



Dental radiography digital is coming!

By Hans Andersen



Image 1. Fractured teeth like this are common, occurring in about 10% of dogs. Though they may show no outward signs of pain, most of these dogs are found to have tooth root abscesses when X-rayed. Many are a lot more playful after the affected tooth is removed, suggesting pain was a problem.

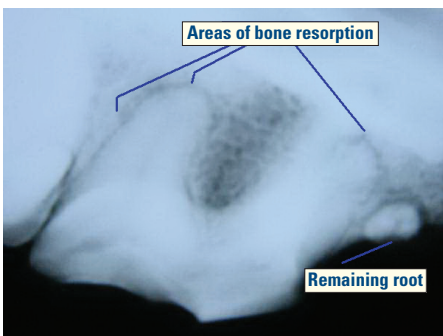


Image 2: The X-ray of the same tooth shows areas where bone is reabsorbed and replaced by pus. This shows that the tooth root is infected and the tooth needs to be extracted"



Image 3: The red mark on the tooth is tooth pulp bulging to the surface. It is highly sensitive to touch. Most often seen on the gumline, but other lesions can remain hidden below the gums if X-rays are not taken.

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We are all familiar with dental radiographs or X-rays from our visits to the dentist. We know how they can reveal important changes in our teeth and gums. They allow the dentist to choose the best treatments so that we can keep our mouth healthy and keep our teeth for as long as possible.

So are they used in cats and dogs? Well, yes they are, but just not nearly as often as they should be. There are a number of good reasons for this. Unlike us, cats and dogs need to be given a general anaesthetic before dental X-rays can be taken. Vets usually use the X-ray machine that they use for taking all other X-rays. However these aren't nearly as mobile and flexible to use as dental X-ray units.

Cat and dog mouths also come in a very wide array of sizes and shapes. This makes positioning of film in the mouth at the correct angle to the X-ray head technically challenging when the X-ray head has very restricted movement.

The small dental films are also trickier to process through systems designed for the much larger films used for the rest of the body. And finally the delay in getting all the films taken and processed, anything from 15-45 minutes, prolongs the duration of the anaesthetic. This is especially a problem when dental treatment can't be started until the extent of the problems is understood.

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Digital X-rays offer three big advantages over conventional film. First, they are very fast. The image can be viewed on a computer screen within five seconds of taking the picture. This avoids the substantial delays that typically occur using film.

This also leads to the second benefit of digital technology - any error in positioning can be seen immediately and the angle of the sensor, which has remained in the mouth, can be adjusted to capture the required image. Positional errors could sometimes be tricky to resolve when film had to be taken out from the mouth and then replaced in a

slightly different way 10 minutes later after the image had been developed and found faulty.

Finally, digital imaging allows an amazing degree of image manipulation so that much more diagnostic information can be gained from an image. It truly is a quantum leap forward.

So what dental conditions benefit from the diagnostic power of X-rays? Periodontal disease is the most common problem that we see in veterinary practice. This is disease of the tooth and gum attachments, and surveys have shown that between 70-80% of cats and dogs have some form of periodontal disease by the age of two!

In the early stages of periodontal disease, just the gums are inflamed - red, sore, and causing bad breath. Then the bony sockets around the teeth start to be reabsorbed. It is these bony changes

affected tooth is removed, suggesting that they have been suffering in silence. Dental X-rays are the key to diagnosing tooth root abscesses.

Cats commonly get a very strange problem in their teeth in which the teeth dissolve from the inside out. There is nothing like it in humans, thankfully! This condition is described as feline odontoclastic resorptive lesions - FORLS for short. The lesions most commonly start below the gum line, so they can't be seen without an X-ray, see image 3. **These teeth are painful and need to be extracted.** A cat which has one will frequently have others, and clearly it is best to find that out with an X-ray while the cat is still asleep, so that all affected teeth can be extracted.

Extractions are often performed in cats and dogs because of severe periodontal disease, tooth fractures, tooth root abscesses or FORLS. The mandible or lower jaw of cats and smaller dogs is quite delicate and the bone around a tooth root abscess can be quite weakened. X-rays before extraction can prevent a fractured jaw, as well as identifying other unrecognised problems.

X-rays are also worthwhile after extractions, especially where the complicated premolar and molar teeth are involved. These powerful teeth have three roots and are difficult to extract, even after sectioning into three pieces and burring away some of the bony socket. It is easy to fracture a root and leave a small portion behind. If missed these will often be the focus of a lingering abscess.

Cancer of the mouth and jaw is perhaps one of the most common reasons that vets in New Zealand currently perform dental X-rays. This aids both diagnosis and in planning what surgical treatment is best. The increased soft tissue detail that is available with digital radiography makes it even more useful.

The past decade has seen the extension of digital photography into nearly every household and every phone! Perhaps this next decade will see digital radiography, and particularly digital dental radiography, in nearly every veterinary practice. Such developments are very exciting, and allow us to continue improving our 'wellness medicine' for pets of all shapes and sizes. Your pets will benefit too.

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that X-rays are so helpful in identifying. This helps us make decisions about which teeth need to be extracted, and what therapies are likely to work.

Endodontic disease occurs where the tooth pulp has been infected. This happens quite commonly in cats and dogs after part of a tooth has been fractured to expose tooth pulp, the blood and nerve supply to the tooth.

You and I would promptly seek dental attention if this happened to us! But most cats and dogs with endodontic disease and the associated tooth root abscesses show no outward signs. However many do recover a great zest for life when the