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Surgical correction of rectal diverticulum with perineal hernia in a German shepherd dog: A case report

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Abstract

The present study reports a case of 10 years old male German shepherd dog with a history of right side perineal swelling, constipation, impaired defecation and tenesmus since the last six months. Based on the history, a clinical sign, digital palpation and radiography, the case was diagnosed as rectal diverticulum with perineal hernia. Surgical resection of the sacculation along with perineal herniorrhaphy was performed with a successful clinical outcome.

Keywords: Diverticulum, herniorrhaphy, anesthesia, radiograph

Introduction

Rectal diverticulum is an out-pouching of rectal mucous membranes through an abnormal opening in the overlying perineal muscle layers, found commonly in middle aged, male dogs [12, 13]. It may exist alone, or along with perineal hernia, but most often it has been described as a sequel to perineal hernia [11, 9, 2, 8]. So, it can be said that the concomitant occurrence of rectal sacculation is very commonly associated with chronic hernias [8]. The exact cause is still unknown; however, it is anticipated that it may arise from focal weakened points of the rectal wall due to congenital or acquired diseases [7].

If the diverticulum is not treated properly, this condition is severe and can lead to fecal accumulation and impaction in the sacculation, which may lead to impaired defecation and persistent straining; consequently, these will further predispose to recurrence of the perineal herniation [4, 10]. Neither conservative treatments nor classical herniorrhaphy techniques is desirable for the treatment of this condition [12, 8]. Several surgical techniques such as diverticulectomy, plication, anal splitting and resection of the segment of intestine with end-to-end anastomosis can be employed [12, 8, 10, 1]. The present case report describes a successful repair of rectal diverticulum by resection with herniorrhaphy in a German shepherd dog through lateral approach.

Case History & Clinical Observation

A 10 years old male German shepherd dog weighing 42.8 kg was presented with the history of right side perineal swelling, constipation, impaired defecation, dyschezia and tenesmus since the past six months. Upon query, the dog also had a previous record of perineal herniorrhaphy and castration during the past two and half years. On digital rectal examination, perineal hernia with rectal distension containing large quantity of faeces on the right pelvic diaphragm and out-pouching was palpated at the right lateral aspect of the rectal wall [Fig. 1 (A & B)]. Clinically, the animal was apparently healthy and all the clinical parameters and haemograms (rectal temperature, pulse rate, respiratory rate and CBC) were within the normal physiological limits. Plain radiography revealed a faecal material and gas-filled sac in the right perineal region (Fig. 2) whereas, a marked solitary diverticulum arising from the right lateral wall of the rectum [Fig. 3 (A & B)] was observed in positive contrast radiography using barium sulfate per orally. Therefore, surgical resection by using lateral approach and herniorrhaphy was advocated to repair the defects.

Treatment and Management

Pre-operatively, food and water was withheld for twenty four and six hours, respectively prior to surgery. A laxative preparation (cremaffin) was also given 24 hours before the operation followed by warm water enema mixed with liquid paraffin before the operation to facilitate

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colonic evacuation and complete cleansing. After the surgical site was prepared aseptically, the animal was premedicated with atropine sulphate at a dose rate of 0.02 mg/kg BW, injected intramuscularly. General anaesthesia was achieved by a combination of xylazine and ketamine loaded in a single syringe at a dose rate of 1 mg/kg and 10 mg/kg BW, respectively, and injected intramuscularly. Maintenance was done under diazepam and ketamine combination at a dose rate of 0.5 mg/kg BW and 5 mg/kg BW, respectively (1:1 ratio), through intravenous route as per the requirement. After placing the animal in sternal recumbency, a skin incision of about 3 to 4 inches was made in curvilinear fashion laterally on the right side of the anus. The fascia was separated and subcutaneous tissues along with the associated muscles were bluntly dissected to expose the pelvic diaphragm avoiding the rectal nerve. Through digital palpation, the rectal sacculcation was identified, retracted, pulled out from the incision [Fig. 4 (A)] and clamped with atraumatic intestinal forceps taking care to maintain the patency in the rectal lumen [Fig. 4 (B)]. Interrupted Wolff absorbable suture pattern was placed passing through all the intestinal layers to resect the out-pouching layer using polyglactin-910 suture material (vicryl 2-0) [Fig. 4(C)]. Subsequently, a second layer of another inverting cushioning suture was placed while carefully removing the intestinal forceps as the suture progresses in a parallel fashion towards the direction of rectal lumen. Herniorrhaphy was again done using a conventional method by suturing the internal obturator muscle to the external anal sphincter, followed by reapposition of external anal sphincter and the levator ani muscle in an interrupted suture pattern. Finally, subcutaneous tissues and skin were closed in a routine manner [Fig. 5 (A)].

Postoperatively, a course of antibiotic (Inj. ceftriaxone @ 25 mg/Kg BW, IM) once daily for seven days and injection meloxicam (@ 0.2 mg/Kg BW, IM) once daily for three days were given along with fluid therapy. Initially, a stool softener (lactitol monohydrate) was given for 3 weeks along with a bland, low-fat diet mixed with vegetables and a normal diet was gradually reintroduced until the animal could finally eat and defecate normally. Skin suture was removed after 15 days and the dog recovered uneventfully without any complications thereafter [(Fig. 5 (B))].

Results and Discussion

Perineal hernia is a condition which occurs mainly when the pelvic cavity muscles rupture resulting from failure of the

pelvic diaphragm to support the rectal wall, through which there is caudal displacement of some of the anatomical structures, such as rectal, pelvic or abdominal contents, indicated by swelling of the perineal region and impaired defecation [6]. When there is weakness and rupture of muscular layer of the rectal wall, it may result to protrusion of mucosa and submucosa into the pelvic canal, causing rectal diverticulum [8], which was observed in this case. Persistent pressure against the rectal wall by impacted fecal material makes the rectal wall weakened and stretched causing to bulge and pocket formation; ultimately, turns into larger sacculated diverticulum. Reports suggested that it occurs commonly in middle aged male dogs over 6 years of age [6], with the present animal being 10 years of age.

The diagnosis of this clinical condition is usually based on history, clinical signs and symptoms, physical examination, digital palpation and radiographic findings [5]. After both plain and contrast technique, radiographic findings demonstrated rectal dilation or sacculcation characterized by an external and intact pouch on the right lateral aspect of rectum wall [3], suggesting rectal diverticulum with perineal hernia. Several surgical techniques have been employed by various surgeons for the treatment of rectal diverticulum in dogs [9]. However, conservative treatment or classical herniorrhaphy techniques alone will not give a successful clinical outcome without repairing the diverticulum because the large rectal diverticulum will be soon filled with faeces and cause straining, which will lead to disruption of the perineal hernia repair and recurrence of the perineal swelling [12, 8]. This is considered to be the reasons which accounts for the high recurrence rates as previously reported [4]. As a result, we have performed complete surgical resection of the rectal diverticulum or sacculcation to prevent its recurrence. During diverticulectomy or saccullectomy, there is always a risk of possibility of post-operative contamination due to opening the rectal wall during the surgery [14]; however, such infection was controlled in our study with good antibiotic coverage. Anal splitting and resection of the affected section of intestine along with the pocket followed by end-to-end anastomosis have also been described by some of the authors but is challenging and associated with morbidity [12, 14, 1]. Nonetheless, in this present case, diverticulectomy using lateral approach and perineal herniorrhaphy showed excellent result and successful clinical outcome.

Figures



Fig 1: Photographic image showing swelling and distension of the perineal region (A) Lateral or side view and (B) Posterior view (red circle).

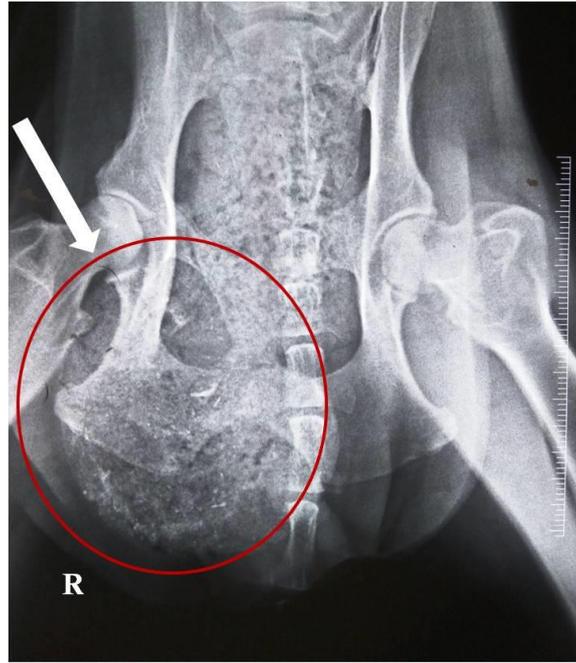


Fig 2: Plain radiograph (ventro-dorsal projection) showing fecal material and gas-filled sac in the right perineal region (red circle)

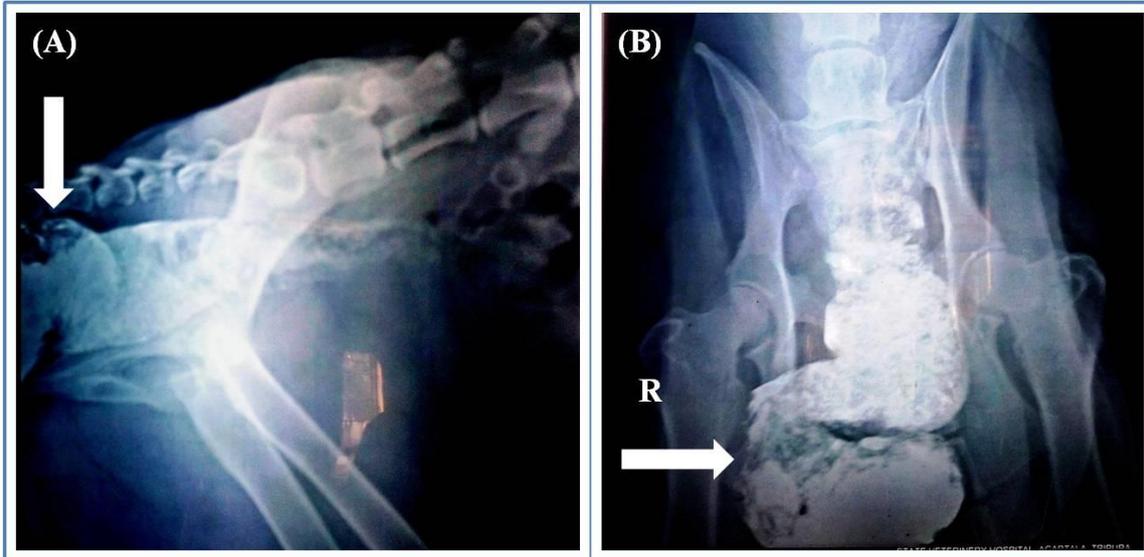


Fig 3: (A) Contrast radiography in right lateral projection and (B) Contrast radiography in ventro-dorsal projection of marked solitary diverticulum (white arrows indicate rectal diverticulum).

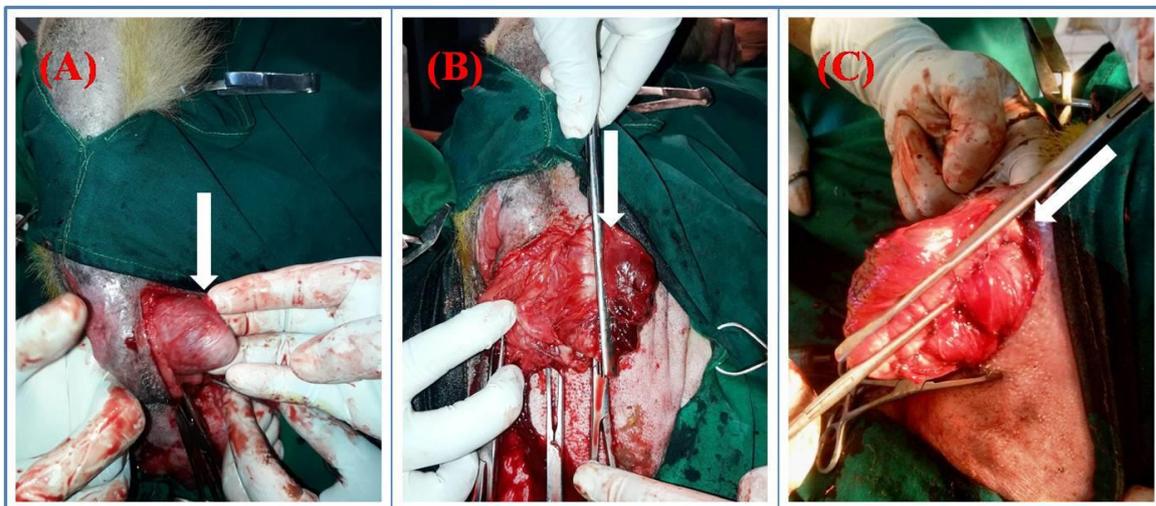


Fig 4: A photographic image showing (A) Rectal sacculation, (B) Clamping of rectal sacculation with intestinal forceps and (C) Wolff suture used for resection of rectal sacculation (white arrow)



Fig 5: Photographic image showing (A) Skin suture and (B) Healing of wound after removal of suture and recovery at 30 days (red circle).

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