TPLO Surgery & Osteosarcoma

Implant- or fracture-associated neoplasia has been reported in humans and dogs, but the mechanism is unknown. Possible theories include metal implants acting as a nidus for continuing inflammation or corrosion of metal causing altered host reaction. In this study, the medical records of dogs undergoing tibial plateau levelling osteotomy (TPLO) at 2 different institutions (Clinics A and B) were reviewed to determine the incidence of osteosarcoma at the TPLO site and other sites. Records of 472 Clinic A dogs and 1992 Clinic B dogs with >1 year of follow-up were available for analysis. Both institutions used multiple plate manufacturers, although the majority of the plates were from 2 manufacturers. Of the dogs from Clinic A and Clinic B, 5 and 6 dogs developed osteosarcomas at the surgery site, and 7 and 22 dogs developed osteosarcoma at other sites, respectively. The incidence rate at the TPLO site was 30.4 and 10.2 per 10000 dog-years at risk and at other sites was 42.6 and 37.5 per 10000 dog-years at risk, respectively. For Clinic A, the median time for development of osteosarcoma at the TPLO site was 4.6 years; at other sites, it was 2.9. At Clinic B, median time was 4.4 years and 3.4 years. The authors concluded the risk for osteosarcoma development following TPLO surgery is low.

Commentary
Although overall risk for OSA following TPLO was deemed low in this study, the results should be interpreted cautiously. Dogs were followed for a minimum of 1 year; however, average interval between TPLO and OSA is reported to be 5.3 years. Thus, the reported incidence here may be artificially low given the short follow-up in some dogs. Further, although OSA seems to be most common following use of the Slocum cast stainless steel plates, OSA is reported to develop in some cases in which other brands of wrought stainless steel plates were used. Thus, one should not presume the risk for OSA to be zero when non-Slocum TPLO plate brands are used. It should be recognized that this paper did not compare OSA incidence rates in dogs that had a TPLO vs dogs that did not. Thus, this study does not answer the question of whether TPLO increases the risk for OSA in dogs that have had a TPLO relative to the general population. The important take-home message is that OSA should always be considered a differential diagnosis in a dog that presents with hindlimb lameness, regardless of whether the dog has a history of TPLO performed years previously. Further, OSA is still considered a relatively rare event following TPLO, and there is not enough information to preclude recommending TPLO as an option for treatment of canine cranial cruciate ligament disease.
—Sara A. Colopy, DVM, PhD, DACVS

Reference

Source

Medial Coronoid Disease

Medial coronoid disease is commonly diagnosed in young large-breed dogs. The pathophysiology of this important orthopedic problem is not well-defined. As such, a variety of treatment options, including both surgical and conservative approaches, have been proposed. This prospective observational case series documented consistent short- and long-term outcomes for 15 dogs (23 elbows) treated arthroscopically for medial coronoid disease. Outcome measures included radiographic, CT, arthroscopic, force plate, and orthopedic examination observations. Dogs with radioulnar incongruency (RUI) and/or severe cartilage erosion preoperatively exhibited a greater degree of lameness. Postoperative improvement was greater in these dogs, as measured by gait analysis. Clinical assessment of long-term performance ≥2 years after surgery based on muscle mass and gait analysis did improve despite increased osteoarthritis score.

Commentary
Treatment of medial coronoid disease varies widely among surgeons, and little comparative data exist to support any surgical methods used on a routine basis. This study provided useful multimodal outcome measures, including long-term objective follow-up that has not previously been reported. Initial observations of joint health and congruency were informative but were not predictive of impacting long-term mobility. Arthroscopic treatment using fragment removal and/or subtotal coronoidectomy in more severe cases provided long-term improvement in this small cohort. Lameness was not completely resolved, which suggests disease progression was still evident.
—Jason Bleedorn, DVM, DACVS

Source