A NEW MENISCUS REPAIR TECHNIQUE: BUTTERFLY TECHNIQUE

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Primary fixation strength is an important factor affecting meniscus repair. In this study primary fixation strengths of a new developed 'butterfly' suture technique which can be performed by all inside suture using Viper device were evaluated. Medial meniscuses of 21 one-year-old calves were used in this study. 2cm full thickness longitudinal tears were created in the centre of medial meniscus 3mm apart of its periphery. In Viper Single Suture (VSS) group vertical suture was applied in the centre of the tear with 0 PDS. In Viper double suture (VDS) group, 2 vertical sutures 1cm apart in the centre of the tear with 0 PDS was applied. In Viper butterfly (VB) group, butterfly shaped single sutures were passed around the tear and fixed with one knot. Load-failure strengths of the repairing techniques were assessed by biomechanical testing machine. Load-failure strengths of VSS, VDS and VB groups were 133.7±18.4 N, 156.3±13.1 N and 186.4±15.8 N respectively. According to these results there was no significant difference in fixation strengths of VSS and VDS ($p=0.09$) whereas primary fixation strength of VB group was significantly higher than that of VSS and VDS groups ($p=0.001$, $p=0.002$, respectively). Fixation strength of newly developed 'butterfly' suture technique was higher than single suture and double suture. We suggest that because of its higher primary fixation strength, 'butterfly' suture technique may improve quality of meniscal repair.