TPLO by Closing Wedge Osteotomy

The following procedure will alter the angle of the tibial plateau to approximately 5 degrees. A video of the procedure may be viewed from the web site www.vetinst.com or from a CD available from ourselves or our distributors.

Measurements

Take medial radiograph of whole tibia plus femoral condyles. Centre the beam over the stifle. Condyles should exactly overlap each other if positioning is correct. Use sandbags or foam wedges if necessary.

Draw line one to represent the level of the tibial articular surface. This line is used to calculate the angle of the tibial plateau and is most difficult to judge. We are essentially looking for a line that parallels the proximal tibia articular surface.

Second line is drawn along the long axis of the tibia which runs between the intercondylar eminence proximally and the hock centre of motion. If your beam does not colimate large enough you may have to use the centre of the distal tibia. The difference between the two lines is the angle of the plateau. Usually 20 to 25 degrees sloping backwards.

Draw line three at right angles to line two at the level of the distal end of the tibial crest.

Draw line four parallel to line one meeting line three at the caudal cortex of the tibia.

Removal of the wedge delineated will alter the tibial plateau angle to zero. Most authorities feel a 5 degree back slope to be the most appropriate. To achieve this remove 5 degrees from the wedge.

Measure the cranial border of the chosen wedge for reference during surgery.

Surgery

Dog is placed in dorsal recumbancy
Cranio-medial arthrotomy
Remove remnants of CrCL.
Check menisci +/- removal if damaged

? Medial meniscus release? Somewhat controversial but allows the caudal horn to move back minimising trauma by the femur which remains unstable. ? no meniscus being better than a damaged one seems to be the theory. Approach meniscus just caudal to medial co-lateral ligament.

Small joint retractors are useful. Use No 11 or small pointed beaver blade (No 65 or 65a) to radially transect meniscus. See the meniscus surgery section of our stifle section at www.vetinst.com.
Many proponents of the Slocum technique do not routinely explore the stifle. They merely perform a medial meniscus release via a small arthrotomy caudal to the medial collateral ligament. Extend cranio-medial incision to expose medial proximal tibia
Using above measurements and three-dimensional view of the joint alignment, plan a wedge shaped cut to alter tibial plateau angle and make any other appropriate corrections. By making the wedge an isosceles triangle (ie both long sides the same length) on reduction the cranial and caudal borders of the tibia should remain congruent. The important measurement is the dimension of the cranial edge. The two cuts will meet at the caudal border. The caudal dimension of the wedge will be zero. Use Wedge Osteotomy Gauges to accurately mark the correct osteotomy (001493) Use an oscillating saw to remove tibial wedge. Take care that both cut surfaces are clean and smooth. Small bone spurs will create serious difficulties in reduction and compression of the osteotomy site. These spurs will typically occur as the cuts run out caudally. i.e. the most difficult area to see and deal with them. Use saw or rongeurs e.g. Lemperts to tidy up spurs. Leave the fibula intact. Reduce osteotomy using appropriately sized pointed reduction forceps. The best ones are the very large with a spin lock (001203). Use a drill hole to provide purchase point for forceps distal to osteotomy Check alignment of foot in relation to the stifle & adjust as necessary. Large dogs especially Rotties often develop and inward rotation of the foot with CrCL disease Drive 'K' or 'A' wire across osteotomy for temporary stability. This may be left in place if providing some support. A better alternative to using a 'K' wire is to place a cranial figure of eight tension wire crossing the osteotomy site. As well as the temporary fixation the wire provides long term stability on what is the tension side of the 'fracture'. Contour plate as necessary Fix plate in compression mode. Consider the use of 4.0 cancellous screws in the proximal tibia.  

**Post-Op**
Dress for approx 3 days.  
Strict lead exercise 3 weeks  
Gradual increase in exercise over next 3 months

Suggested Reading