

DEXTER'S bladder problems



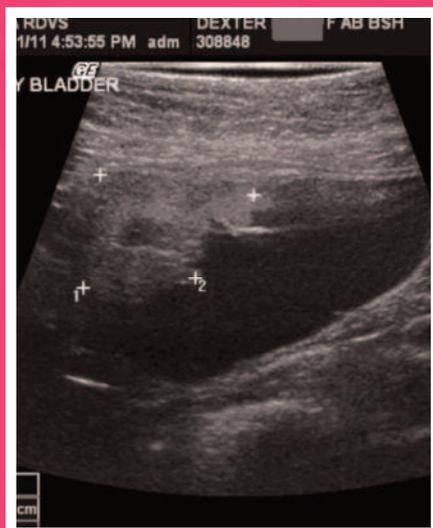
FAB's newest feline resident, Stephanie Lalor, who is based in Edinburgh, reports on a case with a happy outcome.

DEXTER presented to the Royal (Dick) School of Veterinary Studies for further investigation of blood in his urine and chronic urinary tract infections. Dexter is a 10-year-old male neutered British Shorthair, with a long history of arthritis, predominately affecting his elbow joints, for which he receives daily anti-inflammatory and pain relief therapy.

Six months before he came to the vet school he developed vomiting and was also diagnosed with an *E coli* urinary tract infection, and an enlarged kidney. A hypoallergenic diet resolved the vomiting. Dexter had been receiving repeat long-acting antibiotic injections every two weeks for a total of four months for the infection. He remained well in himself during this time, and did not show any signs of discomfort when urinating, but continued to produce bloody urine. He was referred to Stephanie.

Stephanie and her colleagues performed abdominal ultrasound which revealed the presence of a large mass in the bladder. In cats, this presentation is most likely to be caused by a particularly aggressive tumour called a transitional cell carcinoma. However, because of Dexter's long-standing history of chronic urinary tract infections, severe inflammation was also a possibility as it can result in similar signs. In order to try and distinguish between the two conditions, a piece of the mass was obtained by passing a urinary catheter into the bladder and, guided by ultrasound, taking a small sample. At the same time, a sample of the urine was obtained from the bladder.

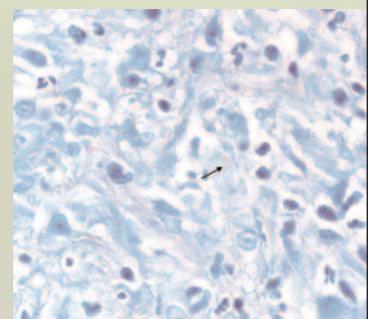
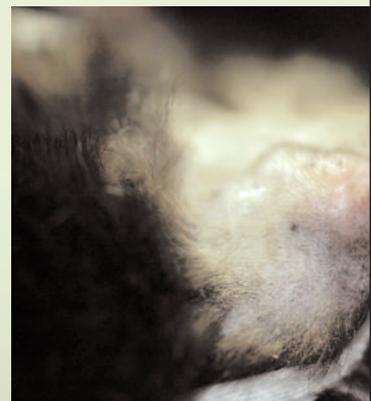
ABOVE
A relaxed Dexter
BELOW
Picture of the
ultrasound
showing the large
mass in the
bladder



The analysis of the cells in the mass was consistent with a massive inflammatory response and there was no evidence of tumour. The urinalysis confirmed persistence of the *E coli* urinary tract infection. Further tests were performed to detect which antibiotics this bacteria was sensitive to. It was found to be resistant to the most commonly used drugs, probably because of the previous long term antibiotic therapy. However, the bacteria were sensitive to a different type of drug called trimethoprim-sulphonamide (which is a human drug) and so Dexter was started on this. He is monitored closely while on this drug as it can cause side effects such as excess salivation and kidney damage. He continued on the anti-inflammatory medication, as before, to decrease the inflammatory response in the bladder.

Dexter is doing well and as long as the antibiotics remain effective and he does not develop too many side effects, then the inflammation in his bladder should decrease over time.

An unusual case reported recently in the *Journal of Feline Medicine and Surgery*.



Top picture:
Prunelle under anaesthesia ready for the biopsy to be taken. Her chin has been shaved to expose the nodule
Bottom picture:
Tissue sample treated with a Ziehl-Neelsen stain, which has highlighted acid-fast bacilli (arrow)

PRUNELLE'S encounter with tuberculosis

TUBERCULOSIS (TB) is a potentially life-threatening disease that can be difficult to treat and often recurs. It can be caused by a number of closely related bacteria known as *Mycobacterium* species. In the developed world, tuberculosis in cats is fairly unusual. A recent report in the *Journal of Feline Medicine and Surgery* discussed the successful treatment of a rare case of tuberculosis in a Swiss cat caused by *Mycobacterium microti* (*M microti*).

Prunelle's long road to recovery

Prunelle was about six years old when she was adopted in May 2006. Her owners noticed a lump on her chin and a swollen area under the jaw and took her to see the vet. Prunelle appeared well otherwise and was eating normally. The vet found that the lymph nodes in her neck were swollen, suggesting an infection. Although the mass of soft tissue on Prunelle's chin extended into her mouth, skull radiographs showed it did not extend into the bone. The lump was biopsied under anaesthesia and examined. Staining of the tissue sample revealed the presence of rare acid-fast bacilli (pictured below left) suggesting a mycobacterial infection. Following four months of antibiotic treatment with doxycycline and enrofloxacin, the mass disappeared and the swollen lymph nodes returned to normal. Therapy with both antibiotics was continued for a further month to try and prevent recurrence.

A year later, a lump reappeared on the jaw and was removed by surgery. A biopsy did not reveal acid-fast bacilli this time, so no antibiotics were given.

A few months after this, Prunelle's lymph nodes again became enlarged and three or four firm swellings appeared in the jaw region. Five months of antibiotic therapy failed to produce any improvement. The mass and enlarged lymph node were biopsied for a third time (top left picture). Again, radiographs revealed no abnormalities and rare acid-fast bacilli were identified in stained tissue samples. Routine laboratory cultures failed to grow any bacteria. In August 2008, biopsies were collected from the chin nodule and the enlarged lymph node, and sent to the Institute for Infectious Diseases, Bern, Switzerland, for specialist mycobacterial culture and identification. In the meantime, Prunelle was put back on doxycycline and enrofloxacin treatment. When no response was seen after six weeks of treatment, clarithromycin was added to her drug therapy.

One week after this, *M microti* was identified in the samples sent away for identification. Doxycycline and enrofloxacin were then stopped, clarithromycin was continued, and marbofloxacin and rifampicin were added to the treatment. Two hours after this treatment began, Prunelle's skin became itchy and red. An adverse drug reaction to rifampicin was suspected and the drug was withdrawn. After two weeks on the new treatment, the skin nodules started to decrease in size. After six weeks, the nodules had disappeared and lymph nodes were completely normal. The antibiotics were continued for another four-and-a-half months. Prunelle (pictured right) has now been off medication for more than a year with no recurrence.

Sources and signs of infection

M microti is transmitted to cats via direct contact with wild rodents and other small mammals. Most cats with *M microti* infection develop lumps and non-healing ulcers on the face and legs, areas

most likely to be bitten when playing with prey (so-called 'fight and bite sites'). Sometimes swollen lymph nodes, seen most easily under the jaw, may be the only sign of infection.

With tuberculosis in general, the clinical signs usually relate to the route of infection. Disease affecting the alimentary tract typically results from eating infectious material; disease affecting the respiratory tract typically results from inhalation of infectious material; and disease localised to the skin most commonly results from skin injury. Most cases of tuberculosis in cats occur in the skin.

Tuberculosis infections can spread locally to muscle and bone or via the blood spread to other parts of the body. The success of treatment depends on the extent and severity of the mycobacterial infection.

Can people catch TB from cats?

While all species of *Mycobacterium* can potentially infect people, causing tuberculosis, there are no reports of cats passing *M microti* on to humans. Tuberculosis in people is usually caused by *Mycobacterium tuberculosis* (90 % of cases) which is rarely found in cats; cats seem to be naturally resistant to this. *Mycobacterium bovis* accounts for about half of all cases of tuberculosis in cats and only 1 % of all cases of human tuberculosis.

REFERENCE

Rüfenacht S, Bögli-Stuber K, Bodmer T, Bornand Jaunin VF, Gonin Jmaa DC, Gunn-Moore DA. *Mycobacterium microti* infection in the cat: a case report, literature review and recent clinical experience. *Journal of Feline Medicine and Surgery* 2011; 13: 195–204.

