6. Summary

PROGNOSTIC RELEVANCE OF LYMPHOCYTE INFILTRATES

AND THEIR DIFFERENTIATION

IN MAMMARY TUMOURS OF THE DOG

Since mammary tumours are the most frequently diagnosed neoplasms in the bitch, it is here tried to establish an additional prognostic criterion and to compare it with the results of the human medicine oncology. The aim of the presented investigation is to observe and document the distinct influence of lymphocyte infiltrates on the prognosis of mammary tumours of the dog up to one and a half year after the first operation.

For this purpose, 115 tissue samples of surgeries from affected bitches recieved from the clinic and polyclinic for small animals of the Free University of Berlin are investigated histopathologically and immunhistopathologically in the Institut of Veterinary Pathology of the Free University of Berlin and brought in context with the follow-up data.

Dachshunds (17,9%) and terriers (15,5%) are very often affected, but cross-breds (31,0%) are most frequent presented with mammary neoplasms.

The middle age is 9,52 years. The cross-breds are the oldest ones followed by the poodles. The average age of the terriers is remarkably low.

20 of 84 of the female patients taking part in this follow-up-study are spayed.

First macroscopically data about the affected mammary chain and the size of the neoplasms are raised. As only the changes of the highest malignancy are followed up, the size of changes had to be corrected in the data bank for 20 samples, in which the histopathological investigation revealed that the tumours of the highest malignancy are microscopically small.

Each sample is classified according to a scheme worked out by GUTBERLET et al. (1998). Points are given for malignancy and tumour-signs of the observed change (GUTBERLET, 1994).

Overall 88,70% of the mammary changes are histologically malignant, 4,35% are benign and 6,96% are the so called other mammary changes. 81,74% of the 115 tissue samples are primary multiple. The main part of the malignant tumours are represented by adenocarcinomas.

All changes show variable degrees of the number of lymphocytes in routine staining. The amount of lymphocytes is directly connected with localization and pattern of the lymphocyte infiltrates, which constant increase within group I to IV. Carcinomas often show a higher sum of points than other mammary changes and marked nodular lymphoid aggregates both in the tumour centre and in the capsule/periphery.

Tissue samples of canine lymphnodes from the autopsy stock of the Institut of Veterinary Pathology of the Free University of Berlin are tested with 7 antibodies(3 T-cell-specific, 4 B-cell-specific) with two different immunohistochemical methods. The antibodies CD3 (T-cell) and CD79a (B-cell) are found to be best in staining formalin fixed and paraffin embedded tissues (SCHULDEN et al., 1998b).

Of the 115 mammary changes, 73,91% show mainly T-lymphocytes and 6,07% mainly B-cells. In 17,39% of the tissue samples the T/B cell relation is well-balanced. 3 samples (mastitis, cystic and hyperplastic changes) are not evaluated.

The macroscopically, histopathologically and the follow-up data raised as well as the immunohistochemically results show close correlation to the tumour size, the sum of points (malignancy), the kind of lymphocyte infiltrates and the survival time of the single patient.
Bitches with large and very large samples of higher malignancy, which show a marked amount of predominant B-lymphocytes present as nodular aggregates both at the periphery and in the central portions of the tumour mass, have a shorter survival time after first surgery and hence a poorer prognosis.
So lymphocytes and their subpopulations in mammary tumours of the dog are first established as an additional prognostic criterion in the present study.
Concerning mammary carcinomas of the woman there is still no coherent opinion existing in literature.

Since the antibodies CD3 and CD79a can be used for the differentiation of lymphocyte-subpopulations in paraffin embedded canine tissue, it appears to be advisable to use them in veterinary pathology for a better prognostic evaluation of mammary tumours.

In spite of the considerable number of cases in the present study only general trends and no universal statistics are shown. So further relevant investigations are possibly useful.

When the observation period is finished, the follow-up-status of 96,43 per cent of the dogs is well known. Overall, there are only few animals dying of mammary tumours, although a very high portion of malignant neoplasms is diagnosed. Indeed it would be not correct to make the scheme of classification doubtful but it is rather important to point out the positive effect of taking part in a follow-up-study.

Only radical uni- or bilateral mastectomy immediately after diagnosis of the tumour and subsequent half-yearly control of the in this present case left-over mammary tissue will lead to a comparatively good prognosis.

As in the present study T-lymphocytes seem to be prognostically favourable, the use of T-cell-stimulating immunmodulators has to be thought over and should be considered as an additional therapy. To make proper statistical statements further studies with similar formulation of this kind of question on a larger scale are needed.