



Structured Technical Evaluation for laparoscopic ProcedureS (S.T.E.P.S)

LAPAROSCOPIC APPENDECTOMY



I. ABDOMINAL ACCESS ENTRY AND INSUFFLATION (15%) (NO PREVIOUS MIDLINE ABDOMINAL INCISION)

ACCESS TECHNIQUE (2%)	0	1	2
• Abdominal access technique utilized	• Veress Needle Access	• Direct Puncture Access	• Open Hasson Access
SKIN INCISION (3%)	1	2	3
• Incision made at the infra-umbilical area (either vertical or smiley)	• Supraumbilical Incision	• INTO the umbilicus Incision	• Infraumbilical Incision
• Size of incision	• <1cm	• >2cm	• 1-2cm
• Dissection of fats and exposure of the fascia	• Incising the fascia without dissection of fats	• Incising the fascia with inadequate dissection of fats	• Dissects the fat exposing the fascia before incising the fascia
PERITONEAL ACCESS (5%)	1	3	5
• Grabs and lifts the fascia before incision	• Fails to grab and lift	• Grab but did not lift	• Grabs and lift the fascia
• Size of incision	• <1cm	• >2cm	• 1-2cm
• Blunt dissection of the peritoneum while lifting the fascia	• Failed to do layer by layer incision	• Blunt dissection of the peritoneum without lifting the fascia	• Blunt dissection of the peritoneum while lifting the fascia
INSUFFLATION (5%)	1	3	5
• Initial Pressure (mm/Hg)	• 15 and above	• 11-14	• 8-10
• Initial Flow Rate (L/Min)	• 20-40	• 5-19	• <5
• Shows and observe the vital signs of the patient prior to placement of secondary trocars	• Fails to show	• Shows the vital signs	• Shows and observes the patient
II. DIAGNOSTIC LAPAROSCOPY (5%)	0%	3%	5%
• Performs limited Diagnostic Laparoscopy by showing the following: 1. Abdominal entry site 2. All Quadrants 3. Status of the appendix	• Directly visualizes the right lower quadrant of the abdomen	• Shows abdominal entry site and and some quadrants	• Shows ALL criteria
III. SECONDARY TROCARS INSERTION (5%)	0%	3%	5%
3 Port Technique			
• Insertion of subsequent trocars under direct visualization	• Did not show direct visualization of all trocar placement	• Partly showed direct visualization of all trocar placement	• Direct visualization of all trocar placement
• Controlled entry of secondary trocars	• Sudden forceful entry	• Controlled insertion push without twisting	• Controlled insertion with twisting motion
• Secondary trocars placed atleast 10-15 cm apart	• <5 cm	• 5 cm	• 6-10 cm
IV. POSITIONING OF THE PATIENT (5%)	0%	3%	5%



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<ul style="list-style-type: none">• Patient position	<ul style="list-style-type: none">• Neutral position only	<ul style="list-style-type: none">• Bed tilted right-side up position	<ul style="list-style-type: none">• Bed tilted right-side up, slightly on Trendelenberg
<ul style="list-style-type: none">• Urinary bladder preparation	<ul style="list-style-type: none">• Distended urinary bladder	<ul style="list-style-type: none">• Partially distended urinary bladder	<ul style="list-style-type: none">• Empty urinary bladder with or without foley catheter
V. SUCTION AND IRRIGATION (5%)	0%	3%	5%
<ul style="list-style-type: none">• Evaluates the 4 quadrants of the abdomen for the need of irrigation/suctioning	<ul style="list-style-type: none">• Proceeded to perform the surgery with a contaminated field	<ul style="list-style-type: none">• Inadequate control of contamination prior to dissection	<ul style="list-style-type: none">• Immediate evacuation of suppuration, purulent, or fecaloid material by suctioning and irrigation
VI. IDENTIFICATION AND MOBILIZATION OF THE APPENDIX (10%)	0%	7%	10%
<ul style="list-style-type: none">• Bowel manipulation and handling• Adhesiolysis	<ul style="list-style-type: none">• Traumatic tissue handling due to use of traumatic graspers• Bleeding /tears due to instrumentation and improper technique	<ul style="list-style-type: none">• Proper instrumentation but with difficulty in manipulation• Appendix and mesoappendix minimal to adequately exposure	<ul style="list-style-type: none">• Proper instrumentation and handling (bowel graspers and surgical gauze) for bowel run• Gentle manipulation Blunt or sharp dissection with judicious use of energy• Mobilization of the cecum as necessary
VII. EXPOSURE OF LANDMARKS (5%)	0%	5%	10%
<ul style="list-style-type: none">• Cecum• Colic taenia• Ileocolic junction and• Terminal ileum• Ileal fat pad• Appendiceal base and artery	<ul style="list-style-type: none">• Landmarks not identified	<ul style="list-style-type: none">• Two -three landmarks identified	<ul style="list-style-type: none">• All landmarks clearly identified
VIII. Serial Ligation of the Mesoappendix (10%)	0%	5%	10%
<ul style="list-style-type: none">• Traction of the appendix• Use of energy source	<ul style="list-style-type: none">• Perforation or transection of the appendix during handling/dissection• Bleeding of mesoappendix due to misuse of energy/ with fecal spillage	<ul style="list-style-type: none">• Dissection of mesoappendix not parallel with the appendix• Partial traction of the appendix/ near the camera• Minimal bleeding sub optimal use of energy devices/ minimal spillage	<ul style="list-style-type: none">• Adequate distanced view• Atraumatic retraction (away from camera)of the appendix with angulation and positioning for serial ligation of the mesoappendix• Proficiency in using advanced /energy devices shown



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IX. Appendiceal Artery and Stump Ligation (15%)	0%	7.5%	15%
<ul style="list-style-type: none">• Appendiceal artery ligation• Appendix stump ligation	<ul style="list-style-type: none">• Significant bleeding incurred during artery ligation• Cecum “ not safe“ during control of artery• Bowels near or affected by energy devices• Artery and stump tied / ligated together• Tie ligation of stump too tight or loose• Incomplete artery control whether by clipping or advanced energy device• Plastic clips used on a thick and edematous base, cutting through• Incomplete artery control whether by clipping or advanced energy device	<ul style="list-style-type: none">• Artery partially identified and ligated/ controlled with minimal bleeding• Cecum partially retracted/ bowels partially retracted	<ul style="list-style-type: none">• Artery properly identified and ligated with advanced energy devices, clips or ties• Cecum carefully identified during control of artery• Small bowel safely retracted• Stapler applied to control both• Stump ligated appropriately based on the condition of the base• Intracorporeal/ extracorporeal hemolocks• Suture ligation of the base as necessary• Burying the base as needed by suturing• Use of laparoscopic staples as needed
X. SPECIMEN EXTRACTION (5%)	0%	3%	5%
<ul style="list-style-type: none">• Control of contamination from the ligated appendix	<ul style="list-style-type: none">• Contamination of the field/trapped in the umbilicus	<ul style="list-style-type: none">• Direct Extraction thru the umbilicus minimal contamination	<ul style="list-style-type: none">• Prompt specimen extraction into the trocar without contamination of the surgical field/ umbilicus use of specimen bag as needed
XI. RE-EVALUATION OF OPERATIVE SITE (10%)	0%	5%	10%



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Checks for the following again before ending the procedure: 1. Checks the integrity of artery and stump ligation 2. Bowel injuries and bleeding 3. Suppurative/ fecal material 4. Interloop abscess by bowel run	<ul style="list-style-type: none">• Incomplete or not done	<ul style="list-style-type: none">• 3 -4 parameters accomplished	<ul style="list-style-type: none">• All parameters checked prior to closure
XII.CLOSURE (5%)	0%	3%	5%
<ul style="list-style-type: none">• Removal of trocars and closure of the abdomen	<ul style="list-style-type: none">• Pulls all trocar inadvertently• Removes the Hasson trocar without evacuating excess CO2• En masse closure of the umbilicus	<ul style="list-style-type: none">• Remove all trocars without observation of sites• Incomplete co2 evacuation	<ul style="list-style-type: none">• Removes secondary trocar under direct visualization observes site• Evacuates intraperitoneal CO2 prior to removal of the Hasson trocar• Closure of the umbilicus under direct visualization