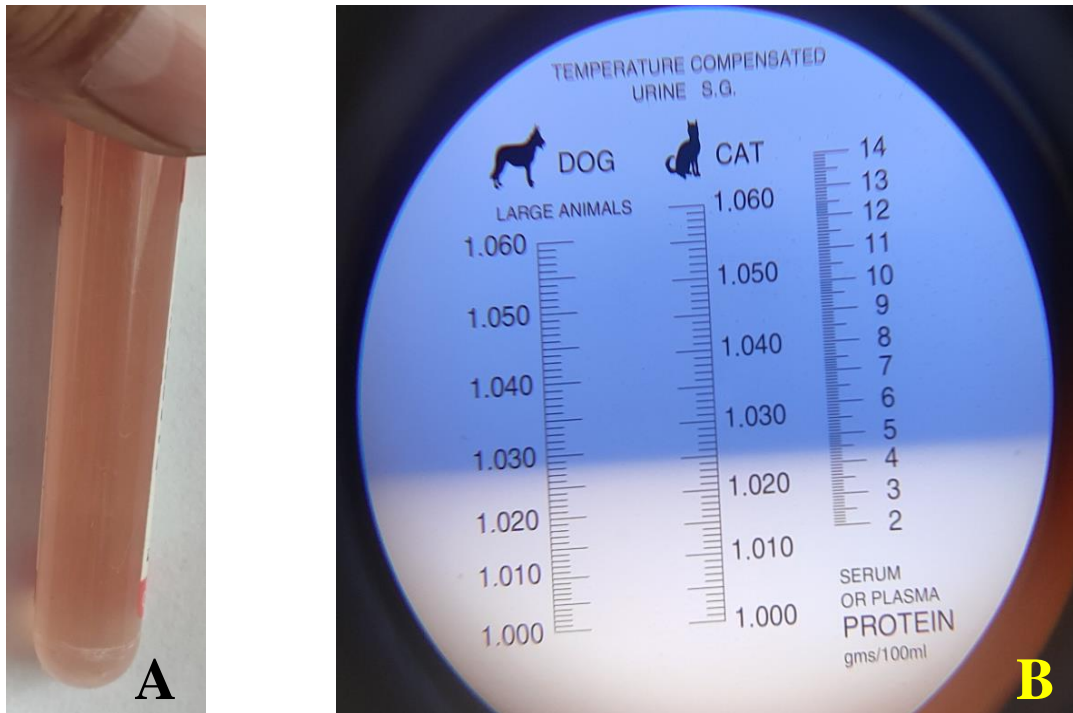


Figure 2: Red-colored peritoneal fluid collected from the goat (A). Reading of refractometer showing high specific gravity and total protein of peritoneal fluid sample (B)

Treatment

The goat was treated with ampicillin (22mg/Kg body weight twice daily) and enrofloxacin (@5mg/Kg body weight once daily) for 6 days (intramuscularly). Flunixin meglumine was administered intramuscularly for a period of three days. The goat also received intravenous dextrose normal saline (@20 ml/Kg body weight for three days) and a dose of intravenous calcium therapy (20 ml of Calcium-Sandoz injection). On the third day, the goat passed a large volume of loose feces, and the stomach distension subsided shortly after. The third day saw an improvement in appetite, and seven days later, a full recovery was noted. There was no recurrence of the disease.

Discussion

The present case report was not related to common causes of peritonitis reported for goats (Alimi *et al.*, 2020). The chances of traumatic reticuloperitonitis (TRP) were also ruled out because had it been TRP, then peritoneal fluid could have been easily collected from the post-xiphoid site rather than the para-median site. Although we were not able to establish the exact cause of peritonitis, this report opens a new horizon for caprine gastrointestinal disorders. This Abdominal distension, scanty feces, and ruminal hypomotility were similar to that reported for peritonitis in cattle and buffaloes with peritonitis (Hussain and Uppal 2014; Hussain *et al.*, 2022). However, the clinical signs did not resemble the signs of peritonitis in sheep in our area. The signs of generalized adhesive peritonitis in sheep in our area are reported to be hematuria or blood in feces, fever, loss of defecation, and other signs of toxemia (Hussain *et al.*, 2018). The difference in clinical signs concerning sheep may be attributed to the localized nature of peritonitis in the present case.

Because peritonitis inhibits reticulo-rumen movement, the abdominal distension was attributed to ruminal stasis due to ineffective rumen contractions. The important conditions that cause weak or absent ruminal contractions include hypocalcemia and peritonitis (Fecteau 2015). Further, in acute peritonitis, the reflex suppression of gastrointestinal tract tone and movement is believed to cause paralytic ileus (Constable *et al.*, 2017). Although the frequency of rumen contractions was normal, the intensity was severely reduced in the present case. We suggest that the inflammation could have been partially eliminated by the on-farm treatment and that treatment could have contributed to the localization of the peritonitis.

While chronic cases may not exhibit the typical signs of peritonitis, making diagnosis challenging according to Hussain *et al.* (2021), in the current case, diagnosis was easily established through peritoneal fluid examination.

Abdominocentesis is useful in the assessment of abdominal diseases in ruminants. Normally there is a small amount of transudate fluid present in the peritoneal space. This site was similar to an alternate site described for abdominocentesis in cattle (Constable *et al.*, 2017) i.e. left of the midline, 3 to 4 cm medial, and 5 to 7 cm cranial to the foramen for the left subcutaneous abdominal vein. The peritoneal fluid sample is clotted on standing, indicating high cell count and fibrin (Constable *et al.*, 2017). The physical characteristics and massive neutrophilia of peritoneal fluid indicated acute peritonitis (Hussain *et al.*, 2022). It is reported that paracentesis rules out gross peritonitis but many false negatives are possible as a result of focal or fibrinous peritonitis (Fecteau 2015). However, due to the acute nature of the peritonitis in the present case, we were able to collect the peritoneal fluid easily.

Peritonitis is treated by stabilizing the animal and administering antibiotics. Antimicrobials are used as part of the treatment to contain the infection, and synthetic penicillins and fluoroquinolones have been reported to be effective options for peritonitis (Fecteau 2005; Hussain *et al.*, 2022). Flunixin meglumine was administered to prevent the synthesis of more inflammatory mediators. Because it has been shown that bovine peritonitis alters liver function (Hussain and Uppal 2014; Hussain *et al.*, 2022). In the present case, the liver tonic was given every day.

Paracentesis of the abdomen and subsequent evaluation of the peritoneal fluid were crucial diagnostic procedures. However, abdominocentesis is rarely practiced for the diagnosis of abdominal disorders in goats. So we recommend this procedure for effective early diagnosis of peritonitis in this species.

Contribution by Authors

Equal contribution. All authors declared that ‘written informed’ consent was obtained from the approved parties for the publication of this article and accompanying images.

Conflict of Interests

There is no conflict of interest.

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