# SURGICAL AND POSTOPERATIVE COMPLICATIONS ASSOCIATED WITH THE USE OF LOCKING PLATES AND SCREWS IN TIBIAL PLATEAU LEVELING OSTEOTOMIES

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## INTRODUCTION:

Injury of the cranial cruciate ligament is reported as one of the most common causes of lameness in dogs. This condition is associated with ligamentous degeneration, autoimmune diseases, conformational abnormalities, obesity, trauma and steep tibial plateau angle.[1, 2]

The Tibial Plateau Leveling Osteotomy (TPLO) is an extra-articular technique that stabilizes cranial tibial thrust in the stifle during weight bearing without replacing the ligament nor eliminating cranial drawer motion.[2] TPLO is a very technical procedure and subtle surgeon error can contribute to many complications.[3] These complications include hemorrhage, soft tissue swelling, soft tissue infection, osteomyelitis, tibial tuberosity fractures, patellar tendon desmitis, patellar fractures, tibial rock back, implant loosening and implant breakage.[2]

## OBJECTIVES:

The purpose of this study was to identify surgical and postoperative complications associated with the TPLO procedure when the locking TPLO plate is used.

## MATERIALS AND METHODS:

Medical records of dogs examined and operated at VMSG between April 2005 and January 2006 were reviewed. Dogs were included in the study if 2.7 locking, 3.5 locking or 3.5 broad locking UPC plates made by New Generation Devices, Inc. had been used and if records were complete. A minimum of four weeks postoperative follow up was set up as requirement for inclusion in the study. All cases had stifle arthroscopy performed prior to the TPLO procedure

## RESULTS:

One hundred and ten procedures satisfied the criteria for inclusion in the study. Complications were identified in 11 of the 110 (9.9 %) procedures. One non-locking screw broke during a TPLO procedure (0.9%), 1 dog (0.9%) developed soft tissue infection of the surgical site, 2 dogs developed osteomyelitis (1.8%), 1 dog developed a seroma at the surgical site (0.9%), 1 dog developed joint effusion (0.9%), 1 dog developed clinically recognizable patellar tendon desmitis (0.9%) and 1 dog developed patellar luxation (0.9%). A reoperation rate of 3.6 % was observed and attributed to implant complications and meniscal injuries. Complications including hemorrhage, fracture of the tibial tuberosity, implant loosening and plate breakage were not observed in the studied group.

Fig.1 – Radiograph obtained immediately after TPLO procedure performed using 3.5 mm Broad locking NG plate and screws

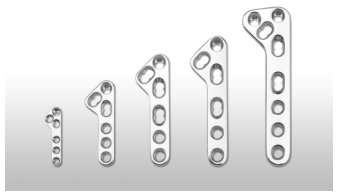

Fig. 3 – New Generation Inc. TPLO locking plates from 2.0 through 3.5 mm Broad.

Fig. 2 – Radiograph obtained 7 weeks after TPLO procedure performed using a 3.5 mm Broad locking NG plate and screws.

Fig. 4 - 3.5 mm locking TPLO plate and screw produced by New Generation Devices Inc. Notice 20° angled proximal screw hole.

## DISCUSSION/CONCLUSION:

The current literature reports a complication rate of 19.5 to 28 % in association with TPLO procedures. [1, 2] The results of our study indicate that 9.9 % of the TPLO procedures were associated with complications. However, all of these complications responded to appropriate treatment, and did not compromise the final expected outcome. The re-operative rate of 3.6 % was compatible with the 1.6 to 8.4% rate reported in the literature.[2]

The main limitations of our study, in comparison to previous studies, included its retrospective nature, a small case sample and fewer evaluated complications. Intra-articular screw impingement, a reported complication associated with the TPLO procedure[2, 4] was not noted in our study. All procedures were performed by experienced surgeons.

The use of locking TPLO plates and screws appears to have contributed significantly to the low incidence of implant loosening and breakage, two of the most common complications associated with TPLO procedures. [1, 2, 4]

## REFERENCES:

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