Journal of the Hellenic Veterinary Medical Society

Vol 77, No 2 (2026)


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doi: 10.12681/jhvms.42823



**To cite this article:**

Ahmadi, F., & Nourani , H. (2026). A Rare Case of Trichobezoars in a Lamb: Case Report and Literature Review. *Journal of the Hellenic Veterinary Medical Society*, *77*(2), 10569–10574. https://doi.org/10.12681/jhvms.42823

J HELLENIC VET MED SOC 2026, 77 (2): 10569-10574
ΠΕΚΕ 2026, 77 (2): 10569-10574

Case report
Κλινικό περιστατικό

# A Rare Case of Trichobezoars in a Lamb: Case Report and Literature Review

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**ABSTRACT: Background:** Trichobezoars are uncommon gastrointestinal foreign bodies in small ruminants, typically associated with chronic ingestion of hair and fibrous material. While sporadic cases have been described in adult sheep and goats, extensive trichobezoar formation in young lambs is exceedingly rare.

**Case Presentation:** An 8-week-old Afshari lamb from a semi-intensive flock of 400 ewes and their offspring was presented for necropsy following a 5-day history of progressive anorexia, worsening abdominal distension, mild intermittent colic, and occasional bruxism. Gross examination revealed 50 trichobezoars within the rumen, reticulum, and abomasum. Notably, 11 of these masses were conjoined into a continuous chain within the ruminal lumen. The total weight of the ruminal trichobezoars was 390 grams. The dense concretions resulted in severe luminal occupation, secondary stasis of ingesta, and ultimately death.

**Discussion:** This case represents, to the authors' knowledge, the first report documenting such a high number of trichobezoars in a lamb, particularly the unique formation of conjoined masses. Contributing factors likely included early weaning, pica, and chronic ingestion of hair and bedding material. The findings underscore the need for preventive management practices and heightened clinical suspicion in young ruminants presenting with progressive gastrointestinal dysfunction.

**Conclusion:** This report highlights an unusual and severe presentation of trichobezoars in a lamb, emphasizing the importance of considering bezoar formation in differential diagnoses of chronic ruminal impaction and abdominal distension in young small ruminants.

***Keyword:*** Trichobezoar; Lamb; Rumen impaction

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*Date of submission:* **14-1-2025**
*Date of acceptance:* **11-6-2025**

## INTRODUCTION

Bezoars are aggregated masses of non-digestible substances that accumulate within the gastrointestinal tract, often resulting from prolonged retention and compaction of indigestible materials, classified based on their composition—phytobezoars (plant fibers), trichobezoars (hair or wool), and miscellaneous types (Chahine et al. 2019). While relatively common in monogastric animals like rabbits and cats, trichobezoars are rarely reported in ruminants (Albernazet al. 2017, Garcia-Arevaloet al. 2024). In sheep, wool ingestion is typically a behavioral response to stress, nutritional deficiencies (especially fiber or minerals), or boredom (Vasseur2006). Although sporadically reported in cattle and small ruminants, their occurrence in lambs remains exceedingly rare. These masses typically accumulate over time within the forestomachs, where the ingested hair entangles with feed particles, forming firm aggregates of variable size (Lal2011). Clinical manifestations are generally nonspecific and may include progressive anorexia, abdominal distension, intermittent colic, and eventual fatal obstruction if left unrecognized (Zildzic 2013).

The present report describes a unique and unprecedented case of massive trichobezoar accumulation in an 8-week-old Afshari lamb, notable both for the sheer number of bezoars and the unusual formation of a continuous chain of conjoined masses within the rumen. To the authors' knowledge, no prior publication has documented such an extensive burden in lambs. This case underscores the importance of considering bezoar formation in the differential diagnosis of young ruminants presenting with progressive gastrointestinal dysfunction, especially under conditions favoring excessive grooming, pica, or early weaning.

## CASE PRESENTATION

We present a case of an 8-week-old Afshari lamb that was referred post-mortem to the Large Animal Clinic at Ferdowsi University of Mashhad, Iran.

## HISTORY

The lamb originated from a semi-intensive production system comprising 400 ewes and their lambs. According to the flock management records, the animal had exhibited progressive anorexia, gradually worsening abdominal distension, mild intermittent colic, and occasional bruxism over a 5-day period prior to death. Notably, there was no history of diarrhea or respiratory signs. The dam had weaned the lamb shortly before the onset of clinical signs. All lambs in the flock were managed under a uniform feeding regimen. From birth until weaning, lambs suckled maternal milk ad libitum. Beginning at approximately 1 month of age, lambs were transitioned to a solid diet composed primarily of barley grain, wheat straw, and corn grain. This ration was maintained until the time of meat harvesting. No mineral or vitamin supplements were routinely provided.

## GROSS FINDINGS

During the necropsy of an 8-week-old Afshari lamb, 42, 1, and 7 hairballs were found in the rumen, reticulum and abomasum, respectively (Figure 1-3). Out of 42 ruminal hairballs, 31 were discrete and freely mobile, while 11 were interconnected, forming a continuous chain within the rumen (Figure 4). The total number and weight of the hairballs observed in this case were 50 and 390 grams, respectively.

Numerous free and aggregated hairballs of variable dimensions occupied the abomasal lumen on the right side of the Figure 1, while the markedly distended rumen on the left contained additional trichobezoars. The accumulation of these dense masses contributed to severe abdominal enlargement, persistent anorexia, and eventual mortality.

Several lambs exhibited nonspecific signs such as growth retardation, which could be probably due to the presence of unrecognized trichobezoars.

To the authors' knowledge, this represents the first documented case globally reporting such an extensive number of trichobezoars in a lamb, particularly the unique continuous formation of 11 conjoined masses within the ruminal compartment.

## DISCUSSION

Trichobezoars, dense concretions primarily consisting of ingested hair, form within the gastrointestinal tract of ruminants, most frequently in the rumen and reticulum (Garcia-Arevalo2024). Although bezoar formation is documented in cattle and goats and to a lesser extent in sheep, extensive trichobezoar accumulation in lambs remains exceedingly uncommon (Yew et al. 2018). The present case is particularly notable due to both the sheer number of discrete and aggregated masses (50 in total) and the distinctive occurrence of an 11-bezoar chain occupying a large proportion of the ruminal lumen.

The development of trichobezoars in young ruminants is multifactorial in origin. Early weaning, nutritional deficiencies leading to pica, excessive

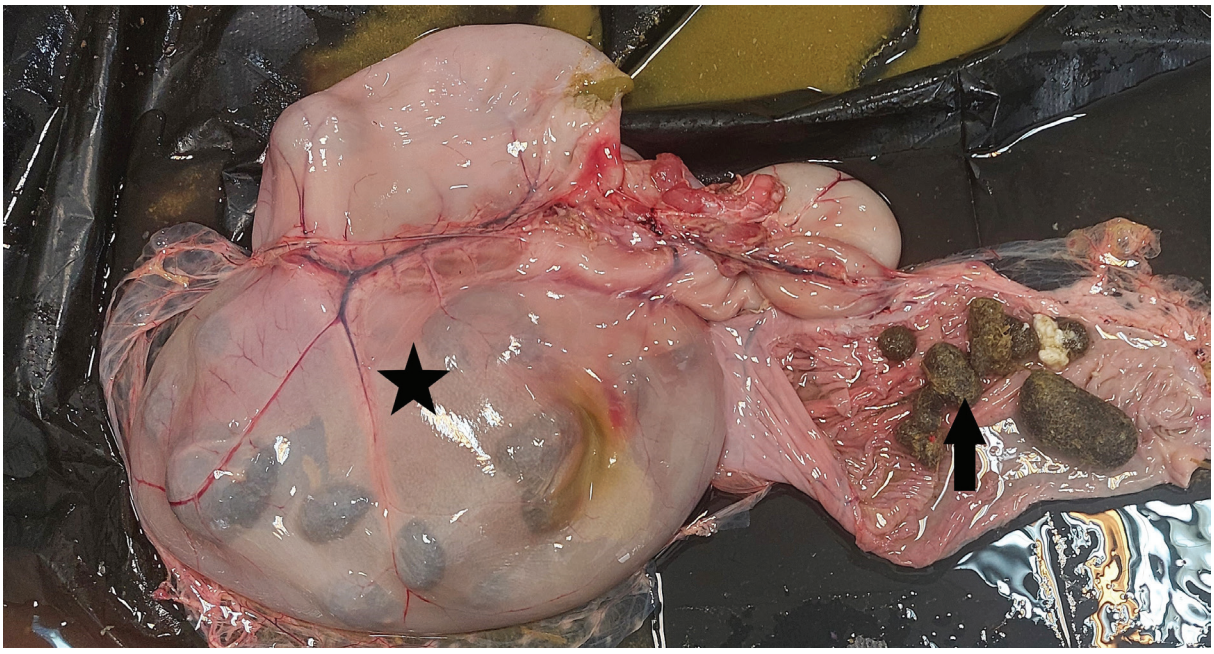

**Figure 1.** Multiple trichobezoars within the rumen and abomasum of an 8-week-old lamb. The abomasum has been cut open, showing a total of 7 trichobezoars (arrow). Additionally, trichobezoars can be identified from the serosal surface of the unopened rumen (asterisk).

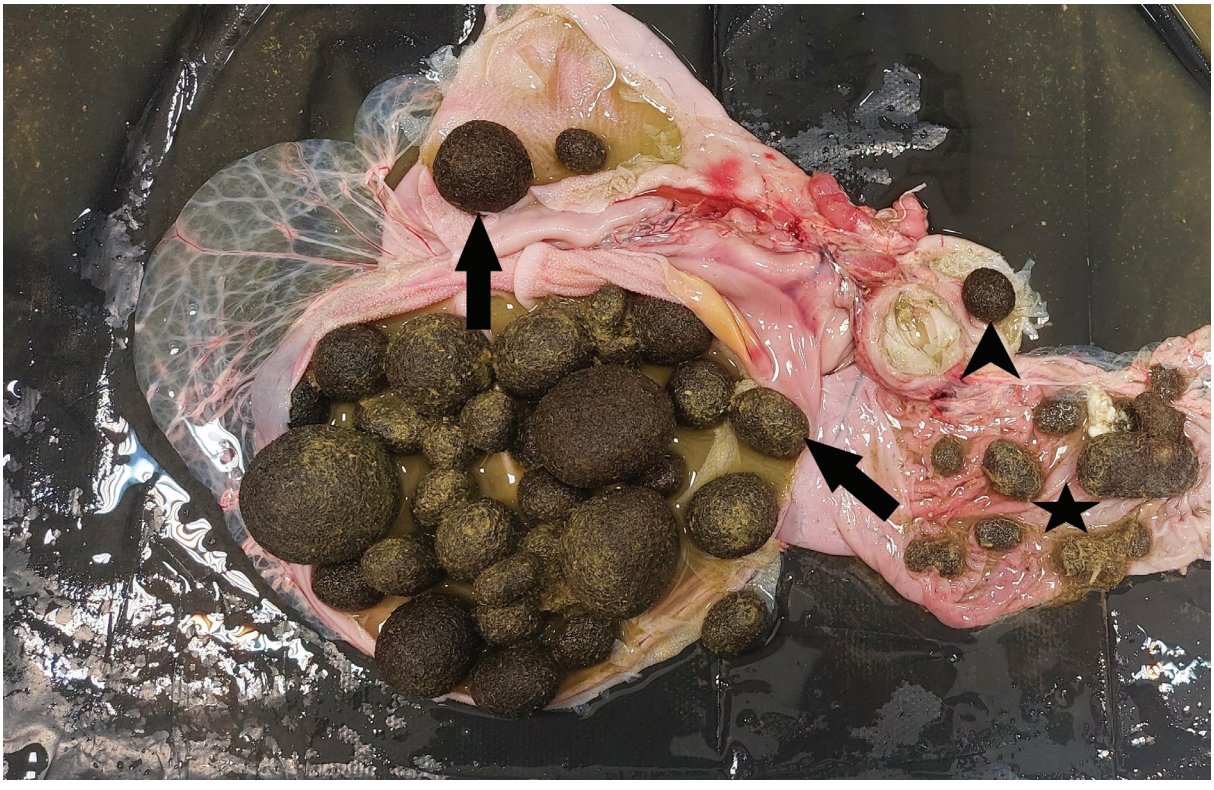

**Figure 2.** Multiple trichobezoars within the fore stomachs and abomasum of an 8-week-old lamb. A large number of the balls, ranging from small aggregates to masses several centimeters in diameter, are observed in the rumen (arrows), one in the reticulum (arrowhead), and a total of 7 hair balls (asterisks) in the abomasum, causing significant luminal occupation and secondary stasis of ingesta.

**Figure 3.** Two large trichobezoars removed from the rumen displayed a compact, roughly spherical configuration measuring approximately 3–4 cm in diameter, as indicated by the adjacent scale. The dense, matted consistency and dark coloration were consistent with chronic accumulation of ingested hair intermixed with plant material.

**Figure 4.** Eleven trichobezoars with different size and shape removed from the rumen that are connected by strands of ingested hair and organic material (arrows) and have created a beaded pattern. The surface is dark brown to black, consistent with chronic accumulation and partial digestion.

grooming, and restricted access to dietary fiber are among the principal predisposing factors. In this lamb, premature weaning likely disrupted normal feeding behavior, promoting the ingestion of hair and bedding (Zhang et al. 2024). Over time, these ingesta consolidated into dense masses due to the mechanical mixing action of the rumen and the adhesive properties of hair, especially when combined with fibrous feed particles.

Clinically, affected animals often present with vague signs including progressive inappetence, abdominal distension, and intermittent mild colic, as was evident in this case. The absence of diarrhea or respiratory compromise can further obscure timely diagnosis (Shina et al. 2017). Without intervention, chronic occupation predisposes to severe ruminal distension, displacement and compression of adjacent viscera, circulatory impairment, and eventually toxemia and death.

The link between suboptimal nutrition and trichophagia has been emphasized by Lengarite (2012), who reported that diets deficient in essential nutrients increase the likelihood of animals consuming wool from conspecifics, leading to multiple hairball formation (Lengarite et al. 2012). Poor dietary management practices, notably limited provision of quality forage, compel animals to scavenge for alternative roughage, including ingesting shed or plucked hair.

Clinical assessments in comparable cases have consistently revealed signs of poor body condition, depression, weakness, decreased appetite, and ruminal atony. These findings are in agreement with observations by Bidone et al. (2011) and reflect the disruptive effects of foreign bodies on volatile fatty acid fermentation and absorption (Igbokwe et al., 2003). Moreover, indigestible masses impede mixing and fermentation, remaining intact within the forestomachs and obstructing luminal flow (Priyanka et al., 2018). Hypomotility may also ensue due to altered neural regulation of gastric motility (Leek, 1969). Palpation of the abdomen in this lamb revealed firm masses consistent with previous reports of similar findings in goats (Garcia-Arevalo et al., 2024).

The gross pathology underscores the capacity for trichobezoars to accumulate substantial mass within a short lifespan. The total weight of 390 grams of the trichobezoars in an 8-week-old lamb is remarkable and accounts for the pronounced abdominal enlargement, progressive anorexia, and ultimate mortality. The continuous chain of interconnected bezoars has not, to the authors' knowledge, been previously described in lambs and likely contributed to more complete luminal obstruction compared with isolated masses.

This report is performed only on a single lamb. Because trichobezoars in the forestomaches are often clinically asymptomatic, additional cases on the farm may have gone undetected. Confirmatory diagnosis would require post mortem examination or other invasive surgical procedures, which were not feasible under management conditions of the farm.

This case highlights the critical importance of preventive husbandry in young ruminants, including consistent provision of adequate fiber, reduction of environmental contamination with hair or bedding, and minimizing stressors such as abrupt weaning. Early recognition of nonspecific gastrointestinal signs and consideration of bezoar formation in differential diagnoses may improve outcomes in similar cases.

Considering existing limitations in ration formulation and feeding management in Iran, it is plausible that the true prevalence of trichobezoars in regional sheep populations is underreported. Further epidemiological studies are warranted to better characterize the frequency, risk factors, and economic impact of this condition.

In lambs under three months of age, thorough clinical evaluation—particularly systematic ruminal palpation by experienced veterinarians—may enable earlier detection and intervention, thereby improve prognosis and reduce mortality associated with ruminal trichobezoars.

## CONCLUSION

This case underscores the potential for trichobezoars to form rapidly and accumulate significant mass in young lambs, culminating in severe gastrointestinal obstruction and fatal outcomes. The unusual presentation of an extensive chain of interconnected bezoars highlights the need for heightened clinical suspicion in animals exhibiting nonspecific digestive disturbances. Preventive strategies centered on optimal nutrition, adequate fiber intake, and minimizing environmental contamination are critical to reducing the risk of bezoar formation. Moreover, comprehensive epidemiological research is necessary to clarify the true prevalence and contributory factors associated with trichobezoars in sheep flocks, particularly in regions where feeding practices are

suboptimal. Early and systematic clinical assessment, including careful ruminal palpation, remains essential for timely diagnosis and effective intervention in affected lambs.

## ACKNOWLEDGMENTS

The authors did not receive any specific support or assistance for this work.

## CONFLICT OF INTEREST

The author declares no conflicts of interest.

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