

## **6. Summary**

### **Investigations for ultrasonographic presentation of primary multiplicity of canine mammary tumours.**

On the mammary chain of 28 bitches with mammary tumours an ultrasonographic examination was done before surgery. The results of this examination were compared with the results of the palpatoric, pathologic – anatomical and histological examination. The bitches were patients of the clinic and policlinic for small animals at the Free University Berlin.

Unilateral-, and in one case bilateral mastectomie was carried out between March and December 1998. In one case, only the 4th caudal abdominal mammary gland and the 5th inguinal mammary gland were surgically removed from both mammary chains, in one other case only one mammary gland with a tumour and in a third case only the suspicious tumour were surgically removed.

Crossbred dogs were most affected by the mammary tumors. 42,86% of these dogs were between 9 and 11 years of age. All dogs were female; just four of them were spayed. The owners were questioned for the patient's history. The complete mammary chains and all tumours were clinically examined by adspection and palpation.

The size of the tumours was measured by a pushruler. The results of the examination were written down on a standardized examination file. The following sonographic examination was carried out while the patients were lying on their backs. For the examination the ultrasonic device Sigma 44 HVCD by Kontron Instruments was used. Ultrasonic pictures were routinely taken at every nipple and at exactly defined points between the nipples. Additionally, clinically recognisable nodules were ultrasonographically checked and measured.

The surgical preparations were pathologo – anatomically examined. Samples were taken and preserved in formalin from all parts with cooresponding ultrasonic pictures. After staining with haematoxilyn-eosin, histological examination and classification of the samples was carried out.

129 neoplasias were found as a result from the histological examination. The histological classification of the mammary tumours was carried out according to the

WHO - classification also considering the revisions of GUTBERLET (1994) and GUTBERLET et al (1998). The focal growth of alveolar epithelial cells into the alveolar lumina was already considered to be an early stage of an adenocarcinoma and designated as microalteration.

Most frequent were adenocarcinomas (44,2%) followed by microalterations (29,5%) and adenocarcinoma with myoepithelial hyperplasia (11,63%). Complex carcinomas appeared in 4,65% of all cases, a myoepithelial carcinoma was present in only one case . 9,24% of all tumours were benign neoplasia, represented by adenoma, complex adenoma, myoepithelioma and osteochondroma.

In 92,8% of all patients primary multiplicity of mammary tumours was histologically established. The most part of all samples was clinically inconspicuous but nevertheless histologically showed microalterations and early cancer. Because of the multiplicity of mammary tumours it is not advised to excise only single tumours or single mammary glands.

Concerning the distribution and number of single tumours in the mammary gland, all four test methods showed a constant pattern as follows: there was a tendency for an increase from cranial to caudal, most of the tumours were found in the 4th, the caudal abdominal gland. The histological examination showed 74,4% of the tumours to be smaller than one centimeter in diameter.

A comparison of all test methods showed that the histological examination with 129 diagnosed neoplasias performed best. 111 tumours were discovered by pathological - anatomical examination, 83 tumours by the palpatorical examination and 65 tumours by sonographical examination.

The bad performance of the ultrasonic examination is mainly due to the fact that tumours smaller than 3 mm could not be shown with the used ultrasonic device. Clinically not yet apparent mammary tumours were not detected by the ultrasonic examination. The demonstration of primary multiplicity of canine mammary tumours via ultrasound is only possible for already clinically diagnosed tumours. A final diagnosis of the primary multiplicity in an early stage is only possible when using histological examination.

A differentiation between benign and malign tumours could not be made with ultrasonic examination. An exact diagnosis could only be made when using histological examination.

Therefore, ultrasonic examination as a single test method to detect mammary tumours is not suitable, but still helpful in the identification of a palpable lump relating to origin, connection to the surrounding tissue and structure.