Chapter 1: Abstract

A 3yrs old black bengal breed of goat presented with a compliant of pregnant, anorexia, restlessness and repeated bloating since two days. Which had history of servicing before 5 months, on physiological examination rectal temperature was normal range but respiration rate and heart rate were slight deviated towards lower than normal range. Physical examination revealed congested oral and conjunctival mucus membrane. Hard palpable mass was observed during abdominal palpation in the rumen (anterior abdomen) and advised for explorative rumenotomy. On rumenotomy the rumen was filled with compacted foreign bodies plastic material, i.e. plastic bags, stones, cloths, net which were weighing around 1.2 kg. The surgery was performed as per standard procedure. During post-operative period animal was treated with parenteral antibiotics (OTC @5mg/ kg), NSAIDs (Meloxicam 0.5-1mg/kg) and fluids (DNS & RL) for 7 days and animal recovered uneventfully.

Keywords: Black bengal goat, plastic material, rumenotomy.

Chapter 2: Introduction

Rumen impaction is a condition which result mainly due to feeding of poor quality hay, straw or roughages deficient in protein and readily digestible carbohydrate, ingestion of mouldy or decomposed feed, overeating of young grasses, polythene bags, ropes and other plastic material and other indigestible materials. Among domestic ruminants, cattle are more susceptible to the development of ruminal impaction followed by buffalo, sheep and goat. Bovines lacking of proper nutrition which in turn results in development of pica also been trigger animals to adopt ingestion of feed other than normal feed which may include indigestible wastes which gradually accumulates inside the rumen leads to multiple adverse effect upon health as per its lodging location inside alimentary tract (Cheel and Sethi, 1999). My case found in rural area. Bovine and ovine have many reports regarding foreign body in their rumen in the urban areas where the disposal of waste materials are not proper (Singh and Nigam, 1981; Vanitha et al, 2010). While in small ruminants too when they develop pica, influenced by boredom or extended periods of confinement, nutritional or mineral imbalance, unfamiliar items used to be intake as food like plastic bags, cloth, leather, twine and rope ((Jones et al., 1996, Gilroy and Bellamy,1998) For correction of impaction rumenotomy is the best treatment. There are four method of rumenotomy. They are-Stay suture rumenotomy (SSR), Rumen skin clamp fixation (RSCF), Rumen skin suturing fixation (RSSF), Weingarth's ring rumenotomy (WRR) .Animal can die in severe cases of impaction. A goat has economic value to a farmer. The importance of the study is to reduce the economic loss of farm through the saving the life of animal. The objective of the study was to perform rumenotomy to cure the animal suffering from impaction.

Chapter 3: Materials and methods

A Female goat of 3 years and about 18 kg came to Raipura upazilla Veterinary Hospital at narsingdi in Bangladesh with the history of pregnant, anorexia, restlessness and repeated bloating since two days. Which had history of servicing before 5 months ago. I performed this operation during my own upazilla internship programme, February 2021. Impaction can be diagnosed in many ways such as feeding history, radiography, ultrasonography, abdominal palpation, exploratory rumenotomy. My diagnostic procedure was taking the feeding history and abdominal palpation. According to history there was distension of abdomen and reduce feed intake for last few days. I felt hard structure in abdominal palpation. Radiography and Ultrasound examination were not available. By clinical sign and palpating abdomen it can be said that the case is impaction.

Exploratory rumenotomy is only choice for treatment of ruminal impaction due to indigestible material in rumen. Control measures include good animal husbandry practices and proper disposal of plastic materials. I decide to perform rumenotomy with the help of my upazilla livestock officer sir Dr Ajharul Alam. Rumenotomy is a clean contaminated operation. For operation an operative room is necessary. As there was no operative room we performed the operation outside. The materials required for the rumenotomy are blade for shaving, Anesthetics (2% lidocaine), surgical instrument(scalpel, scissor,), suture material etc.

At first shave of the surgical area with blade to reduce the contamination by hair. Anesthetics were infiltrated around the line of incision. Animal has placed in right lateral recumbency, laparotomy incision has placed in the left ventro lateral side oblique direction, and laparotomy has done as per standard procedure. On exploratory laparotomy, the uterus was normal in its involuntary stage and rumen was found impacted, hard. The rumen brought out from the abdominal cavity followed by rumenotomy. On rumenotomy, observed that the rumen was compacted with plastic material, i.e. plastic bags, stones, floor mat made up, cloths, along with few calcified mass, which were weighing around 1.2 kg and ruminal content evacuated, proper cleaning of the ruminal debris, the rumen has closed by double Lamberts' sutures and then suturing of peritoneum and muscle layer by layer. Then subcutaneous suture, skin later closed. On completion of surgery wound has dresses with 2% povidone iodine. During post operative period the animal was treated with parentral antibiotics, oxytetracycline @5mg/kg body weight , NSAIDs Meloxicam 0.5-1 mg/kg body weight, Inj. DNS 500ml (10-20ml/ kg body weight) for 7 days, oral administration of protbiotic

bolus to ensure restoration of ruminal microflora. The animal presented after 10 days post operation and suture were intact. Animals had started taking feed normally and animal recovered uneventfully

Suture was removed after 14days.

At best, rumen surgery is considered a clean contaminated surgery since a hollow viscous is penetrated. [Fubini and Ducharme 2004] recommended that the commonest complications should be wound dehiscence and hemorrhage. Others included fever, edema, slipped ligature, wound infection, peritonitis, death, intestinal obstruction/adhesion and physiological bloat. Antibiotics and analgesic are recommended in any surgery that is considered less than clean.Haven et al. showed that prophylactic use of penicillin significantly decreased the incidence of abscess formation following rumenotomy. He also demonstrated that an initial antibiotic dose at the time of surgery was all that was necessary, and continuing the therapy for several post-operative days had no significant decrease on the incidence of abscess and infection rate.

[Johnston and Morris (1987] recommended post-operative fluid therapy (oral and intravenous) complemented with administration of analgesics to treat dehydration, shock, electrolyte imbalance and to moderate the vigor of peristalsis of the bowel in intestinal surgery.

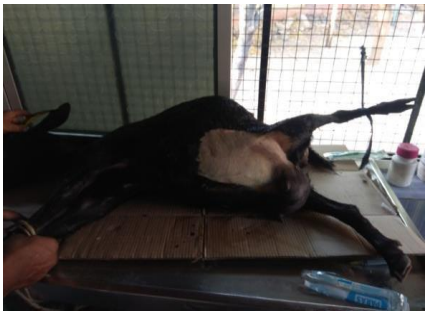

Fig: Animal preparation

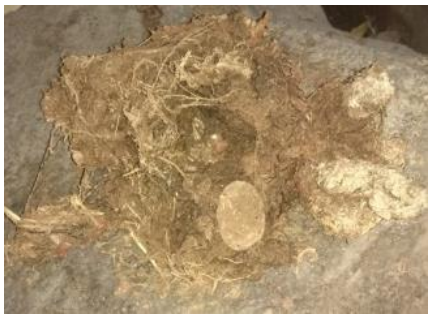

Fig: Foreign partical

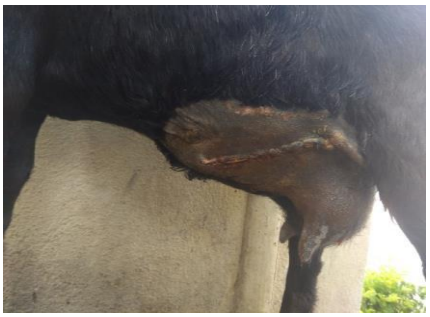

Fig: After 10 days of surgery

Chapter 4: Result

Prognosis is favourable. There is no complication occure. The animal start to intake feed.

The case of impaction among Bengal goat, age of 3 years was interesting. Positive result of the surgical treatment in such a complication found appropriate to share.

Discussion

Incidence of Ingestion of indigestible foreign materials by ruminants is a common worldwide problem. It is also common in Bangladesh and has been reported from different area of Bangladesh. The case was found at narsingdi in Bangladesh. This similar case also found in Ethiopia in both cattle and small ruminant (Tiruneh and Yesuwork, 2010; Fromsa and Mohammed, 2011; Negash et al., 2015; Fasil, 2016). After opening rumen I found plastic bags ,nets, cloths, ropes which caused severe impaction. Another case found in boer goat of foreign body ingestion, plastic bags, stones, floor mat made up of coir (coconut fibre) which caused severe impaction and made almost morbid condition of that goat, Baillie and Anzuino, (2006) reported hair ball (foreign body in angora breed of goat in England, also reported discrete incidence of foreign body of plastic in different breed of goat and sheep .

In Bangladesh goat are generally left for browsing. In India, the goats are also left for browsing by their own which increase the chance of ingestion of unwanted materials (Roman and Hiwot., 2010), and agreement with by Jana and Jana (2010) that stray large, ruminant animals which are not fed properly, deficient and malnutrition animals show more tendency for ingestion of polythene, other unwanted materials and subsequent impaction.

Conclusion and recommendation

It is conclude that due to pica which induce due to extensive energy and mineral demand encourage ruminates to intake those unwanted materials. As the animal increase its frequency to intake foreign materials, gradually they starts accumulate inside the rumen and became too much adhere with the wall of rumen which even destroy the papillae of rumen. The increase in the incidence of foreign bodies are mainly the urban areas, mostly due to improper disposal of waste materials which attracts half fed or hungry animals towards the heaps of it and leads to rapid ingestion by dumb animals. Improper disposal of indigestible materials like plastic, cloth, metal, rope and stone cause serious health risks for free-grazing ruminants and amongst all the foreign bodies plastic bags constituted the majority, the use of biodegradable paper bags could be encouraged along with community should get education in the principals of re-use, recycling (Najesh et al., 2015)]. Also it can be conclude that, continuous development of industries, houses and other infrastructures reducing the grazing land for animals, whatever left that too polluted by different garbage materials, thus intentionally or unintentionally animal have to fed those unwanted items. Ultimately its effecting the socio- economic loss of the owner by reducing the production and productivity even loss of the owner by losing the animal in its peak production period, increasing the cost of the treatment upon the heal sector of animal. To save those animals farmer should be educate regarding intensive rearing of animals at least in urban areas and about proper nutrition of the animal, leads to increase in production and productivity. Lastly, prevention is always better than treatment.

Create awareness among the cattle stockholders to give up excess feeding of poor roughage, concentrates and sugarcane which are the predisposing causes for bloat in bovine. Understanding the causes of bloat disorders in cattle and implementing current advanced surgical management practices may spare the production and economic losses associated with ruminal disorders.

Superior clinical examination and diagnostic tools should give due attention with veterinary professionals in management and control of bloat before it reaches risk stage. The ruminants' owners should be advised not to allow their ruminants to freely wander in streets especially in the cities and as much as possible to prevent nutritional deficiencies.

Further studies should be conducted for controlling of visceral pain during rumenotomy with newer techniques.

The postoperative complications encountered in all animals if any should be recorded and managed accordingly.

Summary and importance

Rumenotomy is the most preferable method of the correction of bloat. The surgery is a clean contaminated surgery .So, there are many chances for post-operative complication. Post-operative cares should be emphasized. The goat with ruminal impaction become cure without any post-operative complication.

Impaction is common problem in the rural area of Bangladesh. As feed consumption, defecation, physiological processes interrupted, production greatly fall down. Through rumenotomy we can corrected impaction which play an important role in the economic status of country.

Acknowledgement

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Biography

This is **Nazmun naher**, daughter of **Md. Abul kalam and Dud mehar**. I am from Dhaka district. I have completed S.S.C in 2012 and H.S.C in 2014..I got admitted into Doctor of Veterinary Medicine(DVM) course under Chittagong Veterinary and Animal Sciences University in 2015-2016 session. As an upcoming Veterinarian I would like to dedicate my rest of the life for the welfare of animals. I am keen to be a field veterinarian as well as a skilled poultry practitioner.