SILC
Single Incision Laparoscopic Cholecystectomy
“The New Frontier”

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SILC: Why

Answer to ‘NOTES”
 Superior cosmetic results
 Less pain
 Faster recovery ?
 Less infection
 Cost ???
 Less hernia
 Less trocar injuries
SILC: Who

- Elective cholecystectomy
- Low BMI <40
- No previous upper abdominal surgery
- Elevated LFT ???
- History of gallstone pancreatitis ??
SILC: What
“Instruments”

✓ Scope: 45 angle 5 mm or flexible
✓ Long Veress needle
✓ Long Endo close
✓ Two 5 mm trocars (short and long)
  – Option: one 10 mm one 5 mm
✓ Sutures / Endo-stitch
✓ Endo-clip applier 5mm (optional 10)
SILC: What “Instruments”

- Long suction irrigation device
- Needle holder (self riding)/ Endo-stitch
- Knot pusher
- Dissector: Curved vs. angled
- Cautery vs. Harmonic
- Cholangio-gram catheter vs. Angio-cath
- Pusher: 5 mm (optional)
How:
“Evolution of SILC”

- Three 5 mm trocars ➔
  Two 5 mm trocars ➔
  One 5 mm & one 10 mm
- 45 angle scope ➔
  Flexible 5 mm scope
- One suture ➔
  Two sutures
- Placement of clips on cystic duct ➔
  tying suture ➔
  Endo-stitch
- Adding Endo-close to push GB fundus
How:
“Evolution of SILC”

✔ Adding Veress needle to expose
✔ Roticulator dissector → 5 mm curve → 5mm right angle.
✔ 5 mm Clip applier → Tie cystic duct → 10 mm clip applier
✔ Using spatula cautery → Harmonic → Scissors
✔ Using suture to assist in extracting GB
SILC: How
“Step by Step”

✓ Five stages:
  – I: Incision and trocars placement (4 steps)
  – II: Exposure (4 steps)
  – III: Isolation and clipping (4 steps)
  – IV: Dissection, Hemostasis & Cleaning (4 steps)
  – V: Extraction and wound closer (4 steps).
Step by Step

✔ Stage I: Incision & Trocars
  - Step 1: Trans or infra-umbilical 2 cm incision
  - Step 2: Insufflation of the abdomen with CO2 using Veress needle at 15 mmHg
  - Step 3: Placement of two 5 mm trocar in the umbilicus (or one 10 mm & one 5 mm)
  - Step 4: Placement of a 45 angle 5 mm scope or a flexible tip 5 mm scope.
Step by Step

✔ Stage II: Exposure
- Step 5: Use Endo-stitch to anchor the fundus of the GB to the abdominal wall using Endo-close.
- Step 6: Placement of the Veress needle in the epigastric area to retract the liver and open the triangle of Calot.
- Step 7: Use Endo-stitch to place a suture in the infundibulum and pulling the ends through the abdominal wall laterally and medially using the Endo-close.
-- Step 8: Using the Endo-close to push the fundus of the GB above the liver
Stage II: Exposure
Stage II: Exposure
Step by Step

✔ Stage III: Isolation and clipping
  – Step 9: Using the standard straight dissector with slight curved tip to isolate the cystic duct and cystic artery.
  – Step 10: Placement of suture around cystic duct using Endo-stitch
  – Step 11: Using 5 mm (or 10 mm) clip applier to clip the cystic duct and cystic artery
  – Step 12: Transaction of both structures.
Stage III: Isolation & Clipping
Step by Step

Stage IV: Dissection, Hemostasis, & Cleaning

- Step 13: Dissection of the gallbladder from the liver bed using electro-cautery or harmonic (knife vs. scissors)
- Step 14: Using Veress needle to assist in exposure
- Step 15: Hemostasis using ball tip cautery/ABC
- Step 16: Irrigation with saline removing blood and bile
Stage IV: Dissection, Hemostasis &
Stage IV: & → Cleaning
Step by Step

✔ Stage V: Extraction and wound closer
  – Step 17: Pulling the suture of the infundibulum through the upper 10 mm trocar
  – Step 18: Placement of a 10 mm tooth grasper to grab the Gallbladder
  – Step 19: Extraction of the gallbladder through the umbilicus holding on the suture of the infundibulum
  – Step 20: Closer of the umbilical fascia and skin
Stage V: Extraction & Closure
St. John Experience with SILC

- July- Dec. 2008
- Total 65 cases

- Initial 12 cases:
  - First 4: 73 min
  - Last 4: 39 min
  - Decrease in time: 47%

- Entry into GB: 3
  - No conversion
  - Same day discharge: 9
  - Next day: 3
Advantages of this Technique

✓ Using 10 mm trocar
✓ Exposing the GB in a similar fashion as in the traditional 4 trocar method
✓ Ability to use right angle instrument
✓ Ability to use Endo-stitch device
✓ Ability to use 10 mm clip applier
Advantages of this Technique

- Securing the cystic duct with a suture preventing possible cystic duct leak
- Ability to extract the GB through the 10 mm
- Ability to obtain better hemostasis and re-insufflate after removal of the GB
- Ability to teach this technique to established surgeons and residents
Credentialing

✔ Have done a minimum of 50 cases of traditional laparoscopic cholecystectomies in the past two years

✔ Attended a course on SILC or

✔ Observed or assisted on a minimum of two cases of SILC one with cholangiogram

✔ Proctored on a minimum of two cases of SILC

✔ The Proctor should have done a minimum of 30 cases of SILC
Conclusion

- *SILC* is safe if done in a systematic standardized method

- A team approach is very important

- Specific instruments can help in making the operation feasible and safe

- Experience in traditional *LC* is very important

- Knowing the anatomy can’t be more emphasized than in *SILC*

- Credentialing criteria are important to minimize injuries and maintain patients’ safety
The Future of Surgery

“Minimizing Minimally Invasive Surgery”

- Cholecystectomy *
- Lap-Band *
- Sleeve Gastrectomy *
- Nissen Fundoplication *
- Heller Myotomy*
- Inguinal Hernia
- Appendectomy*
- Hysterectomy*
- Nephrectomy*

Lap-band single incision
The Future of Surgery is Here
Thank You