Cloud Publications
International Journal of Advanced Veterinary Science and Technology
2015, Volume 4, Issue 1, pp. 191-194, Article ID Sci-306
ISSN 2320-3595

Case Study | Open Access

A Report of Gastric Adenocarcinoma in a Dog

Mohamed Shafiuzama[1], Sabarish Babu M.S.[1], Krishnaveni N.[1], Ganesh T.N.[1] and Hemalatha S.[2]

[1]Department of Veterinary Surgery and Radiology, Madras Veterinary College, Chennai, Tamil Nadu, India
[2]Centralised University Laboratory, Madhavaram Milk Colony, Chennai, Tamil Nadu, India

Publication Date: 24 October 2015

Article Link: http://scientific.cloud-journals.com/index.php/IJAVST/article/view/Sci-306

Abstract An 11 year old male non-descript dog was presented with the history of frequent vomition and progressive weight loss for the past one month. The dog was dull, dehydrated, anaemic and emasciated. Positive contrast survey radiographs, revealed delayed gastrointestinal transit time and absence of foreign body. Exploratory laparatomy was done which revealed thickening of entire layer of the gastric wall with pylorus and the histopathology revealed gastric adenocarcinoma. Since the tumor was spread to the full thickness of the stomach wall including pylorus, the prognosis was informed to the owner and euthanasia was advised.
Keywords *Case Report; Canine; Gastric Adenocarcinoma; Histopathology*

1. Introduction

Adenocarcinoma is the most common gastric neoplasm, comprising 1 to 2% of all the malignant neoplasms [1] and 47 to 72 % of all gastric malignancies [10] in canine. Canine gastric cancer was more prevalent in dogs than in domestic animals [4]. The majority of gastric malignancies in dogs were carcinomas accounting for 50-90%, followed by leiomyosarcomas and malignant lymphoma [2, 3]. This is a report of a case of gastric adenocarcinoma in a dog.

2. Case History and Observation

A 11 year old non-descript dog was presented to SAC OP surgery unit of Madras Veterinary College Teaching Hospital with the history of chronic vomition for the past one month after taking food and was treated symptomatically for gastritis with no improvement. The dog was progressively losing its body weight. On clinical examination the dog was dull, depressed and dehydrated. Heart rate and respiratory rate were within the normal limit. Haematology and serum biochemical profiles revealed reduction in total red blood cell count and haemoglobin with neutrophilia and leucocytosis.

Plain radiography of the thorax lateral view revealed early metastatic lesion (Figure 1) and abdomen lateral view revealed no abnormalities. Hence positive contrast radiography using barium meal were taken at 5, 10, 20 minutes and 24 hrs which revealed delayed gastrointestinal transit time and absence of radio opaque foreign body. Ultrasonography revealed a prostatic cyst of about 3.04 mm

diameter and thickening of the stomach wall and pylorus was noticed. Hence exploratory laparatomy was performed to find out the cause of chronic vomition.

Figure 1: *Gastric Neoplasm*

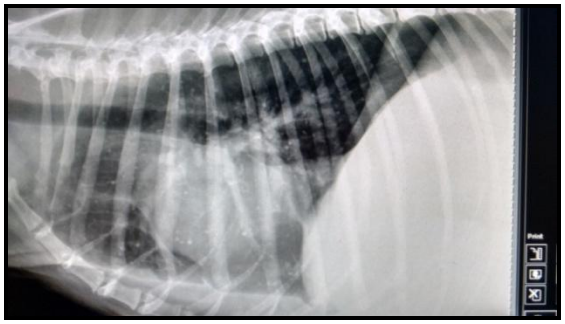

Figure 2: *Plain Radiography-Lung Metastasis*

3. Treatment and Discussion

The dog was premedicated with Diazepam @ 0.2 mg / kg intravenously. General anaesthesia was induced using propofol @ 4 mg / kg intravenously and maintained with isoflurane (2.5%) in oxygen using Boyles anaesthetic apparatus with assisted ventilation.

Cefotaxime @ 10 mg / kg and tramadol @ 2 mg / kg was administered intravenously before surgery.

The dog was placed on dorsal recumbency and the surgical site was prepared following aseptic procedures. A midventral skin incision was made from xiphoid to prepubic region and the subcutaneous tissue and fascia dissected. The linea alba was incised and the abdominal viscera exposed. On examination, the entire lesser curvature of stomach wall and pylorus was highly thickened and discoloured serosal patches were seen suspecting for gastric neoplasm (Figure 2). The lesion was spread throughout the serosal and mucosal surface of the stomach wall and pylorus. Fine needle aspiration cytology of the mass was taken and another tissue sample was collected in 10 % formalin for histopathological examination. The prognosis was informed to the owner regarding the condition and euthanasia was advised.

Adenocarcinoma is the most common type of gastric carcinoma [8]. This type of carcinoma forms tubular structures and exhibit various patterns at different levels of invasion of the stomach wall. Among dogs, gastric carcinoma has been reported to affect males more frequently than females [11]. Gastric carcinoma is a disease of older dogs, but has been reported in dogs in the age range of 3-20 yrs. In the above discussed case the age of the dog was 11 yrs. Most common location of gastric carcinoma was the lesser curvature and pyloric region of the stomach [12]. The most common clinical signs associated with gastric carcinoma were vomiting, anorexia, progressive weight loss. haematemesis, melaena, anaemia, lethargy, ptyalism, polydipsia, abdominal distension, and abdominal discomfort [2, 3, 5]. The prognosis in case of gastric carcinoma was poor. 70-90 % of gastric carcinomas have metastasized by the time of diagnosis or euthanasia. The preliminary diagnosis of gastric carcinoma was usually obtained by ultrasound examination, in which thickening of gastric wall and loss of gastric wall layering was observed [6, 9]. The most common sites of metastases are the regional lymphnode, omentum, duodenum, liver, spleen, pancreas and lungs [13]. According to World Health Organisation tumor staging system for gastric tumors [5, 7] the primary tumor in the above case invaded the serosa (T-3), there was evidence of lymphnode involvement (N-2) and evidence of distant metastasis (M-2).

Microscopically poorly demarcated unencapsulated irregular pleomorphic glands involving mostly the submucosa and muscularis mucosa with excessive desmoplasia with nests of neoplastic acini and

cells were seen (Figure 5). Neoplastic cells were cuboidal with moderate eosinophilic cytoplasm. Nuclei round to oval with stippled chromatin, dysplastic, mild anisokaryosis and mitotic figures, 2-3 / high power field (Figure 3). Glandular lumen contained eosinophilic secretary product with sloughed neoplastic cells. Lymphatic vessels contained neoplastic emboli (Figure 4).

4. Summary

Due to the advanced stage of disease at the time of diagnosis and the high frequency of metastasis, early detection is essential, if the treatment of canine gastric neoplasm was to be attempted. As the presenting signs were similar to those observed in cases of chronic gastritis, some dogs were symptomatically treated for gastritis for prolonged periods and the suspicion of gastric neoplasm may first arise when this form of treatment failed. It is therefore important to obtain a correct diagnosis as early as possible. This paper describes about the advanced stage of gastric adenocarcinoma in a dog.

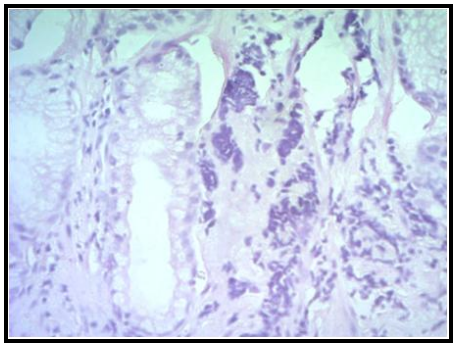

Figure 3: *Dysplastic Nuclei in the Gland.*

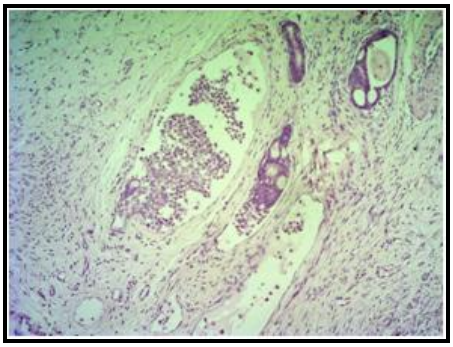

Figure 4: *Tumor Emboli in Veins*

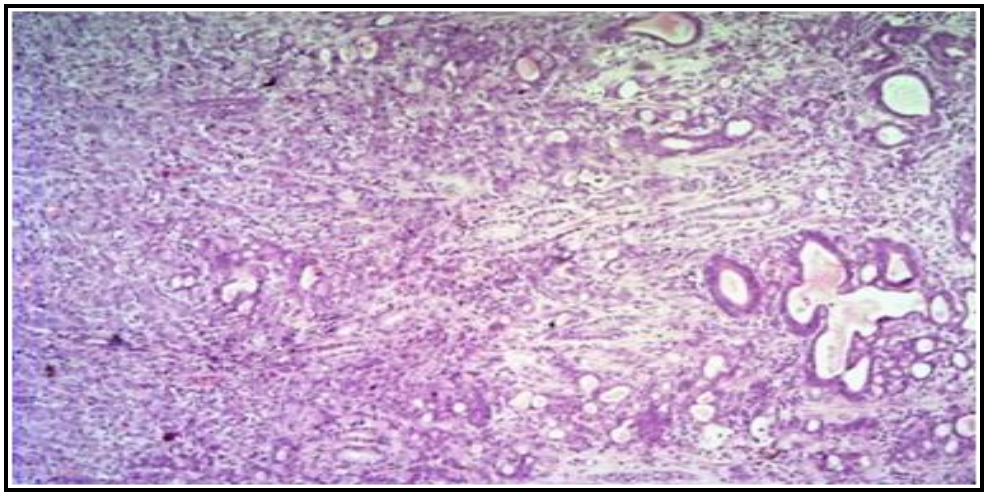

Figure 5: *Pleomorphic Glands with Nests of Neoplastic Acini*

References

[1] Brodey, R.S. and Cohen, D., 1964: *An Epizootiologic and Clinicopathologic Study of 95 Cases of Gastrointestinal Neoplasms in the Dog.* Scientific Proc Am Vet Med Assoc. 10Ist Ann Meeting. 167-169.

[2] Couto, C.G., Rutgers, H.C., Sherding, R.G. and Rojko, J. *Gastrointestinal Lymphoma in 20 Dogs.* J Vet Intern Med. 1989. 3; 73-78.

[3] Fonda, D., Gualtieri, M. and Scanziani, E. *Gastric Carcinoma in the Dog – A Clinicopathological Study of 11 Cases.* J Small Anim Pract. 1989. 30; 353-360.

[4] Head, K.W. *Tumours of Lower Alimentary Tract.* B World Health Organ. 1976. 53; 167-186.

[5] Jonathan, Bray and Reto, Neiger, 2011: Tumors of Stomach. In: BSAVA Manual of Canine and Feline Oncology. 3rd Edn. Jane M., Dobson, B., Duncan X. (Eds.) Lanceller, BSAVA, England. 209-211.

[6] Kelley, J.R. and Duggan, J.M. *Gastric Cancer Epidemiology and Risk Factors.* J Clin Epidemiol. 2003. 56; 1-9.

[7] Lingeman, C.H., Garner, F.M. and Taylor, DON. *Spontaneous Gastric Adenocarcinomas of Dogs - Review.* J Natl Cancer Inst. 1971. 47; 137.

[8] Patnaik, A.K., Hurvitz, A.I. and Johnson, GF. *Canine Gastrointestinal Neoplasms.* Vet Pathol. 1977. 14; 547-555.

[9] Penninck, D.G., Moore, A.S. and Gliatto, J. *Ultrasonography of Canine Gastric Epithelial Neoplasia.* Vet Radiol Ultrasoun. 1998. 39; 342-348.

[10] Sautter, J.H. and Hanlon, G.F. *Gastric Neoplasms in the Dog: A Report of 20 Cases*. J Am Vet Med Assoc. 1975. 166 (7) 691-696.

[11] Sullivan, M., Lee, R., Fisher, E.W, Nash, A.S. and Mccandlish, I.A.P. *A Study of 31 Cases of Gastric Carcinoma in Dogs.* Vet Rec. 1987. 120; 79-83.

[12] Swann, H.M. and Holt, D.E. *Canine Gastric Adenocarcinoma and Leiomyosarcoma: A Retrospective Study of 21 Cases (1986–1999) and Literature Review.* J Am Anim Hosp Assoc. 2002. 38; 157-164.

[13] Scanziani, E., Giusti, A.M., Gualtieri, M. and Fonda, D. *Gastric Carcinoma in the Belgian Shepherd Dog.* J Small Anim Pract. 1991. 32; 465-469.