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Popular Article

From Diagnosis to Surgical Resolution: A Case Report on Ruminal Phytobezoar

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Abstract:

Although rare, ruminal phytobezoar should be regarded as an important differential diagnosis in small ruminants presenting with chronic gastrointestinal dysfunction and ruminal obstruction. A five-year-old black Doe was presented with a history of progressively reduced feed intake, which progressed to anorexia, sudden abdominal distension. Physical examination revealed marked tympanic resonance on percussion of left paralumbar fossa over the rumen, indicating ruminal tympany and tachycardia was also observed. Survey radiography demonstrated a well circumscribed radio-opaque mass within the abdominal cavity. Exploratory laparotomy followed by rumenotomy revealed a ruminal Phytobezoar, which was successfully removed.

Keywords: Phytobezoar, abdominal distension, tympany, survey radiography, Rumenotomy.

Introduction:

Phytobezoars are conglomerates of indigestible plant material, primarily composed of cellulose, lignin, and other fibrous constituents, that accumulate within the gastrointestinal tract following prolonged consumption of coarse, poorly digestible forage. In ruminants, these masses are most frequently located in the rumen, where they may impair ruminal motility and cause partial or complete gastrointestinal obstruction. Despite their relatively low incidence in goats, phytobezoars should be considered in the differential diagnosis of animals exhibiting chronic anorexia, recurrent ruminal tympany, abdominal distension, reduced fecal output, and inadequate response to conventional therapy.

A definitive diagnosis of ruminal phytobezoars is achieved by integrating clinical history, physical examination, imaging findings, and surgical exploration. When conservative management proves ineffective or gastrointestinal obstruction is suspected, surgical intervention by rumenotomy provides definitive treatment through removal of the phytobezoar and restoration of normal ruminal function. This case report presents the clinical features, diagnostic evaluation, surgical management, and favorable

postoperative outcome of a ruminal phytobezoar in a goat, emphasizing the importance of early diagnosis and prompt surgical management in achieving a favorable outcome.

Case Presentation:

History And Clinical Findings:

A five-year-old black doe weighing 34kg was presented at Teaching veterinary clinical complex, Pantnagar, Uttarakhand, with a history of chronic anorexia, sudden abdominal distension and has been bleating since the previous night, accompanied by restlessness observed over the preceding 24 hours. The affected doe belonged to a flock of 6 goats. The animal was reared under semi-intensive system, with stall feeding supplemented by daily grazing.

Physical Examination:

- **Rectal Temperature:** 104.3 °F
- **Heart Beat:** 92 bpm
- **Skin Tenting Time:** 3-4 sec
- **Respiratory Rate:** 26 breaths per minute
- **Rumen Motility:** absent
- **Mucous Membrane:** pale pink, slightly dry

Initial Therapeutic Intervention:

Initial therapeutic intervention includes

- Mineral oil (150 ml orally)
- Simethicone (20ml orally)
- Poloxalene
- Intravenous fluid therapy (Normal saline, Ringer's lactate)
- Inj.Tonophosphan
- Tab.cofecu

Initial therapeutic management consisted of supportive intravenous fluid therapy and symptomatic treatment, including administration of mineral oil, simethicone, intravenous fluid therapy with the aim of alleviating gastrointestinal distension and supporting systemic hydration. However, no significant clinical improvement was observed over the next 24 hours despite initial therapeutic management. The abdominal distension persisted accompanied by continued restlessness and frequent vocalization.

Diagnostic Evaluation:

In view of the persistent abdominal distension, progressive clinical deterioration and failure to respond to conservative therapy, further diagnostic evaluation was undertaken. Following appropriate stabilization of the animal, abdominal survey radiography was performed, which revealed a well-defined



Fig.1: Lateral abdominal survey radiograph



Fig.2: Ventrodorsally abdominal survey radiograph

radiopaque mass within the abdominal cavity, particularly in the ventral abdominal region. The radiographic findings raised suspicion of a compact foreign or obstructive material within the gastrointestinal tract.

Surgical Intervention:

Based on the clinical and radiographic findings, exploratory laparotomy was performed under epidural anesthesia, supplemented with local infiltration of lignocaine at surgical site. Following adequate anesthetic effect, a left flank laparotomy was performed. Intraoperative examination revealed a firm, compact mass lodged within the rumen. The mass was carefully exteriorized and removed through rumenotomy. On gross examination, the mass consisted of densely compacted plant material and was subsequently identified as a phytobezoar.

Post-operative Care:

Recommended management includes:

- Broad Spectrum antibiotic.
- NSAID.
- Daily antiseptic dressing.
- Tab. Serakind-plus
- I/V Fluid Therapy continued for 5 days.
- Gradual reintroduction of feed and water following restoration of ruminal motility.



Fig.3: Surgical extraction of a compact Phytobezoar from the rumen during

Discussion:

The case highlights an unusual presentation of a ruminal phytobezoar causing marked abdominal distension and anorexia in a goat, emphasizing the importance of radiographic evaluation and exploratory surgery in cases unresponsive to conventional medical management.

The goat was maintained under a semi-intensive management system and was primarily offered grasses and tree/plant leaves. The excised ruminal phytobezoar was grossly characterized as a firm, compact, spherical mass composed predominantly of densely aggregated plant material.

Such plant-derived material is rich in structural carbohydrates, particularly cellulose, hemicellulose, and lignin, which are relatively resistant to ruminal degradation. Accumulation and progressive compaction of these indigestible fibrous components may contribute to phytobezoar formation, particularly when intake of coarse or highly fibrous plant material is substantial. Phytobezoars are principally composed of indigestible plant fibers, including cellulose, hemicellulose and lignin.

In a recent report of phytobezoar-associated disease in a Madras Red ewe, fiber analysis demonstrated a predominantly lignocellulosic composition, with NDF, ADF and ADL values of 52.82%, 38.34% and 18.18%, respectively; hemicellulose and cellulose constituted 14.48% and 20.16%, respectively. These findings support the role of highly fibrous, relatively indigestible plant material in the formation and persistence of phytobezoars.

(Source: <https://www.veterinarypaper.com/archives/2025/10/12/C/10-12-16>)

Preventive Strategies:

Preventive management of Phytobezoar formation should primarily focus on appropriate dietary and feeding practices. In semi-intensively managed goats, dietary management should emphasize the provision of good-quality, nutritionally balanced forage while minimizing prolonged consumption of excessively mature, coarse, and poorly digestible plant material. This dietary consideration is particularly pertinent to phytobezoar formation, as these concretions are primarily composed of indigestible plant fibres. Experimental studies have further indicated that excessive ingestion of mature, fibrous plant material may predispose small ruminants to phytobezoar development. Ensuring continuous access to clean, potable water, providing balanced mineral supplementation, and implementing gradual dietary



Fig.4: Gross appearance of excised ruminal Phytobezoar following surgical removal, showing densely compacted mass of plant material.

transitions are essential for maintaining optimal gastrointestinal function. Regular monitoring of feed intake, ruminal activity, fecal output, abdominal distension, and overall behaviour may facilitate early detection of gastrointestinal disturbances. Early recognition of gastrointestinal dysfunction through routine clinical monitoring for anorexia, reduced ruminal motility, progressive abdominal distension, altered faecal output, and recurrent bloat is essential for timely intervention. Persistent or recurrent abdominal distension despite appropriate conservative management should warrant further diagnostic evaluation, including timely radiographic assessment, to facilitate early identification of obstructive conditions such as phytobezoar. In the present case, appropriate dietary management and vigilant monitoring for persistent gastrointestinal abnormalities may play an important role in minimizing the risk of recurrence and facilitating timely intervention.

Conclusion:

This case draws attention to ruminal phytobezoar as a rare yet potentially life-threatening obstructive disorder in goats, underscoring the need for early recognition and definitive intervention. Failure of conservative management should prompt timely diagnostic imaging to uncover occult obstructive pathology and facilitate appropriate therapeutic decision-making. In the present case, exploratory laparotomy with subsequent rumenotomy provided definitive confirmation and successful removal of the phytobezoar, resulting in an uneventful postoperative recovery. The case underscores the importance of maintaining a high index of suspicion for phytobezoar in refractory gastrointestinal disorders and adopting a systematic approach integrating clinical assessment, diagnostic imaging, and timely surgical intervention. Furthermore, judicious dietary management and vigilant gastrointestinal monitoring may contribute to minimizing recurrence. Above all, maintaining a high index of suspicion, recognizing failure of conservative therapy at an early stage, and proceeding promptly to definitive surgical intervention when indicated may be decisive in converting a potentially life-threatening obstructive condition into a successfully manageable surgical entity.