

## BASIC INFORMATION

### Description

Elbow incongruency is abnormal alignment of the three bones that make up the elbow (the humerus of the upper arm and the radius and ulna of the forearm). When these three bones develop correctly, the force that comes from walking is evenly transferred from the radius and ulna to the humerus. If elbow incongruency occurs, excessive weight is usually carried by the largest part of the ulna, the medial coronoid, which results in damage to the coronoid and subsequent pain and arthritis.

Rarely, the radius protrudes upward against the humerus, causing similar problems. Two distinct diseases, fragmented medial coronoid process (FMCP) disease and ununited anconeal process (UAP) disease, are thought to occur largely because of this incongruency, but other conditions can arise as well. Elbow incongruency can also occur as a result of growth disturbances in the ulna near the carpus (wrist).

### Causes

The cause is largely unknown, although with FMCP and UAP genetics play a role. Other contributing factors include breed of dog and nutrition. FMCP and UAP usually occur in young, growing, large- and giant-breed dogs, whereas other abnormalities occur in chondrodystrophoid breeds with short, curved bones, such as the dachshund, Pekinese, shih tzu, and basset hound. Ulnar growth disturbances can occur in any young, growing dog and usually result from some traumatic injury to the forearm.

### Clinical Signs

The most common clinical sign is lameness of varying degrees that typically is worse after rest and heavy exercise. The lameness often gets better with stretching and mild exercise. Loss of muscle mass (atrophy), joint swelling, and pain are also common. When growth disturbances of the ulna are seen, both the elbow and carpus may be involved. The most severe changes may be observed at the carpus and consist of rotation and angling of the paw.

### Diagnostic Tests

The diagnosis may be suspected following an orthopedic examination. X-rays confirm the diagnosis and further define the

extent of the abnormality. Arthroscopic examination of the joint (via insertion of a tiny fiberoptic viewing scope) allows further characterization of the disease, provides an avenue for treating FMCP, and assists in the surgical treatment of other elbow conditions. Laboratory tests are usually normal but are commonly recommended prior to anesthesia.

## TREATMENT AND FOLLOW-UP

### Treatment Options

Treatment options depend on the exact abnormalities present, and the best treatment is somewhat debated. FMCP can be treated via arthroscopic surgery, whereas other forms of elbow incongruency may require open surgery and cutting (osteotomy) the ulna below the elbow joint.

Elbow incongruency caused by growth abnormalities in the ulna is usually treated surgically, with correction of the abnormal angle in the bone at the carpus and cutting of the ulna just below the elbow at the same time. If the incongruency is severe or if severe degenerative arthritis is present in the elbow and is unresponsive to medical therapy, then arthrodesis (surgical fusion of the joint) or amputation may be indicated. (See the handouts on **Arthrodesis** and **Limb Amputation**.)

### Follow-up Care

Oral analgesics (pain-relief) medications are commonly given before and after surgery. If signs of inflammation (excessive redness, pain, swelling, or discharge) are observed at the incision, notify your veterinarian. Sutures or staples are commonly removed from the incision at 10-14 days after surgery.

The dog's progress is checked again in 4-6 weeks, depending on the exact cause of the elbow incongruency. If cuts were made in the bone, x-rays are taken to evaluate the healing process. All dogs are restricted to short leash walks as their only activity for at least 4-6 weeks or until such time as bone healing occurs.

### Prognosis

Prognosis is variable depending on the exact nature and cause of the incongruency. Prognosis is typically fair to good, but if severe incongruency or arthritis is present, prognosis is generally less favorable.