



Total Elbow Replacement

Joint replacement surgery for dogs has been available since the 1970's, however up until recently it has only been possible to replace the hip joint.

The main indication for total hip replacement (THR) in dog is osteoarthritis (usually as a consequence of hip dysplasia). Considerable research and development has gone into producing a total elbow replacement (TER) system in the last 5 years.

This work has been mainly done by Dr Mike Conzemius at the Iowa State University, in conjunction with Biomedtrix (the largest supplier of hip joint replacement implants for dogs).

Elbow replacement involves removal of diseased joint surfaces, which are then replaced with a cobalt chrome humeral component and a high-density polyethylene (plastic) radio-ulnar component thus giving the patient a synthetic weight loading surface. The implants are held in position with bone cement.

Before and After

The indications for elbow replacement are elbow osteoarthritis, chronic elbow luxation and fracture mal-unions. The elbow joint is technically a much more difficult joint to replace than the hip. The main reason for this is that there are three joint surfaces that come together in the elbow whereas there are only two in the hip. Additionally it is more difficult to reproduce the normal motion of the elbow than the hip. Surgically, adequate exposure of the elbow is more difficult than the hip, and surgical times are likely to be longer.

At present the reported complication rate for elbow replacement surgeries performed in the United States is around 25%, which is relatively high. Should complication occur following elbow replacement, arthodesis (fusion of the elbow) is the common salvage option. This will result in a functional limb, which is pain free, but the patients' gait will be significantly altered.

The selection criteria for TER in dogs, include:

1. A significant forelimb lameness as a result of elbow pain
2. A lameness that is poorly responsive to anti-inflammatory therapies
3. Absence of infection either within the joint or anywhere else (e.g. skin)
4. Absence of neurological disease
5. Absence of other serious orthopaedic conditions
6. A reasonably controllable dog
7. An understanding and acceptance by the owner of the potential complications of the surgery
8. An understanding and acceptance by the owner of the potential costs of the surgery and the complications thereof.
9. Realistic expectations with regard to improvement in function post-operatively.

The improvement in limb function following total elbow replacement is gradual and full recovery from the surgery is expected around 6 months post operatively. The main effect on the dogs' disability is to relieve the pain associated with the osteoarthritic changes in the elbow. The range of motion (the degree of flexion /extension) possible in the elbow is often around 40 degrees. Some lameness may persist as a result of altered joint biomechanics.

Elbow replacement in the dog is in its' infancy and there are likely to be a number of evolutions of the implant design and surgical equipment/technique in the years ahead. It is likely that the complication rate will reduce accordingly and it is anticipated that it should in time approach 10% (similar to that seen in the canine hip replacement surgery).

TER is an important addition to the currently limited options available for the treatment of canine elbow osteoarthritis, however it is not a panacea for all dogs with elbow osteoarthritis. In general, if conservative treatment modalities are working then these should be continued. The merits of each case need to be carefully assessed prior to a decision to proceed with TER. If you feel that your dog might be a suitable candidate for this surgery then we would be happy to arrange a consultation with you following a request for referral from your own veterinarian.

If you are concerned about the health of your pet you should contact your veterinary surgeon.

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