

EXERCISES IN LAPAROSCOPIC SUTURING AND KNOT TYING USING ANGLE TRAINER PRIOR TO LAPAROENDOSCOPIC SINGLE SITE SURGERY

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Introduction: Laparoscopic suturing and knot-tying in laparoendoscopic single site (L.E.S.S.) surgeries are difficult. It helps to practice laparoscopic suturing and knot-tying at acute angles of 45, 25 and 15 degrees respectively between instruments. Objective is to present practice exercises in laparoscopic suturing and knot-tying using angle trainer prior to L.E.S.S. surgeries.

Methods: Exercises performed in angle trainer with ports between instruments of 15.0 cm apart creating 45 degrees, 8.0 cm apart creating 25 degrees and 4.5 cm apart creating 15 degrees. A zero-degree telescope is placed in the middle. Suturing and knot-tying exercises are done over a 2cm long incision of sutured-object, using a 20cm long 3-O Polyglycolic acid suture with HR26 needle. The angle between each instrument (telescope, needle holder, and grasper) and horizontal line (simulating horizontal patient lie) is less than 55 degrees.

Results: Practice exercises using angle trainer are done in two sets. First set: sutured-object placed in oblique 135 degrees position relative to telescope axis (simulating laparoscopic suturing in pyeloplasty, partial nephrectomy, or ureteral surgery). Second set: sutured-object placed in perpendicular 90 degrees position relative to telescope axis (simulating laparoscopic suturing in prostatectomy, cystorrhapy or pelvic surgery). At 45 degrees angle between needle holder and grasper, making the 1st suture with 3 knots is practiced followed by making 2nd to 5th sutures. Similar exercises are practiced at 25 and 15 degrees angles.

Conclusion: Presented are practice exercises in laparoscopic suturing and knot-tying at angles of 45 degrees, 25 degrees and 15 degrees prior to L.E.S.S. surgeries.