

## EXTRA RETICULAR PATHOLOGY IN BUFFALOES: REPORT OF FIFTY CLINICAL CASES

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### SUMMARY

Study was conducted on buffaloes (n=50) of different age group suffering from chronic tympany. Radiographic examination showed three main categories such as contracted and lifted reticulum with radiolucent zone (n=10), distinct radiolucent area at the site of the reticulum with irregular diaphragmatic line toward ventral side (n=30) and radiopaque bands between reticulum and diaphragmatic line (n=10). On laparo-rumenotomy, in first category cases, two types of conditions were observed such as aseptic (n=4) and septic peritonitis (n=6). In second category cases, a big swelling was palpable at the floor of reticulum. On puncturing the swelling, either watery or yellowish creamy pus was aspirated in the syringe confirming these cases to be extra reticular abscesses (n=30). In third category of cases, the reticulum was found to be adhered with the surrounding structures confirming these cases to be of extra reticular adhesions (n=10).

**Key words:** Extra-reticular pathology, peritonitis, extra-reticular abscess, adhesions

The cases of reticular pathology are routinely referred for removal of foreign bodies and reticular hernias in buffaloes. These cases can be treated through rumenotomy and herniorrhaphy of the diaphragm. It had been observed that cases with chronic tympany might be radiographically negative for any foreign body or reticular hernia but still there is problem of persistent tympany. In these cases, the persistent tympany can be due to extra reticular pathology. Therefore present study was undertaken to study the possible causes of extra reticular pathology.

Study was conducted on 50 clinical cases of buffaloes referred to veterinary clinics during last six years (2001-2006). The buffaloes were examined for history of chronic tympany, feed intake and milk yield. The type of faeces and respiration along with regurgitation were also observed. The systemic examination was also carried out. The clinical parameters such as rectal temperature, heart rate and respiratory rate were also observed. The blood was examined for haemoglobin, total leucocytic count and differential leucocytic count. The cases were referred for radiological examination of the reticular and diaphragmatic area to ascertain the

cause of the tympany. In few cases where diaphragm line was hazy, barium meal was also given to rule out possibility of diaphragmatic hernia. The cause of chronic tympany after clinical examination and radiography was ascertained by performing laparo-rumenotomy. In furious cases, xylazine was used to calm the patient, otherwise, para vertebral analgesia was sufficient to conduct the laparo-rumenotomy. During laparo-rumenotomy, when skin and muscles were incised to open the peritoneal/abdominal cavity, different categories were observed.

The faeces were hard and scanty. In few cases, there were signs of coughing and respiratory distress also. Some cases were showing symptoms of regurgitation. On examination, the buffaloes were dull, depressed and emaciated. Clinical parameters were variable. Rectal temperature and respiratory rate was higher in the initial phase of the disease but became normal in the later stages. The blood picture showed elevated total blood count having marked neutrophilia with shift to left. In chronic cases of tympany, there was an increased lymphocyte count.

On the basis of the radiological examination,

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three type of the lesions were identified

- 1) Septic peritonitis showing contracted and lifted reticulum with radiolucent zone (Fig 1).
- 2) Extra-reticular abscess with distinct radiolucent area at the site of reticulum with irregular diaphragmatic line towards the ventral side (Fig 2).
- 3) Reticular adhesions showing radiopaque bands between reticulum and diaphragmatic line (Fig 3).

In first category of cases, two types of conditions were observed on laparotomy. In first type, the rumen was adhered to the peritoneum, however, no visible foul smelling pus was evident (n=4). The ruminal wall could be separated from the abdominal wall after lot of effort. After separating the ruminal wall in 3 clinical cases, rumenotomy could be performed but in 4<sup>th</sup> case adhesions were sever and extensive. The ruminal wall could not be separated and finally buffalo was euthanised.

In second type of the cases (n=6), the peritoneal cavity was full of foul smelling purulent material which was classified as septic peritonitis. In such cases, about 5-8 litres of purulent material were siphoned out. The peritoneal cavity was lavaged with povidone–iodine (5%) and finally normal saline mixed with cephelexin powder (20 g) was poured into the peritoneal cavity. Since the radiographs were negative for foreign bodies and etiology for chronic tympany is lying outside the rumen, therefore, rumenotomy was not performed in these cases. In these cases, radiographs showed radiolucent zones with contracted and lifted reticulum (Fig 1).

Post-operative treatment in these cases included a 15days course of 5.0 gm streptopenicillin i/m, 5 days course of metronidazole

(450 ml x 2) twice a day i/v, meloxicam 30 ml i/m for 5 days, B-Complex 10 ml for 10 days and daily antiseptic dressing of the surgical wound till removal of the skin sutures. Out of 6 cases, 3 cases responded to the treatment after a long course of 15-21 days.

In second category of cases, the peritoneal layers were normal and rumen was free. The rumen was hypermotalic. The motility was very strong and it was not easy to fix the rumen with rumenotomy set. There was big swelling at the floor of the reticulum on lateral side (n= 20) and toward cranial side (n=10). When test puncture of these swellings was done through reticulum, different types of purulent material such as watery, yellowish, creamy could be sucked. There was presence of metallic foreign bodies only in five cases. Radiography in all these cases showed radiolucent zones shadowing the reticular area and irregular lining of the diaphragm toward its ventral portion indicating extra-reticular abscess. When barium meal was used to check any break in the diaphragmatic line, although, the line of diaphragm was observed intact but radiographic zone in form of abscess could be very clearly demarcated (Fig 4).

The reticular abscess was opened through two approaches. In first approach, the abscess was drained off externally from right ventral side (n=4). In second approach, the abscesses were opened internally in to the reticulum itself (n=26).

In first approach, all cases took very long time (20-35 days) for healing and most of the cases could not be cured completely and were finally euthanised. In second approach, where abscesses were opened into the reticulum and pus was drained into the reticulum itself. The response was good. In all cases, long course of

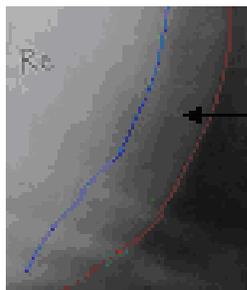


Fig 1. Septic-peritonitis

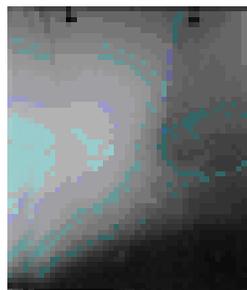


Fig 2. Reticular abscess

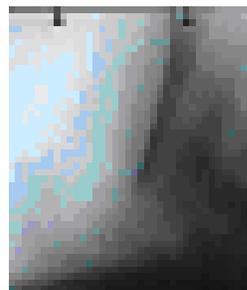


Fig 3. Radiopaque bands

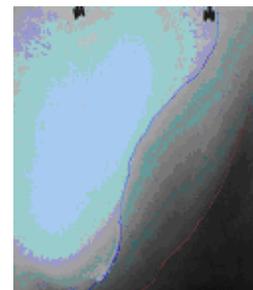


Fig 4. Barium reticulograph showing distinct radiolucent zone

antibiotics (penicillin 60 lacs I.U. for 15-30 days) was given along with normal saline 3 litres i/v. for 5 days. Other line of treatment such as metronidazole, meloxicam, B-complex and antiseptic dressing remain the same as that for septic peritonitis cases. In 20 out of these cases, there was no tympany after following a full course of treatment but in remaining 6 cases, the tympany could not be relieved.

In third category of the cases also, the peritoneal layer was normal and when the rumen was opened, there were few tracts present on both sides cranially and laterally of the reticulum. In six cases, the reticulum was adhered with the surrounding structures. The reticulum was hard to touch and it was not possible to retract the reticulum. In all these cases, three fourth of the ruminal contents were siphoned out. The ruminal wall was sutured and tracts/adhesions were approached along the outer side of the ruminal wall which were broken and foreign bodies were removed. Reticulum could be made free only in four cases and in those cases where adhesions were extensive, the separation of the reticulum was not tried. To prevent formation of adhesions, serratiopeptidase enzyme was given for ten days and rest of the post-operative treatment remained the same as that for first category of the cases.

The complications due to foreign body are well documented in literature in bovine. Roth and King (1991) mentioned these complications in cattle but in buffaloes such complications are rare. The foreign bodies may affect different body organs such as heart, lungs, liver, spleen, and even diaphragm and may cause death in many cases. The pathology may vary from simple inflammation and adhesion formation to purulent material formation in peritoneal cavity and in the form of round abscess. But in this study in majority of the cases, the purulent material in the form of extra reticular abscess and septic peritonitis could be observed even without presence of metallic foreign bodies.

Formation of adhesions or purulent materials and compression on vagus nerve will cause interference with functioning of the reticulum and rumen and the animal will show signs of chronic tympany, indigestion, coughing and

improper passing of the faeces. To correct all these problems, medicinal treatment alone was not successful, therefore, laparo-rumenotomy was performed. After surgical intervention, suitable medicinal treatment is followed to check formation of adhesions and purulent material. It was observed that use of serratiopeptidase enzyme, penicillin and metronidazole were useful to control formation of adhesion and purulent material respectively.

In first category of peritonitis 6 out of 10 cases (3 from 1<sup>st</sup> type and 3 from 2<sup>nd</sup> type) showed signs of improvement. In 2<sup>nd</sup> type of septic peritonitis only 3 cases showed signs of improvement after a long course of treatment.

In second category of extra-reticular abscesses, the first approach from ventral abdominal wall showed more complications than second approach from inside the rumen. The abscesses were well capsulated and evacuation of purulent material into the reticulum obliterated the cavity of the abscess in majority of cases (n= 20) and the cases showed signs of improvement. The cases of reticular abscesses are also diagnosed in goat (Ramprabhu *et al.*, 2002) and cattle (Braun *et al.*, 1998). In third category of 10 cases of extra-reticular adhesions after evacuation of rumen, the adhesions in 4 cases could be separated by approaching along the outer wall of rumen wall. These cases started showing signs of improvement after a gap of 2 to 3 weeks of treatment.

From this study, it can be concluded that the extra-reticular pathology i.e. reticular abscess, reticular adhesions and septic peritonitis can be diagnosed by plain or contrast radiography and laparotomy can treat majority of these animals.

## REFERENCES

- Braun, U., Iselin, U., Lischer, C. and Fluri, E. (1998). Ultrasonographic findings in five cows before and after treatment of reticular abscesses. *Vet. Rec.* **142**: 184-189.
- Ramprabhu, R., Prathaban, S., George, R.S. and Dhanapalan, (2002). Ultrasonographic diagnosis of a reticular abscess in the goat. *Israel Vet. Med. Assoc.* **57**:1-2.
- Roth, L. and King, J.M. (1991). Traumatic reticulitis in cattle: a review of 60 cases. *J. Vet. Diag. Invest.* **3**: 52-54.