Evaluation of a Novel Transarticular Implant for the Treatment of Canine Stifle Instability

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Question
What are the goals of treatment for the patient with a cranial cruciate ligament (CrCL) deficient stifle?

Objectives
Thinking outside the box…
- Provide immediate and continuous translational and rotational stability.
- Allow unimpeded normal range of motion while minimally affecting biomechanics.
- Be less invasive.

Materials and Methods
Implant
• Three part stifle implant (Simiri Stable in Stride™, patent pending, New Generation Devices, Glen Rock, NJ, USA) attached via 3.5 or 4.0 locking screws.
• Stainless steel femoral and tibial components interconnected via an ultra high molecular weight polyethylene (UHMWPE) sliding articulation interface.

Patients
• 39 large-breed dogs with naturally occurring CrCL deficient canine stifles
• Weight 30.0 to 49.7 kg
• Age 1.6 to 14 years (median 6.4 yrs)

Procedure
• Minimal medial parapatellar arthrotomy
• Partial meniscectomy performed for meniscal tears. No meniscal release procedures performed.
• 23/39 had medial meniscal injuries
• 3/39 had lateral meniscal injuries
• Pre and post-operative bilateral evaluation included:
  - Stifle translational and rotational stability
  - Lameness score (LS)
  - Stifle range of motion (ROM)
  - Thigh circumference (TC)
• Post-operative evaluations varied between 4 and 14 months (median 7.5 months).

Results
• 39/39 had tibial translational and rotational stability at all post-operative evaluations.
• 37/39 weight-bearing on injured limb within 24 hours of surgery.
• 39/39 weight bearing within 48 hours.

Discussion
• The stifle implant provided an osteotomy free method of stifle stabilization, allowed early ambulation, returned thigh circumference to preoperative levels and significantly improved stifle range of motion (p<0.0001).
• No clinical evidence of postliminary meniscal injuries were noted.
• These results are in direct contrast to the results reported for current geometric modifying procedures.
• As of February 2015, 125 implants have been performed by multiple surgeons including 3 patients with stifle disruption.
• Radiographic assessment of patients stifle/implant changes 12 months post operatively are planned for the coming year.

References

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Post-operative lateral view with stifle implant in a 32.6 kg Golden Retriever. A - immediate post op. B - six months post op.