



### CASE OF INTEREST

Testicular teratoma in a mouse (*Mus musculus*)

By: Ines Hoffmann, Veterinary Pathologist.

A pet mouse was presented for a scrotal mass and subsequently euthanized. Histological examination showed a testicular tumour comprised of a variety of haphazardly arranged well differentiated tissues from several germ layers as well as morphologically undifferentiated tissue. The differentiated tissues include nervous tissue, striated muscle, cartilage and less well differentiated connective tissue. There are also tubular structures lined by ciliated respiratory epithelium and intestinal epithelium with goblet cells.

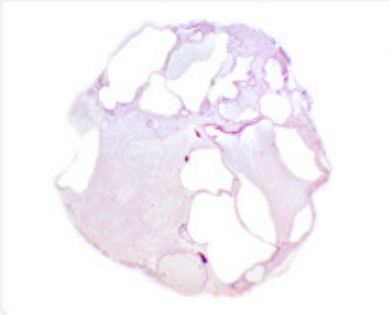


Figure 1. Low power overview of lesion (obj x1, HE stain). Click to enlarge.

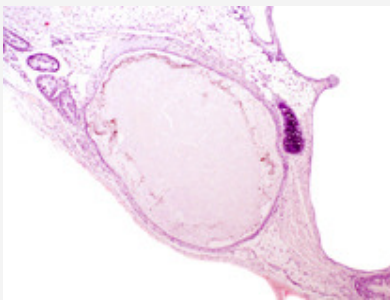


Figure 2. High power view of an internal structure resembling a bronchus (obj x10, HE stain.) Click to enlarge.

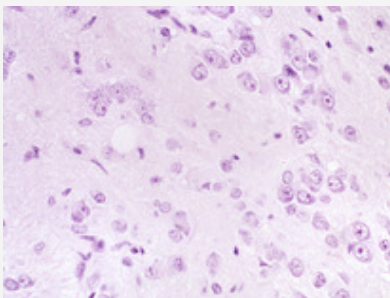


Figure 3. High power view of an internal structure resembling neural tissue(obj x40, HE stain.) Click to enlarge.

Teratomas are uncommon tumours in domestic animals arising from pluri-potential stem cells which can differentiate into derivatives of all three germ layers (endoderm, mesoderm and ectoderm). Teratomas and their malignant counterpart, teratocarcinomas, typically arise in the testis or ovaries, although there have been reports of extragonadal tumours. Teratomas of the testicle occur more commonly in stallions, where they often occur in cryptorchid testes, but have been described in the dog, cat, bull, boar and mouse. Teratomas of the ovary have been described in most domestic animals, but are most common in the bitch. Extragonadal teratomas have been reported in the kidney of a llama, the adrenal glands of ferrets and the placenta of a mare.

Reference: 1. Maclachlan N.J. and Kennedy P.C.. Tumours of the Genital System in: Meuten D.J. Tumours of Domestic Animals, 2002, Iowa State Press

2. Jagdish et al. Renal teratoma in a llama. Canadian Veterinary Journal, 2004, November 45(11):938 – 940

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### JOURNAL Reviews(with e-links)

**1. PROGNOSTIC FACTORS ASSOCIATED WITH SURVIVAL 2 YEARS AFTER SURGERY IN DOGS WITH MALIGNANT MAMMARY TUMOURS.** Chang SC, Chang CC, Chang TJ, Wong ML. JAVMA (2005), 227, 1625-16294. [Link](#) Trevor Whitbread BSc. BVSc. MRCVS DipECVP

Mammary carcinomas are the most common malignant tumours of female dogs, and have been very well recognised for decades. During this period of time there has been a steady stream of papers concerning prognostic factors in mammary tumours but this is testament to the fact that the prognosis of these tumours when they occur is often uncertain. The following are notes on the prognostic significance of various factors in the dogs in this study.

1. Stage of the tumour was a significant prognostic indicator. Using the WHO staging system, dogs with tumours of stage 1, 2 or 3 were almost all alive 6 months after surgery, whereas median survival times for stages 4 and 5 was 6 months after surgery.
2. Age was not considered in this study to be a significant factor.
3. Surgical technique was not a significant prognostic factor.
4. Overall the time tumours were present prior to treatment was not important to overall prognosis, however dogs with tumours longer than 6 months before treatment had a very significant increase in the likelihood of lymph node metastasis. It is therefore suggested that 6 months might be the critical time for malignant mammary tumours to metastasise.
5. Size matters. Tumours over 5cm in maximum diameter had a very significant increase in lymph node metastasis.
6. Dogs that had undergone ovariectomy were more likely to have survived 2 years after surgery and was particularly beneficial in dogs with complex carcinomas rather than simple carcinoma.

The conclusion is that tumour stage, tumour size and ovariectomy status were significant prognostic factors associated with survival 2 years after surgery in dogs of malignant mammary tumours.

**2. DIFFERENTIATING BENIGN AND MALIGNANT CAUSES OF LYMPHOCYTOSIS IN FELINE BONE MARROW.** Weiss DJ. J Vet Intern Med (2005);19:855-859 [Link](#) Judith Hargreaves MVB MRCVS MRCPPath

In this study, approximately 6% of bone marrow submissions showed an increased number of small lymphocytes and it can be very difficult to differentiate benign from malignant causes. Cats with chronic lymphocytic leukaemia tend to be older with lymphocytes that are slightly larger, often with cleaved or lobulated nuclei. Chronic lymphocytic leukaemia and thymoma gave a diffuse distribution of lymphocytes which were predominantly T-cells.

Immune-mediated anaemias and inflammatory diseases were associated with reactive lymphocytosis and the cells were often organised into aggregates and predominantly B-cells.

**3. ASSOCIATION BETWEEN OVARIHYSTERECTOMY AND FELINE MAMMARY CARCINOMAS.** Overley B, Shofer FS, Goldschmidt MH, Sherer D, Sorenmo KU. J Vet Intern Med. 2005 Jul-Aug;19(4):560-3. [Link](#) Trevor Whitbread BSc. BVSc. MRCVS DipECVP

3. Williams B.H. . Adrenal Teratoma in Four domestic Ferrets, Veterinary Pathology 38, 328-331(2001)

4. Gurfield et al. Equine Placental Teratoma, Veterinary Pathology 40, 586-588 (2003)

There has been much discussion and debate over the years on incidence of mammary tumours in the bitch and their association with age at ovariohysterectomy and influence of hormones. There has not been a similar debate concerning development of mammary carcinoma in the cat. A recent paper in JVIM has shown that cats spayed prior to 6 months of age had a 91% reduction in the risk of mammary carcinoma compared with intact cats and those spayed prior to 1 year had an 86% reduction. Parity did not affect feline mammary carcinoma development and there were too few cats that had progestagen exposure in the survey to determine any association.

## LATEST NEWS

Is Canine Influenza a threat in the UK?

Canine influenza virus causes clinical disease that mimics kennel cough. As a result, infection with the virus is frequently mistaken for infections caused by the Bordetella bronchiseptica/parainfluenza virus complex. Clinical disease may be mild or severe.

In the mild form, the most common clinical sign is a soft, moist cough that persists for 10 to 30 days. Many dogs have a purulent nasal discharge and a low-grade fever. The nasal discharge is usually caused by secondary bacterial infections.

Some dogs are more severely affected with clinical signs of pneumonia, such as a high-grade fever (104°F to 106°F) and increased respiratory rate and effort. Pneumonia is often precipitated or complicated by a secondary bacterial infection.

Morbidity associated with canine influenza is estimated at 80%; mortality in confirmed cases to date has ranged from 5 to 8%.

Workers at the AHT in the UK undertook a retrospective analysis of an outbreak of unexplained respiratory disease in foxhounds in Essex UK, in September 2002. Antibodies to H3N8 virus were found in serum samples from hounds that recovered from infection during the 2002 outbreak. There are no current reports of similar outbreaks of fatal respiratory disease as reported in the USA. UK data suggests that equine influenza is not currently circulating in the UK pet dog population. It is not known whether the outbreak in the UK was introduced from the USA or whether this represents a separate / novel introduction of virus from horses to dogs. As dog-to-dog transmission has been established to occur in the USA, there is a possibility that the virus could now be introduced into the UK with influenza-infected dogs entering the UK under the Pet Passport Scheme.

## SIDE STORY

### Sugar Substitute May Be Dangerous to Dogs?

While veterinarians have suspected that the sugar substitute xylitol can make dogs sick, there is now further clinical evidence of an association between the product and possible liver failure in dogs.

A clinical report appearing in the Oct. Journal of the American Veterinary Medical Association (JAVMA) discusses the sometimes fatal conditions developed by dogs that have ingested xylitol.

Xylitol, a sweetener found in many sugar-free chewing gums, sweets, baked goods and toothpastes, is a naturally occurring ingredient that may have far-reaching negative health effects on dogs.

[Clinical report link \(not free\):](#)

## OUR DETAILS

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Where we are: [Multimap Link](#)

## BIOPSY TIPS - Sample Submission

submission of post mortem samples and biopsy samples from animals should be fixed in 10 times the volume of formalin. This is not always possible when sending in the post. Here are some tips:

- If the sample is large, multiple cross cuts can be made into the tissue (not full thickness) to aid more rapid formalin fixation.
- If the biopsy is not "urgent" the sample can be left in formalin for 5 days or so within the practice and then sent via rapid post in double sealed, waterproof and padded packaging, without formalin temporarily.
- if the sample has to be cut into pieces tissue markers can be used first to mark the surgical margin. Indian ink (not plain writing ink) is a cheap method but commercial tissue marking fluids are available.

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