

## Fracture repair (treating a broken bone)

Your vet has arranged for me to see your pet to treat a broken bone, or “fracture”.

Fractures are usually sustained in some kind of accident. Common causes of fractures are collisions with vehicles, falls from a height or falls when running/playing. It is very important that any other injuries to your pet are treated before we consider surgery to treat the fracture. Your pet needs to be as fit as possible for an anaesthetic for the operation, and we also want to be as sure as we can that another life-threatening problem is not going to show itself after an operation to treat a broken bone. Nevertheless, there are rare situations where even as much as a week or more after an accident, other internal injuries may become apparent, and you should continue monitoring your pet very closely at home as they recover from this operation and speak to your vet immediately if you are concerned about their progress/recovery.

Most fractures in dogs and cats are treated with an operation by stabilising the bone with some kind of metal implants. As you will be aware, many fractures in people are treated by a cast or immobilisation, however, in dogs and cats this does not often work well. Dogs and cats cannot be told to stay still, and the forelimbs (arms) need to bear weight just like the hindlimbs. Bandages and casts usually result in many problems including rubs and sores, loss of muscle and joint stiffness. Bandages are also inconvenient as they often slip or get wet/dirty and need to be replaced frequently.

When deciding the best kind of implant to treat a fracture, we have to consider many different factors about your pet, including their age, body condition, activity level and any medical problems they have. We also consider whether there are injuries to other legs. All of this information will give us an idea of how strong the repair needs to be. You might think that stronger is always better but making a repair stronger involves more metalwork and potentially a longer and more expensive operation. We want to select the repair that is strong enough to treat the problem without over-doing it.

### Options for implants

- 1. Plates and screws** Our first preferred option is usually to repair a bone with a plate (a piece of metal with holes in it a bit like Meccano) secured to the bone with screws. The advantage of this is that everything is under the skin and the plate and screws can normally stay in for life (except sometimes in very young animals).
- 2. External frame with pins** An “external fixator” is a very good way to stabilise a fracture, but has the disadvantage of there being metalwork on the outside of the leg which can get caught on things. There are also pins going through the skin into the bone and these small wounds can be at risk of infection. We are more likely to use an external fixator if there are serious wounds or infection associated with a fracture.
- 3. Pins and wire** These may be used to repair specific kinds of fracture (e.g. those near a joint or caused by a piece of bone being pulled off “avulsion”). They can also be added in to other repairs to give additional stability.

**Fracture healing**

However strong the repair is, the metalwork will eventually loosen or fail if the bone doesn't heal. Failure of healing may occur because of damage to the blood supply to the bone, or because of ongoing instability at the fracture site which may be due to a problem with the implants or excessive activity/exercise during recovery. Failure of fracture healing (non-union) may mean the need for further surgery.

Most fractures are well on the way to being healed in 6 weeks, although some more serious fractures may take 10-12 weeks. In young animals, healing may be complete in as little as 3-4 weeks. We will nearly always recommend x-rays to check the progress of healing, and you should not increase your pet's activity until we have seen these x-rays and advised your practice how we feel healing is progressing.

**The Operation**

Your practice will make arrangements with you to drop your pet off on the day of the surgery. Please don't give breakfast on the morning of the procedure. If they are receiving pain relief, they can have their pain relief the night before the operation, but if you normally give it in the morning then please don't give it on the day. Please let the nurse/vet admitting your pet know when they last had pain relief, and also if you will need a further supply of any medication. I will probably not meet you in person on the day of the procedure, but I will speak to you by phone if possible. If you have any questions based on the information in this sheet, then please feel free to ask me then.

Your pet will be mildly sedated to minimise stress, and then anaesthetised. We may need some further x-rays prior to surgery to make measurements. Your pet's leg will be prepared for surgery. The leg will be shaved widely to give us a large clean zone to minimise the risk of infection.

We start by carefully exposing the broken bone ("the approach") whilst trying to minimise damage to the soft tissues and preserve as much of the blood supply as possible. We then aim to "reduce" the fracture (bring the pieces back into position), and then apply the implants to stabilise it. Sometimes, if there are many small pieces of bone, we may simply aim to stabilise the top and bottom parts of the bone, ensuring that they are aligned whilst leaving the rest relatively undisturbed. The wound is then closed with stitches, and we will take some x-rays to evaluate the repair. Occasionally if we detect a problem, we may need to return to the operating theatre to adjust the position of the implants.

Your practice will arrange the post-operative care with you. Depending on your practice's arrangements for out-of-hours provision, it may be necessary for your pet to be transferred to another centre to continue their recovery.

## **EXERCISE & RECOVERY**

Before surgery, please obtain a crate or cage for your dog to be confined to. This should be about twice the size they need to lie down comfortably. It is sensible to familiarise your dog with the crate before surgery and you can help them feel settled inside by adding some of your worn clothing so the crate contains familiar smells. It is also beneficial to wash and clean all of their bedding that they will use so that this provides a cleaner environment for recovery after surgery.

Your dog will be strictly rested for the first 6 weeks after surgery, and it is very important that you enforce this at all times. They should be restricted within the cage when you are not with them or actively in control of them, and they should be kept on a short lead at all times when they are out of the cage. It is very important that they are not allowed to jump up on the furniture, play with other dogs, run around off the lead or go up/down any stairs.

A sling/towel under the abdomen can be used to aid mobility in the first few days after surgery, if required. This is more important for larger dogs or those who have problems with additional legs.

For the first 4 weeks after surgery your pet should only go out on a short lead for toileting to the garden 3-4 times per day for no more than 5-10 minutes. During weeks 5 & 6 after surgery they can start light exercise again and can be taken for two 10 minute walks a day always on a short lead. You should walk slowly to encourage them to use the leg as much as possible. Allowing too much exercise too soon during recovery is one of the most common causes of problems with the recovery from this surgery.

Physiotherapy is an excellent way to get the best possible recovery after orthopaedic surgery. We will provide some initial physiotherapy guidance after surgery, and your vet will be able to advise further on this, but I would also thoroughly recommend seeing a veterinary physiotherapist to help with rehabilitation.

It is important that your pet is not allowed to lick or interfere with their surgical wound until it has healed – please use a buster collar to prevent this if required. Licking, or handling, of the surgical area before the surgery wound is healed is the most likely way of introducing post-operative infection.

Your vet will arrange for your pet to have follow-up x-rays taken to assess healing of the surgery – this is normally performed about 6 weeks after the original procedure. We will assess these x-rays and provide further instructions at this time. In most instances, we hope for pets to be able to end crate restriction in the house after this time, although still being prevented from jumping/climbing/etc., and to be able to have their lead exercise gradually increased with the aim of being back at normal levels of lead exercise by 12 weeks after surgery.

## **Risks of Surgery**

Fracture repair does carry some risks that you should be aware of:

1. Infection – Infection is a small risk of all surgery. We will take all the same precautions to avoid infection as I would take if I were performing the surgery at a specialist hospital (drapes, gowns, gloves etc). Your pet will receive antibiotics during surgery and will also have a short course of antibiotics after surgery. You should monitor the wound after surgery for any excessive redness, swelling or discharge. If an infection does develop it will generally resolve with further medical treatment. The risk of infection is greater where there was an injury to the skin associated with the fracture (“open” or “compound” fracture).
2. Non-union – As explained above, the goal of surgery is to position the pieces of bone and stabilise them with implants. We rely on the body’s own processes to heal the bone, and if this doesn’t happen, the metalwork will fail eventually, which may result in the need for further surgery.
3. Fracture disease - sometimes after a fracture there is serious loss of strength and flexibility of the limb caused by scar tissue and poor usage of the leg. Physiotherapy can be helpful in combatting this and you should certainly consider taking your pet for physiotherapy after surgery for a fracture. Your practice should be able to help you find a suitable person to see.

There is a small risk associated with a general anaesthetic. Your vet may discuss with you whether you would like your pet to have a blood test prior to surgery to ensure that there are no underlying health problems or injuries that we were unaware of.

Thank you for entrusting the care of your pet to us, and I look forward to speaking to you on the day of the procedure.

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