

Vet Surgery Services

Cranial Cruciate Ligament Disease

What is Cranial Cruciate Ligament Disease (CCLD)?

The cranial cruciate ligament (anterior cruciate ligament in humans) is one of two ligaments within the stifle ('knee') joint that connects the femur ('thigh bone') to the tibia ('shin bone') and controls movement (cranial drawer, rotation and extension) during weight bearing.

CCLD is very common dogs, particularly middle-aged larger breed dogs, some animals can be affected younger and smaller breed dogs tend to develop problems later in life.

CCLD is not a simple disease and occurs because of a number of reasons. The inherent anatomy of the dog places a large amount of strain on the ligament, genetics, obesity, activity levels and other factors all contribute. There is a progression from mild lameness and often a sudden onset of severe lameness.

In a lot of these dogs the sudden onset of severe lameness coincides with complete rupture of the ligament resulting in instability of the stifle and pain. CCLD is the most common cause of hind limb lameness in dogs so is frequently suspected.

How is CCLD diagnosed?

Diagnosis of CCLD is often straightforward but can sometimes be elusive. Demonstrating lack of function of the CCLD can be attempted by performing particular tests on the stifle joint (cranial drawer and tibial compression test), however, many dogs resent these conscious and muscles around the stifle help to stabilise it in the absence of the CCL. Repeating under sedation is frequently needed.

X-rays of the stifle are useful to document the presence of osteoarthritis and exclude other causes of pain and lameness. Often swelling within the stifle joint can be seen which is typical in dogs with CCLD. However, x-rays cannot visualise the CCL and definitive diagnosis is generally not possible with x-rays alone.

Definitive diagnosis is often achieved during surgery by directly examining the CCL.

Can other problems occur with CCLD?

Frequently small cartilage structures within the stifle – the menisci – will be damaged and contribute to lameness.

Some animals may have concurrent CCLD and medial patella luxation (where the kneecap is not sitting within its normal groove).

How is CCLD treated?

There are many treatment options for CCLD, with new techniques frequently being created. This is because no single option is perfect, and all have their limitations.

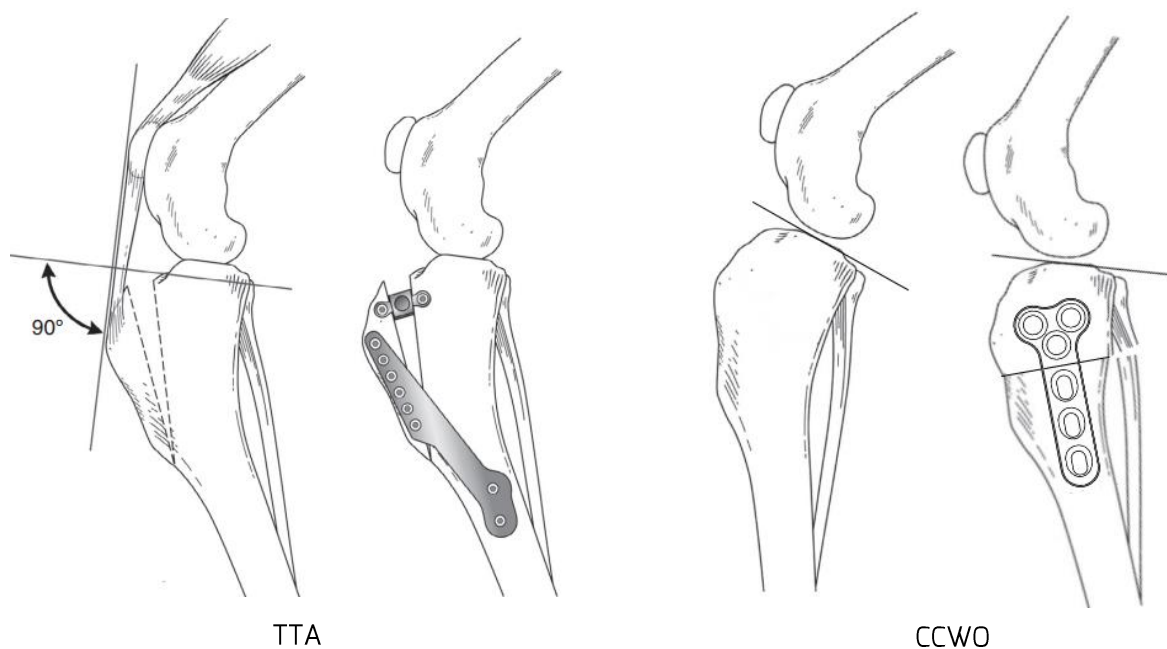
Treatment options are generally split into conservative (non-surgical), extracapsular (outside the joint capsule) and osteotomy (bone cutting).

Conservative management is most appropriate for small breed older dogs which have a leisurely lifestyle and may have prolonged healing after a surgical treatment. Conservative management consists of rest, weight control, anti-inflammatory painkillers and ideally physiotherapy with a certified animal physiotherapist.

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Extracapsular techniques, most commonly the lateral fabellotibial suture, aim to replicate the function of the ligament by placing an artificial material along its approximate course outside of the joint to mitigate the need for it. The strength of material is a limitation of this in larger animals, who will frequently break the material with time. Even in small animals the material will often stretch or break with time. This often allows time to rebuild muscles and fibrosis around the joint to provide stability long term to give a reasonable outcome.

Osteotomy techniques involve precise cuts of the top of the tibia and altering the angle of the joint surface or the angle between the joint surface and the patella tendon at the front of the joint in order to reduce the need for the cruciate ligament in the first place. A wide number of techniques exist for this – Tibial Tuberosity Advancement (TTA) and Cranial Closing Wedge Osteotomy are the options we provide. The choice is often made based on size (TTA is more difficult with smaller size) and other factors, such as the angle of the tibia before surgery.



What can I expect after surgery?

Activity needs to be strictly controlled whilst the incisions and bones heal. Typically, this will be on the lead only for 6-8 weeks followed by slow introduction to more normal activity.

Physiotherapy and hydrotherapy can be utilised to further improve recovery.

Animals with significant osteoarthritis may need ongoing management of this and all animals with CCLD are likely to develop this with time, which may necessitate management in the future.

What are the potential complications?

Complications relating to the surgical incision include wound breakdown and infection. Deeper infection such as in the stifle joint or around the metallic implant is a more serious problem. There is risk of implant failure, fracture or poor healing through the bone cuts. Damage to the menisci can also occur, often several months down the line; frequently repeat surgery is needed to improve these animals. Development of signs in the other leg is also extremely common, often changes will be apparent in both sides at the initial surgery.

Complications also include those related to the anaesthetic – severe reactions including death are extremely rare (0.1%) but sadly can occur.