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TISSUE, ENZYMATIC AND GENETIC MARKERS OF MAMMARY TUMORS IN CANINES-MODERN DIAGNOSTIC APPROACHES

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The study was conducted in 75 clinical cases of canine mammary tumors. Different modern diagnostic tools were used to determine their potentiality in mammary carcinoma.
Argyrophilic Nucleolar Organizer Region stain was found very useful technique. The histopathological technique of one-step staining of Argyrophilic proteins associated with nuclear organizer regions, appearing as black dots. In benign tumors, the AgNORs were few in number but larger in size, whereas in malignant, it was numerous but smaller in size. Detection of Proliferative Cell Nuclear Antigen by immunohistochemical methods was also found a valuable tool to tumor diagnosis.

Telomerase Repeat Amplification Protocol was tested on tissue lysates prepared from frozen tumor samples. Alternatively canine Telomerase enzyme reverse transcriptase estimation by Reverse transcriptase-Polymerase chain reaction or its demonstration in tissue sections by *in situ* hybridization technique (ISH) was performed.
The pattern and level of expression of MMP (matrix metalloproteinases) -9 in sera and mammary tumors were studied. 220 kDa, 135 kDa and 92 kDa are the three major forms of MMP-9 predominantly present in sera and tumor tissue of dogs, however, the level of expression of MMP-9 was significantly more in tumor bearing dogs than normal dogs.
Genetic polymorphism at ZuBeCa3 microsatellite and association between microsatellite polymorphism and mammary cancer in dog were also studied. Statistical testes showed significant differences of allelic distribution between tumor affected and non-affected groups.
The results will help the veterinarians to diagnose whether the animal is prone to mammary cancer or not, even at the time of birth.