

## 7. Summary

### **A Study of the Pathomorphology of Non-Neoplastic Changes in Canine Mammary Glands**

Whilst neoplasia in canine mammae has been the subject of a considerable number of studies, little is known about non-neoplastic changes of the mammae. The aim of the present study was therefore to conduct pathological anatomical and histopathological examinations of mammary glands in order to draw up a survey of the type and frequency of non-tumorous changes in the lactiferous tissues.

The material under examination consisted of 60 bitches of various breeds and ages that had been sent for dissection to the Institute of Veterinary Pathology at the Free University Berlin and to the State Veterinary and Food Inspection Office in Cottbus.

First, the bitches' mammary regions were macroscopically examined. At the same time, the functional condition of the ovaries was checked. The individual mammary complexes, including teat, from each bitch were fixed in 5% formalin and embedded in paraffin before being cut at four different levels of the gland (tip of teat, middle of teat, glandular section of the cisterns and glandular section of the alveoli).

The cuts were dyed using haematoxylin and eosin. In addition, van Gieson colouring was applied in order to show up the collagenous fibres, and an immunohistological method was used to show up the myoepithelial tissues.

A total of 471 mammary complexes (60 bitches) were examined.

In 66.2% of the mammary complexes tested, histological changes (deviations from the normal state during anoestrus) were evident in the mammary gland. It is important to distinguish between physiological and non-neoplastic changes. The following findings were made:

Physiological findings (n=24)

- physiological hyperplasia during prooestrus, metoestrus and lactation (n=15)
- involution of the mammary glands in old age (n=9)

Pathological non-tumorous changes (n=45)

- pathological hyperplasia during anoestrus (n=9) and after removal of the ovaries (n=4)
- atrophy after removal of the ovaries (n=10)
- acute and chronic mastitis (n=9)
- cysts (n=4)
- accessory teats (n=9)

In 20 animals microscopic neoplasia was found. The non-neoplastic changes in the mammae were most frequently found in the two caudal mammary complexes, as well as in the cisternal and alveolar sections of the gland.

The study also revealed that more than one abnormality might be found in a single bitch, two or three different findings sometimes being discovered simultaneously in the mammary regions of one animal. The most common combinations were hyperplasia with growth (n=7) and hyperplasia with mastitis (n=8).

No evidence was found in the study for the possibility that pathological hyperplasia can be the precursor of neoplastic processes.