Summary

Determination of the tibial plateau angle in different dog breeds, the complication rates, and changes in the tibial plateau angle in the long-term outcomes after TPLO surgery

The cranial cruciate ligament rupture is a common disease in dogs. Currently, the most recommended method of surgical treatment of this condition is tibial plateau leveling osteotomy (TPLO). The aim of this study was to determine the tibial plateau angle (TPA) in selected dog breeds with the cranial cruciate ligament rupture, determining the occurrence of complications after TPLO in dogs weighing over 30 kg of body weight, assessment of the degree of tibial healing after tibial plateau leveling osteotomy in dogs weighing over 30 kg and determining whether and to what extent the tibial plateau angle (TPA) changes over time after TPLO surgery.

The study on measuring the tibial plateau angle in selected dog breeds was performed on 60 patients divided into subgroups consisting of 10 animals of the same breed. The animals were subjected to radiological examination under sedation, the TPA angle was measured, and the average angle for the entire subgroup was determined from the obtained results.

The complications rate after TPLO was determined on 30 dogs whose body weight exceeded 30 kg. First, the gait was assessed according to the Kipfer scale, and then the surgical procedure performed. After the procedures, patients were assessed for gait in the second, eighth, and twelfth weeks and in the sixth month of recovery, and additionally, the patients underwent orthopedic assessment. Complications were divided into catastrophic, major, and minor.

Radiographs of 30 dogs weighing over 30 kg were used to assess the degree of tibial healing after TPLO. Radiological examination was performed in the second, eighth, twelfth week and in the sixth month after the procedure. The assessment of tibial bone healing was performed by three independent veterinarians using the modified Kieves scale.

The changes in the TPA were determined using radiographs of 60 dogs after TPLO surgery. Radiological examinations were performed immediately after the procedure and in the eighth weeks, six months and one year after TPLO. Based on the radiographs, the patients' TPA angles were calculated and analyzed.

The results of the conducted research allowed to determine the TPA for selected dog breeds. Additionally, the prevention of complications after TPLO treatment in each group of animals were established. The analysis of the assessment of degree of tibial healing in long-term recovery suggests changes in postoperative management, including setting new recommendations for routine patient follow-up. Due to the change in the TPA angle during the healing process and remodeling of bone tissues, new standards for rotation of the proximal tibial epiphysis in TPLO surgical procedure should be established.