

SURGICAL MANAGEMENT OF RIGHT ABOMASAL DISPLACEMENT IN CROSS BRED COWS - A REPORT OF TWO CASES

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SUMMARY

Two HF cross bred cows, aged 4 and 6 years were presented with the history of anorexia, fever, recurrent tympany, abdominal distension and passing scanty black coloured faeces from last 10 days. Both the animals had calved normally about 2 months ago and there was marked decrease in milk production since last few days. On auscultation, a hyper resonant ping was present in the right cranial paralumbar fossa. On ultrasonography, liver was not visible and echogenic abomasal folds alternating with hypoechoic ingesta were visible starting from 9th intercostal space to mid flank on right side which confirmed right abomasal displacement in both the animals. Right flank abomasopexy was performed under paravertebral anaesthesia in one animal, while under local infiltration anaesthesia in another animal. Both the animals recovered, one in 4 months and second in 12 days and returned to production.

Keywords: Abomasum, Abomasopexy, Cow, Right Abomasal Displacement (RDA), Ultrasonography

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Abomasum is a wandering organ due to its loose attachments with the greater and lesser omentum (Tyagi and Singh, 2017). Abomasal displacement is an abnormal positioning of the abomasum within the abdominal cavity and is divided into three broad categories: left abomasal displacement (LDA), right abomasal displacement (RDA) and right abomasal displacement and volvulus (RAV) (Huhn and Nelson, 1995). The incidence of RDA varies from 0% to 20% within the herd, but it is typically reported in the range of 3.5% to 5.0% (Van Winden, 2002; Goff, 2006).

Abomasal displacement is a multifactorial disease reported mainly in dairy cows of 3-10 years age. Majority of cases develop within first month after calving, and other cases develop during last months of pregnancy or in other physiological periods (Staric *et al.*, 2010). It is thought that the genesis of all abomasal displacement is abomasal atony (Niehaus, 2016). Diagnosis can be made on the basis of history, general appearance, simultaneous auscultation and percussion, ultrasonography, rectal palpation and laboratory examination (Braun *et al.*, 1997). Surgical correction of abomasal displacement is one of the most commonly performed procedures in cattle by food animal surgeons (Baird and Harrison, 2001). RDA and abomasal volvulus are corrected surgically using right paralumbar fossa omentopexy or right paramedian abomasopexy (Staric *et al.*, 2010).

Two HF cross bred cows, aged 4 (case 1) and 6 (case 2) years were presented to the Teaching Veterinary Referral

Hospital, SKUAST-Jammu, R.S. Pura, with the history of anorexia, fever, recurrent tympany, abdominal distension and passing scanty black coloured faeces from last 10 days. There was marked decrease in milk production since last few days. Both the animals had parturated normally about 2 months ago. Before falling sick the case 1 animal was producing 20L milk/day and the case 2 animal was giving 15L/day.

Auscultation and percussion in the right cranial paralumbar fossa revealed a hyper resonant ping. Ultrasonography performed using 5 MHz transducer which revealed echogenic abomasal folds alternating with hypoechoic ingesta visible starting from 9th intercostal space (ICS) to mid flank on right side (Fig. 1) in both the cases. Moreover, the liver was not visible at all from any location. The abomasal contents aspirated under ultrasound guidance through the 12th ICS had <2 pH in both cases. Based on history, clinical signs, ultrasonographic findings and liptek test, the condition was diagnosed as RDA in both cases. Surgery was planned immediately in both the cases for its correction.

Right paralumbar fossa was aseptically prepared for surgery. Anaesthesia was achieved by paralumbar block in first case, while linear infiltration at the proposed site of incision with lignocaine HCl (Lox 2%, Neon Laboratories, Ltd., Mumbai) was performed in the second case. Right flank laparotomy was performed by making skin incision vertically starting 5cm below the lumbar transverse processes, continued through the muscles and peritoneum.

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Fig. 1. Sonogram showing hyperechoic abomasal folds along with hypoechoic ingesta with echogenic stippling at right 12th ICS.



Fig. 2. Photograph showing deflation of the abomasum using vacuum pump

Distended abomasum without omental covering was identified immediately beneath the surgical incision. In the first case, the abomasum was so distended and tense that it could not be held and exteriorized. The abdominal incision was packed with sterile, moist drapes. Retention sutures were applied on the abomasum and a stab incision was made through which 0.5 inch diameter drain pipe was introduced to drain the liquid contents using suction pump. As soon as the drainage of abomasal liquid content stopped, the part of abomasum was exteriorized and incision was extended. The abomasal opening was then fixed with weingarh set to evacuate the contents manually. After thorough cleaning of the edges, the abomasal incision was closed in two layers i.e. Lembert followed by Cushing pattern using Polyglactin 910 (No. 1). In the second case, the abomasum was exteriorized and most of the contents were removed by suction, and the punctured opening was closed with a purse string suture (Fig. 2). The abdominal cavity was explored in both the cases for adhesions and/or any other abnormality. After deflation, a fold of abomasum was grasped and simple continuous sutures were applied for about 8-10 cm length through its seromuscular layers using polyglactin 910 (no. 1) suture with needles at both ends (Fig. 3). The abomasum was pushed ventrally to its normal position. The needle on the cranial end of the suture was pierced through the abdominal wall to exit from about 10-12 cm caudal to xiphoid and the needle at the caudal end of the suture was pierced about 10 cm caudal to the first one. Both the ends were then pulled externally and tied outside by an assistant, while the surgeon ensured that no other



Fig. 3. Photograph showing application of continuous sutures in the abomasal wall using polyglactin 910 no. 2 suture needled at both ends.

organ was trapped between the abomasum and the ventral abdominal wall while repositioning and fixing of the abomasum. The laparotomy wound was closed in routine manner with polyglactin 910 no.1 suture material and skin edges apposed by horizontal mattress sutures with nylon.

Post operatively, 15 ml each of inj. Floxidin (Samrudh Pharmaceuticals Tarapur, Thane) and inj. Melonex (Intas Pharmaceuticals Ltd., Ahmedabad) were administered IM, OD for 5 and 3 days, respectively. Five litres of DNS, 3

litres of Ringer Lactate and inj. KCl 15 ml (5 ml of 15% solution added to 500 ml of DNS) were given for three days intravenously. Antiseptic dressing of the wound was done with 5% povidone iodine daily. Animals started taking feed from next day after surgery. Skin sutures were removed on the 10th post operative day in both the cases.

In the first case, a huge abscess had formed extending from the external angle of ilium to the scapula and ventrally to half way down the abdominal wall. About 30 L of caseated pus was removed, the cavity explored; there was no communication with the peritoneal cavity. The cavity was lavaged with tap water followed by saline mixed with povidone iodine. Inj. Dicrysticin (Zydus animal health Ltd.) 5 g daily for five days and Melonex 15 ml, both IM, daily for three days were advised. The procedure of lavaging the cavity, first with tap water followed by saline mixed with povidone iodine was carried out by the owner himself and the wound healed completely one month after draining the abscess. The animal conceived and parturated later on normally. However, the second case recovered uneventfully with no post operative complication.

Incidence of RDA in India and most other tropical countries is very low probably due to higher proportion of roughage than grain in the feed (Tyagi and Singh, 2017). In both these cases, the animals were fed 6-8 kg of concentrate feed in addition to the roughage. LDA and RDA create a partial outflow obstruction to abomasal contents. Auscultation and percussion over the displaced abomasum reveals a hyper resonant “ping” either on the left (LDA) or right (RDA and RAV) abdomen over the gas-distended abomasum. The rectal examination is likely to be normal, but a distended abomasum may be felt in the right paralumbar fossa with large RDAs (Niehaus, 2016). The normal abomasum can be visualized on sonography from the ventral mid-line and both paramedian regions caudal to the xiphoid. Displaced abomasum is easily accessible to ultrasonography in cows with LDA or RDA. In the present study, the right displaced abomasum was scanned from caudal to the last rib to 9th ICS, clearly differentiated from other organs because of its contents which appeared as a hypoechoic with echogenic stippling and the abomasal mucosal folds were seen as echogenic structures. The liver, which is normally visible medial to the abdominal wall between right 7th to 12th ICS on ultrasonography, was not visible at all (Ok *et al.*, 2002).

Although the techniques described for repositioning and fixing the abomasum in RDA are right paramedian

abomasopexy or right flank omentopexy, right flank abomasopexy was done in both the cases without any complication attributed to it. The surgical technique chosen depends largely on surgeon’s preference, availability of facilities and assistance, direction of displacement, presence of adhesion and prior displacement with surgical correction (Niehaus, 2016). Cattle having surgical correction of the uncomplicated abomasal displacements have a good to excellent prognosis for return to productivity (Pentecost *et al.*, 2014 and Sterner *et al.*, 2008). The complications observed in one case were due to opening up of the abomasum intra-abdominally, which probably led to contamination of the surgical wound leading to localized infection and pus formation. Poor management of the wound infection at the owners end resulted in formation of a huge abscess as pus kept moving in the direction of least resistance. However, proper drainage and daily lavage of the abscess cavity resulted in healing without any further complication and animal returned to productivity. The present report concludes that the RDA can be diagnosed ultrasonographically and successfully managed surgically.

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