

Elbow dysplasia

Elbow dysplasia is an inherited trait and commonly affects popular breeds such as Labradors, Golden Retrievers, Rottweilers and German Shepherds. Typically pups develop intermittent forelimb lameness that is worse after exercise or rest. Lameness starts between six and twelve months. Often there is improvement with oral anti-inflammatory medications and reduced activity.



Three separate problems can occur within the elbow while it is developing in a puppy - FCP, OCD and UAP. Fragmentation of the medial coronoid process of the ulna (FCP) is the most common problem and is shown in the diagram and pathology specimen. An osteochondral (bone & cartilage) fragment develops within the joint and causes pain by rubbing between the humerus and ulna.



How can owners overlook early problems ?

Many pups will have mild pain in both elbows and so it can be difficult to know if they have a problem as one limb is not favoured over the other.



Orthopaedic examination

A number of physical abnormalities can develop:

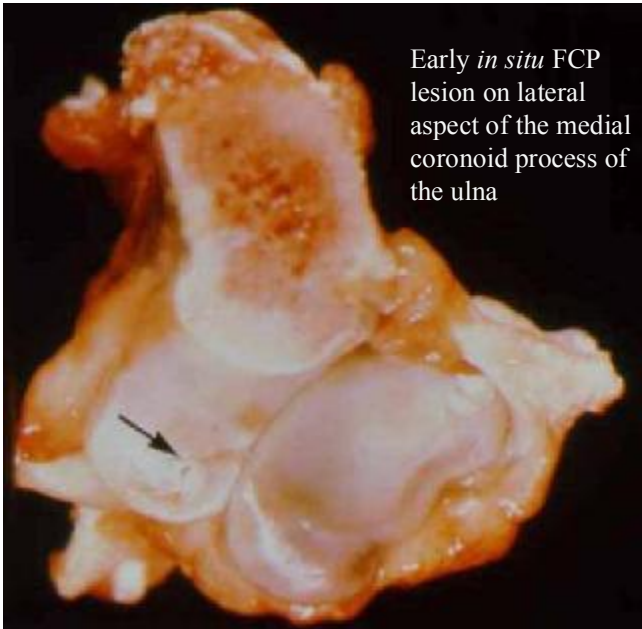
- 1) external limb rotation and elbow adduction
- 2) gait asymmetry with a classic 'head bob'
- 3) disuse muscle atrophy (supra & infraspinatus, triceps)
- 4) pain response during forced flexion and extension
- 5) loss of normal range of motion (ie. reduced flexion)
- 6) visual and palpable effusion (typically caudolaterally)
- 7) development of new bone (periarticular osteophytosis)

In most cases, a presumptive or tentative diagnosis can be made based on a history of progressive intermittent thoracic limb lameness in a predisposed breed between six and twelve months of age. It is important to perform a thorough orthopaedic examination to exclude other common causes of lameness such as shoulder pain. Veterinarians and clients need to be aware that in the early stages, radiographs (x-rays) will not show the FCP fragment and there will be no degenerative changes or osteoarthritis.



What is the cause of elbow dysplasia ?

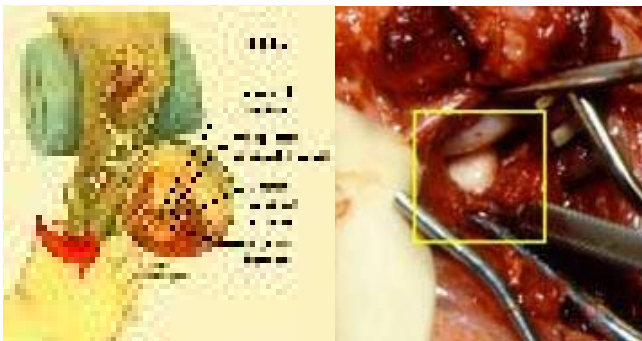
The cause is unknown but current research is suggestive of a step or incongruent joint during the growth phase of development leading to altered joint forces and mechanical overload of the coronoid process of the ulna. The higher surface breaks off and becomes a loose fragment inside the joint. The condition is highly heritable in dogs.



Do x-rays help to make a diagnosis ?
 The first step is well-positioned and exposed A-P and lateral elbow radiographs. OCD of the medial aspect of the humerus can be seen as a small concave defect. UAP is seen as a persistent physal line in GSDs over 20 weeks of age. FCP lesions can not be seen radiographically. CT examination is available but has the relative disadvantages of higher cost and does not offer concurrent treatment. Periosteal new bone is best seen on the caudal aspect of the anconeal process of the ulna and anterior aspect of the radial head and is suggestive of an FCP lesion.



Traditional open arthrotomy
 Keyhole surgery can be performed from a medial approach (inside of elbow) to explore the joint, identify loose fragments and retrieve them if present. Care should be taken to identify and preserve the median nerve immediately anterior to the approach, Instability can result if the medial collateral ligament is injured.



Arthroscopy

- Outpatient
- Low morbidity
- Reduced surgical time
- Single anaesthesia period
- Minimal convalescence

Elbow arthroscopy
 A 2.4mm rigid telescope is used. A second portal is created to allow introduction of an instrument. The image is magnified and seen clearly on a medical grade monitor.



What are the advantages of arthroscopy ?
 Sterile fluid is used to continually distend and irrigate joints maintaining a clear view of the articular structures. A fiberoptic cable is used to deliver illumination from a xenon light source. Magnification allows appreciation of more detail than during open surgery. This allows improved precision and less cartilage injury. Experienced surgeons are significantly faster performing arthroscopy compared to arthrotomy. Arthroscopy reduces pain and wound problems. Arthroscopy is well accepted by clients.



What is the success rate after surgery?
 A University study from Europe reporting postoperative results in 450 dogs revealed up to 90% of dogs improve (60%) or are normal (30%) after arthroscopic fragment removal. 70% of dogs improve after open joint surgery.