

Patella Luxation

The Procedure

The patella, known as the knee cap in human terminology, is a sesamoid bone that sits embedded in the tendon of the quadriceps muscle. The tendon of the quadriceps muscle inserts (attaches) to the front of the tibia (shin) as the patella tendon.

The patella sits on the surface of the bottom of the femur, within a groove known as the femoral trochlear or sulcus. As the stifle (knee) flexes and extends, the patella glides within this groove. In the normal stifle, the patella tracks within the femoral trochlear groove. It stays in this position during flexion and extension due to the depth of the sulcus and the height of the trochlear ridges either side, the directional pull of the quadriceps muscles, and the effective position of the insertion of the patella tendon on the tibia.



When the patella is not tracking in its normal position, this is known as patella luxation. It occurs when the patella moves from the sulcus to the inside (medial) or outside (lateral) aspect of the bottom of the femur. It can be uni- or bi-lateral.

There are a number of anatomical abnormalities that can occur that can affect the tracking of the patella:

- Abnormal angulation of the femur known as femoral varus or valgus.
- Reduced depth of the femoral sulcus or height of the femoral trochlear ridges.
- Position of insertion of the patella tendon which can be affected by angulation and torsion of the tibia causing the pull of the patella tendon to be too far to the inside or outside of the stifle.
- Position of the patella with respect to the femoral sulcus – if the patella is high in comparison to the femoral sulcus, known as patella alta.

There are a number of surgical options available to us depending on which anatomical issue is the cause of the patella luxation. These include:

1. Sulcoplasty or trochleoplasty – deepening the groove that the patella sits in.
2. Soft tissue techniques involving release and imbrication (tightening).

3. Tibial crest transposition – moving the insertion of the patella tendon to allow for the pull of the quadriceps muscle group to be centralised.
4. Osteotomy techniques – cutting and resetting of the femur or tibia to straighten or de-rotate the bone.

This information sheet will provide information for cases that require any combination of the top 3 procedures listed above.

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 remove skin sutures or check the surgical site, if there are no skin sutures 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 patella so that it tracks correctly in femoral trochlea allowing the limb to move normally, and to return your pet to the same level of exercise that they were doing prior to surgery. As with all surgical procedures, complications can occur.

Ongoing instability can occur in up to 5% of cases. Not all will require further 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.

Due to the position of some of the implants being on the front of the tibia (shin bone) where there is minimal soft tissue coverage, implants can on rare occasions cause irritation to soft tissues. This can require removal once the bone has healed.

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

Patients who have had patella luxation for a number of years may have significant cartilage erosion due to the continual rubbing of the patella over the medial trochlear ridge. This can cause secondary degenerative change which will continue to progress after surgery (although at a slower rate than if surgery was not performed). Long term joint supplementation, some lifestyle changes in terms of exercise and weight management, as well as intermittent use of anti-inflammatories may be required.

Due to the fact that the patella is one of the main stabilisers of the stifle, when the patella is not sitting in the correct location, additional strain can be placed on the cruciate ligament within the stifle. We do see patella luxation occurring either prior to or concurrently with cruciate ligament injury. Surgical options if this does occur, can be discussed at the time.