Pings: A Reliable Clinical Sign for Diagnosis of Abdominal Disorders in Cattle?

Nowrouzian I; Kalantari -Khandani A; Nadalian MGh; Dehghan MM
Department of Clinical Sciences, Faculty of Veterinary Medicine, Tehran University, P.O. Box 14155-6453 Tehran, Iran

Introduction

Ping sound is one of the clinical signs of abdominal disorders in cattle with variable frequency and intensity. Practitioners are bound to be fully aware of differential diagnoses. Although reports show that pings are accepted as a key diagnostic indicator for most gastrointestinal conditions, their reliability remains controversial.[1,2] The present retrospective study was aimed to assess predictability of the pings as a logical and practical tool for obtaining the correct diagnosis.

Materials and Methods

Clinical and surgical records of 2,478 adult cows with abdominal disorders admitted to the section of Large Animal Surgery, Faculty of Veterinary Medicine, the University of Tehran spanning 15 years (1984-1999) were reviewed. Case records of 1994 cattle in which the initial clinical diagnosis was made on presence or absence of tympanic resonance (pings) over a portion of left or right abdominal wall and definitive identification by left- or right-side surgical exploration, were used for this study. By collection of these data, the sensitivity and positive predictive values of the clinical identification were determined for each diseased structure using a 2x2 contingency table.

Results

The sensitivity and positive predictive values for pings over classical outlines of the boundaries indicating left-displaced abomasum were 97.7 0% and 81.56% respectively. These values were higher than those for other conditions identifying a case of distended intraperitoneal viscus adjacent to the left abdominal wall. The positive predictive values of pings in the right side of the abdominal wall for topographical disorders of the abomasum (simple dilatation , torsion or volvulus) and small intestine volvulus were calculated at 85.94%, 87.50% and 85.70%, respectively.

Conclusion

This study demonstrated that, by presence of pings in the left or right side of the abdominal wall, presumptive clinical diagnosis could be definitely achieved in cases of left-displaced abomsum, right torsion and volvulus of abomasums, and cecal torsion, but in other conditions where a gas-distended intraperitoneal viscous is present, additional clinical and laboratory data are needed for appropriate clinical and surgical management.

References

1. Grymer J, Ames, NK Bovine abdominal pings: clinical examination and differential diagnosis. *Compend Contin Educ.* 3, 5311-5518, 1981.
2. Smith DF, Erb HN, Kalaher KM, Rebhun WC: The identification of structures and conditions responsible for right side tympanitic resonance (ping) in adult cattle. *Cornell Vet* 72: 180-199, 1982.

Table 1. Sensitivity and positive predictive values of pings in diagnosing cattle abdominal disorders.

	Left abdominal wall						Right abdominal wall					
	LDA	SP	RC	RT	TRP	M	RDA/RTA	IV	LCV	Illeus	CD	CT/D
Se (%)	97.70	28.57	13.63	43.26	13.88	14.28	88.04	59.01	35.71	56.25	78.65	49.39
Pv+(%)	81.56	15.38	8.82	79.22	40.00	60.00	85.94	85.71	23.80	21.42	87.50	75.54

Se-Sensitivity, Pv+-Positive Predictive Value, LDA-Left Displacement of Abomasum, SP-Splenitis, RC-Rumen Collapse, RT-Rumen Tympany, TRP-Traumatic Reticulo-Peritonitis, M-Metritis, RDA-Right Displacement of Abomasum, RTA-Right Torsion of Abomasum, IV-Intestinal Volvulus, LCD-Large Colon Dilatation, CD-Cecal Dilatation, CT/D-Cecal Torsion/Displacement.