

# PATHOLOGICAL AND HAEMATO-BIOCHEMICAL STUDIES OF MASTOCYTOMA IN DOGS

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Mastocytoma is an uncommon tumor, may observe on thigh, chest, mammary region, gluteal region and vulva and may be multiple. In the present study, out of 152 neoplastic tissue samples of dogs, mastocytoma was recorded in 3 (5.55 per cent) cases. Grossly, these tumors were round or oval but one was pedunculated and all were non-encapsulated. Microscopically, mastocytoma forms broad sheets of cells or cords of cells arranged in single file. The cells were often loosely arranged, discrete and surrounded by small, clear spaces. Wavy bundles of collagen were seen between some groups of tumor cells. Mean±S.E. values recorded for haemoglobin, TEC, TLC, DLC, PCV, MCV and MCHC did not reveal any appreciable effect on these parameters except higher count of some eosinophils and basophils. Among the various biochemical parameters, serum zinc, serum alkaline phosphatase and serum creatinine values were recorded some higher than the normal value.

**Keywords:** Histopathology, Mastocytoma, Dog.

The dog has claimed unfathomable affection from man for varied reasons. It's in human life as it may act as a companion, guard, hunter, drought in icy regions and a guide to blind persons. The dog happens to be a reliable aid in detecting narcotics and explosives. A neoplastic proliferation is an abnormal, non-inflammatory anomalous new growth of tissues which develops uncoordinated and in a haphazard manner as a result of some unusual stimulus and which does not serve any useful purposes, but in fact does harm to the body. Mastocytoma is an uncommon tumor, may observe on thigh, chest, mammary region, gluteal region and vulva.

## Materials and methods

A total of 152 neoplastic tissue samples were collected from dogs of either

sex, different age groups and breeds reported to various Polyclinics at Bikaner, Jaipur, Udaipur, Ajmer and Jodhpur districts of Rajasthan and adjacent areas were taken for the present study. Apart from this, specimens submitted to the Department of Veterinary Pathology, College of Veterinary and Animal science, Bikaner, for routine post-mortem examination.

The tissue specimens were collected from necropsy and during surgery were preserved in 10 per cent formal saline and processed for paraffin embedding The tissue sections of 4- 6 micron thickness were cut and stained with Haematoxylin and Eosin. For haemato-biochemical analysis, blood / serum samples were collected from clinics before surgery subjected for various examinations.

**Table. - 1. HAEMATOLOGICAL PARAMETERS IN MASTOCYTOMA OF DOGS**

Parameters	Hb (g%)	TEC Mille/cmm	TLC Th/cmm	N (%)	E (%)	B (%)	L (%)	M (%)	PCV (%)	MCV cuμ	MCHC (%)
Mean	14.6	7	7.7	67	3.50	0.5	27	3.5	40.5	57.92	36.04
SE±	±0.2	±0.2	±0.1	±1	±0.5	±0.5	±2	±0.5	±0.5	±2.37	±0.04

**Table. - 2. VALUES OF BIOCHEMICAL PARAMETERS OF MASTOCYTOMA OF DOGS**

Case No.	Blood glucose mg%	Serum total protein concentration mg%	Serum albumin concentration mg%	Serum Immune Globulins mg%	A:G Ratio	Minerals estimation			Plasma alkaline phosphates IU/L	Serum creatinine mg%
						Ca mg%	P mg%	Zn -gm /DL		
Mean	74.2	3.67	3.67	3.03	1.22	12	4.7	127	11	1.1
SE±	± 2.05	±0.21	±0.21	± 0.31	± 0.19	±0.2	±0.1	±1	±1	±0

Mean±S.E. values of haemoglobin, TEC, TLC, DLC, PCV, MCV and MCHC did not reveal any appreciable effect on these parameters except eosinophils and basophils albeit non-significant higher. Among the various biochemical parameters taken in this study, serum zinc levels, were recorded some higher than the normal value. serum alkaline phosphatase and serum creatinin values were almost under physiological limits.

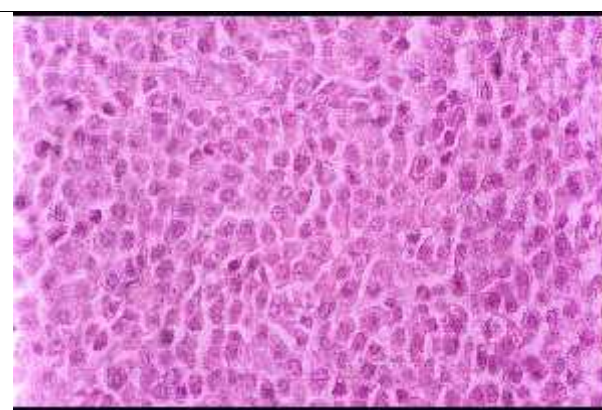
### Results and discussion

Grossly, these tumors were round or oval but a few were pendunculated. These tumors poorly attached from the surrounding tissues and were non-encapsulated. The cut surface of the tumour was lobulated (Fig.1) or whorled and characteristically light orange, pink or greyish-white in colour. Microscopically, tumor generally formed broad sheets of cells or cords of cells arranged in single file (Fig2). The cells were often loosely arranged, discrete and

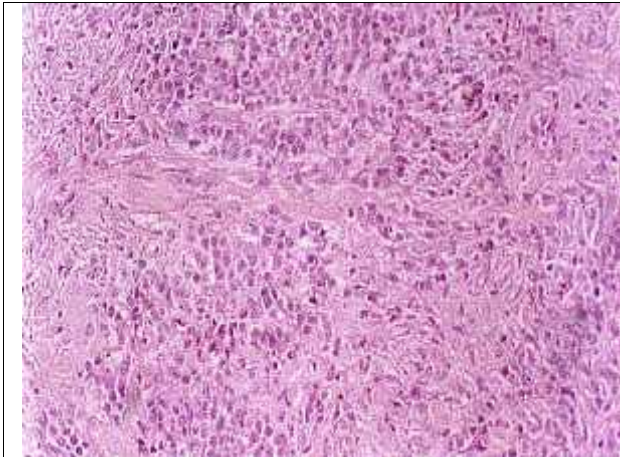
surrounded by small clear spaces. Wavy bundles of collagen were seen between some groups of tumor cells (Fig.3). These cells were round or ovoid and have well out lined cytoplasmic border and centrally placed round or ovoid nuclei. Eosinophils were characteristic components of mastocytoma that were scattered among the mast cells or in small perivascular locations (Fig.4). Out of 152 neoplastic tissue samples of dogs, mastocytoma was recorded in 3 (5.55 per cent) cases. In agreement to it Palanivelu *et al.* (2013), reported a lower occurrence in 1 case out of 41 (2.43 per cent). Though Sharma *et al.* (2019) reported a higher prevalence of spontaneously occurring animal neoplasms in Jammu and found anaplastic mastocytoma in 2 out of 23 cases of different neoplasms in canine. The similar microscopic findings were also observed by Reddy *et al.*, 2009; Karnik *et al.*, 2020 and Kaur *et al.*, 2021.



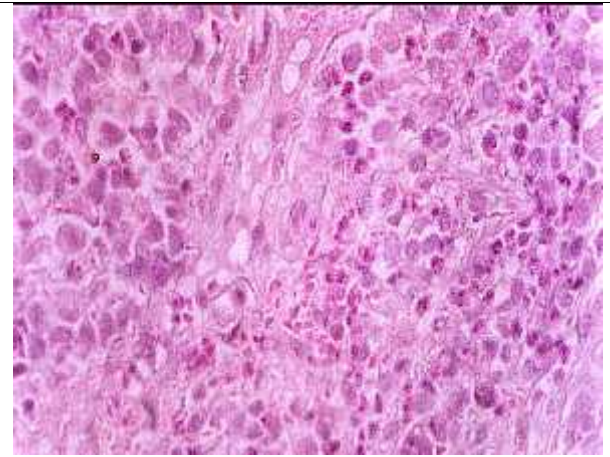
**Fig.1. Gross photograph of Mastocytoma showing non-encapsulated and lobulated cut surface.**



**Fig.2. Microphotograph of Mastocytoma showing broad sheet or cords of tumor cells arranged in single file and surrounded by small clear spaces. H&E. 400X**



**Fig.3. Microphotograph of Mastocytoma showing wavy bundles of collagen fibres between some groups of tumor cells. H & E. 200X**



**Fig.4. Microphotograph of Mastocytoma showing eosinophils scattered among mast cells. H & E. 400X**

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