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SMC knot: A New Sliding Knot with Locking Loop

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Successful arthroscopic repair of soft tissue depends on many factors. Failure to achieve optimal knot and loop security predisposes toward the failure of surgery. In general, the arthroscopic knots initial strength is less secure than the hand tied knot. The purpose of this technical note is to describe a new arthroscopic knot. After passing the tissue with a nonabsorbable suture, a short post strand and a longer loop strand are separated. While grasping the post strand, make an underhand throw with the loop strand under both the loop and the post strands. Make a second underhand throw with the loop strand under the post strand. Bring the loop strand behind the second throw and make an underhand throw with the loop strand under the post strand. After this third throw, do not tighten the knot. By pulling the post strand, the knot is introduced into the joint without difficulty. The post strand is tightened until the snug knot is established. At this stage, a small locking loop is created in the knot. While maintaining the tension of the post strand using the knot pusher, the loop strand is pulled until the locking loop is incorporated into the knot. A mechanical study was carried out on this SMC knot and the other arthroscopic knots. Elongation on the cyclic loading, load to clinical failure (3 mm displacement), ultimate failure load were tested in twelve set of SMC knot, Tennessee slider, Duncan knot, overhand throw, and Revo knot. Simple overhand throw was inferior to the other knots under cyclic loading condition ($p < 0.05$). The Revo knot and SMC knot had higher load in both ultimate failure load and clinical failure ($p < 0.05$). The SMC knot is a useful arthroscopic knot that has an optimal knot security.