

Feline Patellar Fractures

As we all do, I have changed the way I treat certain conditions as time has passed. Some changes have come from published data, some from my experience, and some from the experience of colleagues. Occasionally, I have drawn on all three, as in the treatment of feline patella fractures.

Patella fractures in cats can be traumatic or non-traumatic. I am writing this summary primarily to discuss the non-traumatic type, but will touch on traumatic ones as well. The non-traumatic type was first described in 2004. It is this type that is now treated very differently.

Non-traumatic patella fracture cats are typically young (10 weeks-3 years). Non-traumatic fractures are likely caused by an underlying pathology. They have a history of minimal trauma or no trauma at all, with no other new stifle injuries. Older reports suggest *osteochondrosis* as a pathogenesis, but newer ones point to abnormal production of type I collagen called *osteogenesis imperfecta* (OI), resulting in formation of fragile bone, more prone to fracture. Due to the high stress load on patellas, patella fracture is a common manifestation of OI. Another manifestation OI in cats is abnormal dentition, giving the condition the colloquial name *feline teeth and knee syndrome*. OI cats have a high proportion of retained deciduous teeth and can have a deformed mandible or other oral abnormalities. They may also have a history of other pathological fractures, although these fractures do not typically occur at the same time as the patella fracture, and may be anywhere in the body.

More than 50% of cats with OI related patella fracture either have bilateral fractures at diagnosis or will fracture the contralateral patella within 3 months. The fracture is in the proximal 1/3 of the patella and relatively transverse. Definitive diagnosis of OI is difficult, even with histopathology, and therefore the diagnosis is usually presumptive.

In contrast to OI cats, traumatic fractures of the patella in cats are caused by blunt or sharp trauma focused on the cranial aspect of the stifle. They usually are diagnosed in conjunction with other injuries to the region, including cranial cruciate rupture, femoral fractures, or tibial fractures. Any signalment is possible, but free-roaming castrated males are predisposed. Traumatic patella fractures are unilateral, and may be of any fracture orientation.

We used to recommend surgery for virtually all patella fractures in cats. A variety of approaches have been described, including fragment removal (the general rule was if the largest fragment was more than 2/3 the patella, the remaining

fragment or fragments were removed), pin and figure 8 wire fixation, encircling wire fixation, patellar-tibial wire placement, or a combination of these. Some degree of stifle immobilization was usually incorporated, such as splinting or transarticular fixator.

Fixation of these fractures has an extremely high complication rate. The image I included with this article shows a non-union of a patella fracture repair. In one recent report, 86% of surgical fixations failed. (To me, this is mind-boggling!) In many cases, conservative management is more successful than surgery. Surgery and conservative management should be considered for all cats with patella fractures, and especially this where pathology is strongly suspected, conservative management is preferred. To say it another way, and a bit more bluntly, I have to be talked into operating these guys. In my eyes, an obviously traumatic, very displaced fracture with a very well-educated and dedicated owner is the only clear case for surgery.

So, next time you diagnose a patella fracture in a cat, consider OI as an underlying cause. Find out as much as you can about the circumstances surrounding the fracture's occurrence. Look closely at the cat's mouth, and look for other fractures, including the contralateral patella. These factors can help you and me decide whether to intervene surgically.

Scott P. Hammel, DVM, MS
Diplomate ACVS
Veterinary Surgical Specialists