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## **Recurrent Rumen Tympany Caused by Trichobezoars in Buffaloes (*Bubalus bubalis*): A Series Report**

**Ashraf M. Abu-Seida<sup>1\*</sup> Oday S. Al-Abbadi<sup>2</sup>**

### *Abstract*

This series report was carried out for 3 years on 15 buffaloes suffering from recurrent rumen tympany associated with trichobezoars. Full case history, thorough clinical examination, ferroscopy, and vaginal and trans-rectal examination were carried out in all cases. The affected buffaloes were treated with rumenotomy. All cases were lactating buffaloes and had heavy hair coat. The age of affected buffaloes ranged between 5-10 years. Clinical signs included anorexia, depression, sharp decrease in milk yield, intermittent respiratory distress, recurrent rumen tympany and dehydration. Hematological and biochemical analyses revealed leukocytosis, hypokalemia and hypochloremia. Rumenotomy was curative in all cases and revealed trichobezoars in either rumen (n=14) or rumen and reticulum (n=1). Trichobezoars were black and their number ranged between 2-6 balls/ animal. The diameter and weight of the removed hairballs ranged between 10-40 cm and 100-370 g, respectively. All operated animals recovered and gained their normal milk production one day post operative. In conclusion, trichobezoars should be considered in the differential diagnosis of recurrent rumen tympany in buffaloes.

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**Keywords:** buffaloes, rumen, trichobezoar, tympany

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### Introduction

A bezoar is a mass found trapped in the gastrointestinal tract (usually the stomach). According to its content, there are several types of bezoar, including; lactobezoars, pharmacobezoars, phytobezoars, diospyrobezoar and trichobezoars containing inspissated milk, masses of drugs, indigestible plants, unripe persimmons and hair, respectively (Naylor, 2007; Hasunuma et al., 2011).

Trichobezoars are commonly recorded in young cattle under 4 years old (Abutarbush and Naylor, 2006). There are several clinical signs of bezoars in cows, including anorexia, depression, and dehydration. On biomedical examination, severe hypokalemia and hypochloremia were observed (Cockrill et al., 1978; Hasunuma et al., 2011). Both trichobezoars and phytobezoars resulted in several complications in cattle, including; esophageal obstruction (Patel and Brace, 1995), intestinal obstruction (Abutarbush and Radostits, 2004; Abutarbush and Naylor, 2007; Hasunuma et al., 2011), dilation and torsion of the caecum (Mesaric and Modic, 2007), ruminal tympany (Schweizer et al., 2005) and left abomasal displacement (Andreas et al., 2010). In young calves, relationship between trichobezoars and abomasal ulcers is probably spurious (Jelinski et al., 1996). Recurrent ruminal tympany is a common sign in dairy buffaloes caused by several affections and resulted in severe economic losses due to sharp drop in milk yield and cost of treatment (Schweizer et al., 2005). According to the available literature, hairballs have not been described before in buffaloes. Therefore, the aims of the present study were to report diagnosis and results after surgical treatment of buffaloes suffering from recurrent rumen tympany caused by trichobezoars.

### Materials and Methods

During a period of 3 years, 15 buffaloes were admitted to the surgery clinic with a common history of chronic recurrent ruminal tympany for 2-4 months and non-responding medicinal treatment. Full case history and thorough clinical examination were carried out for each buffalo and all data were reported. Both trans-rectal and vaginal examinations were applied on all buffaloes to exclude metritis. The clinical examination was performed according to Rosenberger and colleagues (1979). Ferroscopy was applied on the abdominal wall of standing buffaloes outside the stanchion. Blood sample was collected from jugular veins in five buffaloes for hematological and biochemical analyses.

Rumenotomy was carried out in all affected buffaloes under inverted L regional analgesia using 60 ml of lidocaine hydrochloride 2% solution (Xylocaine®, Asefoc, Belgium). Weingarth's ring rumenotomy was carried out according to Hofmeyr (1988). Postoperative

care included intramuscular injection of penicillin and streptomycin (Streptpenicid®, CID, Egypt) once daily for 5 successive days, daily wound dressing with povidone iodine solution (Betadine skin solution®, Nile comp., Egypt) and removal of the skin stitches after 10 days.

### Results and Discussion

The affected buffaloes were 5-10 years old and all had heavy hair coat. All of the animals were lactating females during their third to sixth lactation season. All the diseased buffaloes belonged to arid regions. These buffaloes were fed on roughages, bran and bread especially during summer. Common clinical signs included anorexia, depression, intermittent respiratory distress, recurrent rumen tympany, dehydration and sharp decrease in milk yield. One buffalo had acute rumen tympany and tried to vomit. On physical examination, normal body temperature, rapid respiration, normal heart rates and absence of ruminal motility were noticed in all buffaloes. Ferroscopy gave negative results in all examined buffaloes. Both vaginal and trans-rectal examinations excluded endometritis. Hematological and biochemical examinations resulted in leucocytosis, hypochloremia and hypokalemia.

All the operated buffaloes had ruminal hairballs of various numbers and sizes (Fig 1). The buffalo tried to vomit had 5 ruminal hairballs and one on the cranial part of reticulum near to the cardia.



**Figure 1** Various sizes of trichobezoars in buffaloes

The number of removed hairballs were 2 (n=4 buffaloes), 3 (n=6 buffaloes), 4 (n=3), 5 (n=1) and 6 (n=1). The color of hairballs was black. Their weights ranged between 100-370 grams and their diameter were between 10-40 cm. The hairballs were very hard and difficult to cut section. The clinical signs disappeared and the milk production returned to its normal level one day after surgery.

Ruminal tympany is the over distention of the rumen with gases derived from fermentation. There are two types of ruminal tympany, corresponding to different mechanisms which stop normal eructation of gas. These types included frothy and free gas tympany. Although there are no reports that deal with recurrent rumen tympany associated with trichobezoars in buffaloes, recurrent rumen tympany associated with non metallic foreign bodies was recorded in adult dairy cattle. Surgical intervention was advised when medicinal treatment failed (Bani Ismail et al., 2007).

In the present study, all of the affected buffaloes belonged to arid regions where farmers feed them on roughages, bran and bread. Therefore, several minerals and vitamins deficiencies developed especially in lactating buffaloes. These buffaloes tried to compensate these deficiencies by licking their skin and consequently trichobezoars developed. Furthermore, in the present study, no males were affected. This could be attributed to early slaughter of males and high food requirements for lactating females.

In contrast to the previous finding of Abutarbush and Naylor (2006) who recorded trichobezoars in cattle under 4 years old, the age of the affected buffaloes was over 5 years. This could be attributed to the long time required for development of trichobezoar in buffaloes. The affected buffaloes suffered from intermittent respiratory distress due to pressure caused by recurrent rumen tympany. Ferroscopy gave negative result in the affected buffaloes due to absence of metallic foreign bodies. This is in agreement with the findings of Bani Ismail et al. (2007). Sometimes metritis shows similar signs of foreign body syndrome (Rosenberger et al., 1979), therefore its exclusion through vaginal and trans-rectal examination was carried out in this study.

Hematological and biochemical analyses revealed leukocytosis, hypokalemia and hypochloremia. Similar findings were mentioned before (Bani Ismail et al., 2007; Hasunuma et al., 2011). These findings could be attributed to inflammation and minerals deficiency.

Recurrent tympany is the main clinical symptom of ruminal and reticular trichobezoars. This could be attributed to the light weight of hairballs, which allows them to float in both rumen and reticulum causing transient esophageal obstruction. Moreover, the presence of trichobezoars in the reticulorumen may lead to over stretching and distension of these structures and consequently their fatigue. In this respect, Hailat et al. (1996) mentioned that trichobezoars might alter the histological structure and microbial population of the reticulorumen. Only one buffalo had acute rumen tympany due to the obstruction of the cardia. Therefore, this buffalo tried to vomit several times. In this respect, Patel and Brace (1995) recorded esophageal obstruction associated with trichobezoa in a cow. Therefore, once trichobezoars are suspected, rumenotomy is abruptly recommended to avoid further complications as esophageal and intestinal obstructions, abomasal displacement, acute rumen tympany and cecal dilatation and torsion (Schweizer et al., 2005; Mesaric

and Modic, 2007; Andreas et al., 2010; Hasunuma et al., 2011).

According to the findings of this study, balanced rations, daily grooming of heavy coated buffaloes and mineral and vitamin supplements could have a role in prevention of trichobezoars in lactating buffaloes.

In conclusion, trichobezoar is uncommon in buffaloes, but it should be considered as a differential diagnosis for recurrent rumen tympany in buffaloes. Surgical removal of trichobezoars through rumenotomy appears curative and should be carried out once trichobezoars are suspected to avoid further severe complications.

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## บทคัดย่อ

### การกำเริบของอาการท้องอืดที่มีสาเหตุจากก้อนขนในกระบือ (*Bubalus bubalis*): รายงานต่อเนื่อง

Ashraf M. Abu-Seida<sup>1\*</sup> Oday S. Al-Abbadi<sup>2</sup>

ข้อมูลการรายงานแบบต่อเนื่องของกระบือ 15 ตัวที่มีอาการท้องอืดกำเริบโดยมีความเกี่ยวข้องกับการพบก้อนขนนี้ใช้เวลา 3 ปี ในการเก็บข้อมูล มีการซักประวัติอย่างครบถ้วน การตรวจทางคลินิก การใช้ ferroscopy การตรวจช่องคลอด และการตรวจผ่านทางลำไส้ ตรงในกระบือทุกตัว กระบือที่ป่วยได้รับการรักษาด้วยการผ่าตัดเปิดกระเพาะผ้าขี้ริ้ว กระบือทุกตัวเป็นกระบือให้นมและมีขนหนา โดยมีอายุ 5 ถึง 10 ปี อาการทางคลินิกได้แก่ เบื่ออาหาร ซึม ผลผลิตน้ำนมลดต่ำลงอย่างชัดเจน มีภาวะการกตการหายใจเป็นครั้งคราว ท้องอืด และ ภาวะแห้งน้ำ การวิเคราะห์ค่าทางโลหิตวิทยาและทางชีวเคมีพบเม็ดเลือดขาวปริมาณสูง โปแทสเซียมและคลอไรด์ต่ำ การผ่าเปิดกระเพาะ ผ้าขี้ริ้วสามารถรักษาทุกตัวได้และพบก้อนขนในกระเพาะผ้าขี้ริ้ว (n=14) หรือทั้งในกระเพาะผ้าขี้ริ้วร่วมกับในกระเพาะรังผึ้ง (n=1) ก้อนขนที่พบมีสีดำและจำนวนตั้งแต่ 2 ถึง 6 ลูกต่อกระบือ 1 ตัว เส้นผ่านศูนย์กลางและน้ำหนักของก้อนขนที่เก็บได้มีความยาว 10 ถึง 40 เซนติเมตร และหนัก 100 ถึง 370 กรัมตามลำดับ สัตว์ทุกตัวที่ได้รับการผ่าตัดหายดีและมีผลผลิตน้ำนมกลับมาสู่ระดับปกติภายใน 1 วันหลังการผ่าตัด โดยสรุปก้อนขนควรได้รับการพิจารณาในการวินิจฉัยแยกแยะของอาการท้องอืดกำเริบในกระบือ

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**คำสำคัญ:** กระบือ กระเพาะผ้าขี้ริ้ว ก้อนขน ท้องอืด

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