

Cranial Closing Wedge Osteotomy

The Procedure

The cranial and caudal cruciate ligaments are located within the stifle (knee) joint. They are arranged in a cross formation, hence the name “cruciate” ligament. The function of these ligaments is to help to control the movement of the femur (thigh bone) with respect to the tibia (shin bone). When either of the cruciate ligaments are completely ruptured, the stifle becomes unstable as the femur moves with respect to the tibia. The surface of the tibia (tibial plateau) is at an angle such that it creates a “downhill slope” for the femur to move on as an animal weight bears. When the cranial cruciate ligament is intact, the femur does not slide down this slope. When the cranial cruciate ligament is ruptured, it does which creates a mechanical lameness (as the animal is no longer able to weight bear properly) but it also causes pain due to the movement and associated inflammation. Longer term, this leads to degenerative joint changes associated with arthritis.



The initial part of the surgery involves checking inside the joint to see how much of the cruciate ligament is ruptured (with removal of any torn fragments), as well as checking the meniscus – a section of cartilage on the surface of the tibia that acts as a stabiliser for the joint, as well as a shock absorber pad. Once this has been done, we will progress on to the Cranial Closing Wedge Osteotomy. The aim of this surgery is to reduce the tibial plateau angle to approximately 6 degrees, effectively flattening the weight bearing surface of the tibia preventing the tibia from moving forwards when the dog bears weight.

Immediately Post operatively:

Surgical Site - This will need to be protected from interference from your pet to minimise complications. This means that a buster collar will need to be worn for the duration of time that the skin needs to heal (10 days). It can be removed for your pet to eat or drink if they struggle with it on, but it must be replaced at all other times.

We recommend cold and warm compress from a pain relieving and healing perspective:

- 3 days cold compress – a cold pack wrapped in a thin towel to protect the skin, to be applied over the surgical site for 10 minutes three times a day, for 3 days.
- 3 days warm compress – a warm pack wrapped in a thin towel to protect the skin, to be applied over the surgical site for 10 minutes three times a day, for 3 days.

Medication - This will be detailed on a separate post operative discharge sheet but will involve:

- 5 day course of antibiotics.
- Non Steroidal Anti-inflammatories (NSAID) for 2-4 weeks.
- Paracetamol for approximately 5 days.
- Gabapentin may also be dispensed.

Post operative checks 3 days post operatively to check the surgical site and 10 days post operatively to check the surgical site, and remove skin sutures if present.

Exercise - STRICT rest – generally this means crate rest if possible, but we realise this is not possible for some of our larger patients. It is essential that strict rest entails nothing more than being in a restricted space (that allows for a soft flat bed plus food bowls), with toileting on the lead only in the garden. It is important that there is:

- No interaction/play with other pets
- No off the lead exercise in the garden as this can allow for sudden acceleration to chase something.
- No access to skiddy floors that can throw the patient off balance.
- No going on/off furniture
- No going up/down stairs.

A few steps up/down into the garden is fine as long as this is controlled or supported (using a sling or towel).

2-6 weeks post operatively:

Surgical site - This should be healed if there have been no complications.

Medication - This should have all stopped aside from possibly some NSAID.

Post operative checks – only necessary if there are any problems or issues – always contact your primary vet if you are concerned about anything, especially if your pet is suddenly lame when previously there has been good progress.

Exercise - Continuation of STRICT rest as detailed above. It should no longer be necessary to help your dog with a few steps into or out of the garden.

Physiotherapy and hydrotherapy can be considered at this point to help to maintain muscle mass and allow for controlled weight bearing and encourage healing. Please contact your practice to find your nearest centre.

6-8 weeks post operatively:

Radiographs will need to be taken at this point unless otherwise stated, to check for healing prior to exercise re-introduction.

Post operative expectations and potential complications

The aim of the surgery is to stabilise the stifle, get your pet back to exercising at the same level it was prior to the recent deterioration associated with their cruciate ligament injury, as well as reduce the rate of progression of degenerative joint disease (osteoarthritis).

As with all surgical procedures, complications can occur.

If the meniscus is normal at the time of surgery, approximately 5-10% dogs can go on to develop a late meniscal injury. If this was to occur, you would notice your dog suddenly going lame after making good progress. This lameness does not respond to anti-inflammatories and rest and we would need to perform a minor arthrotomy, to remove any torn fragments of the cartilage. This can occur any time from 6 weeks up to around 2 years after surgery.

Post operative infection can occur in around 3% cases. This normally just requires a course of antibiotics but on occasion, implants need to be removed.

A rare but significant complication that can occur is limb fracture.

Up to 80% of dogs have bilateral cruciate ligament disease. It is likely that if your dog is to have an issue with the contralateral limb, it will be seen within 18 months to 2 years of the initial side.

All patients who have a cruciate ligament injury will have the beginnings of degenerative joint changes at the time of surgery. As discussed, the aim of surgery is to reduce this progression. For some patients, degenerative changes can be moderate to advanced at the time of surgery and therefore joint supplementation, some lifestyle changes in terms of exercise and weight management, as well as intermittent use of anti-inflammatories may be required long term.