The Canine Unicompartmental Elbow (CUE) Arthroplasty System (Figs 1,2) is designed to provide a surgical treatment option for medial compartment disease (MCD) of the canine elbow (Fig 3). This common cause of lameness has no treatment options that consistently result in full-function outcomes with low morbidity and complication rates.

To date, 36 dogs have been enrolled in a limited clinical trial at 6 centers. Dogs were included based on a diagnosis of MCD of one or both elbows that had failed previous treatment(s). Preoperative assessments included orthopaedic examination, range of motion measurements, lameness grading, radiographic assessment of the affected limbs and GAITRite or force-plate evaluation in a subset of dogs. The CUE surgeries were performed using a standard operating protocol. Surgical approach was via either medial tenotomy or medial epicondylar osteotomy. Dogs were assessed at defined time points postoperatively using the same outcome measures as done before surgery.

Of the 36 total cases, 22 have completed all assessments at ≥ 6 months after surgery. Intraoperative complications occurred in 2 cases (9%): malpositioning of the humeral implant and over-reaming of the ulnar implant. Short to mid-term complications occurred in 10 cases (45%): Catastrophic = 1 (4.5%): one patient was euthanatized at the client’s request for non-specified reasons associated with continued lameness Major = 2 (9%): one case of infection of the fiberwire tenotomy repair; 1 case of ulnar implant loosening with concomitant lameness; Minor = 8 (36%) cases of mild carpal hyperextension and/or lameness which resolved by 6 months postop. No implant problems have been noted on radiographic evaluations through 1 year after surgery (Fig 4). In terms of level of function at > 6 months after surgery as assessed by the attending clinician and the client, 17 (77%) of these cases have been judged a success (full (11) or acceptable (6) level of function). Lameness grade improved significantly (p<0.01) from a mean of 2.3 preop to a mean of 0.3 at the 6 month time point.(Figs 5,6) Five second-look arthroscopies done 3 to 7 months postoperatively showed stable implants with new fibrocartilage tissue formation adjacent to both implants and no evidence of inappropriate wear. (Fig 7) Lateral compartment cartilage surfaces were unchanged compared to preop assessments with no evidence for abnormal wear or visible lesions.

Based on the initial results of the CUE Multicenter Clinical Trial, this procedure appears to be safe for treatment of medial compartment disease in the canine elbow and warrants continued clinical evaluation.

*Disclosure: Drs. Schulz & Cook are patent holders on the CUE and will receive royalties associated with sales of the CUE.*
Figure 1. Bone model showing locations of implants for canine unicompartmental elbow arthroplasty

Figure 2. Bone model showing articulation of implants for canine unicompartmental elbow arthroplasty

Figure 3. Arthroscopic image of severe medial compartment disease in a dog
Figure 4. Postoperative cranial-caudal radiograph following canine unicompartmental elbow arthroplasty

Figure 5. Peak impact preoperatively and 6 months following a canine unicompartmental elbow resurfacing

Figure 6. Degree of lameness subjectively graded on a scale of 1 to 4, preoperatively and 6 months following canine unicompartmental elbow resurfacing

Figure 7. Arthroscopic image of CUE implants several months following implantation.