

SILC

*Single Incision Laparoscopic Cholecystectomy
“The New Frontier”*

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SILC: Why

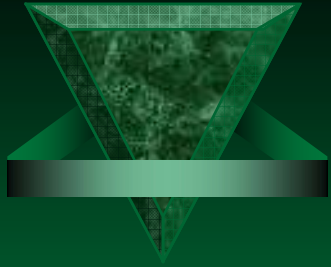
- ✔ Answer to ‘NOTES’
- ✔ Superior cosmetic results
- ✔ Less pain
- ✔ Faster recovery ?
- ✔ Less infection
- ✔ Cost ???
- ✔ Less hernia
- ✔ Less trocar injuries



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Covidien



SILC: Who



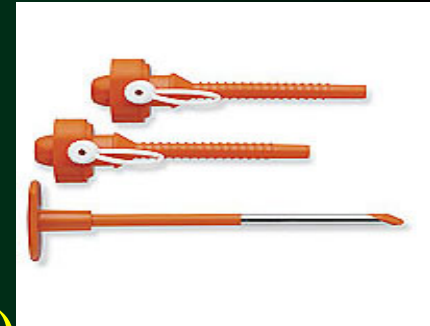
- ▼ Elective cholecystectomy
- ▼ Low BMI <40
- ▼ No previous upper abdominal surgery
- ▼ Elevated LFT ???
- ▼ History of gallstone pancreatitis ???

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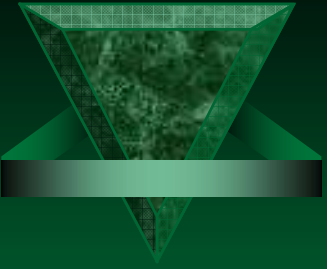
SILC: What “Instruments”

- ✔ 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 applicator 5mm (optional 10)



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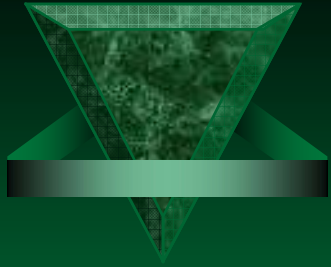


SILC: What “Instruments”

- ✓ 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)

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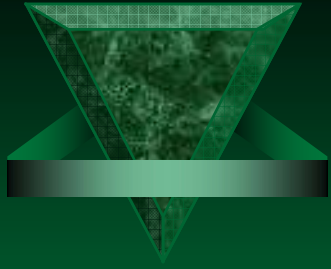
How: *“Evolution of SILC”*

- ✔ 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

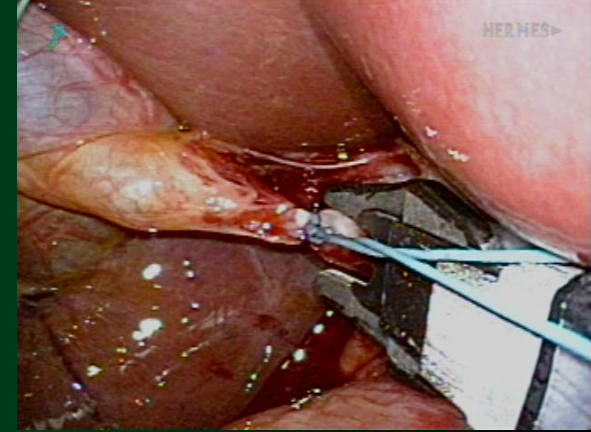


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How: *“Evolution of SILC”*



- 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

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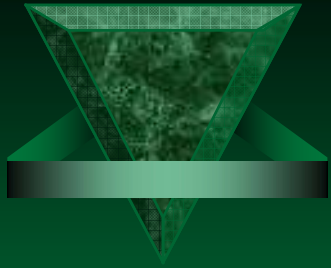
SILC: How “Step by Step”

▼ 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).

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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.

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Step by Step



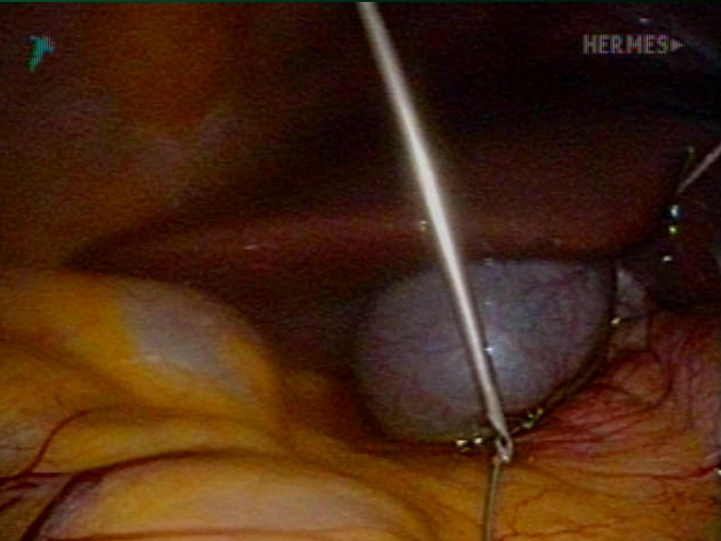
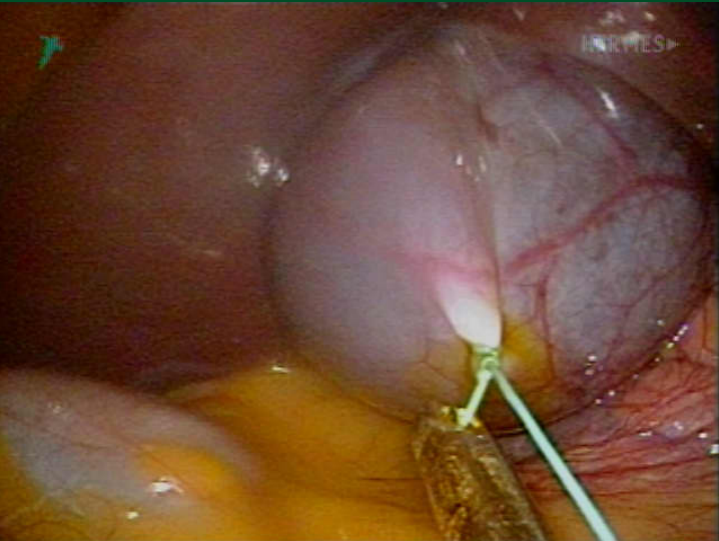
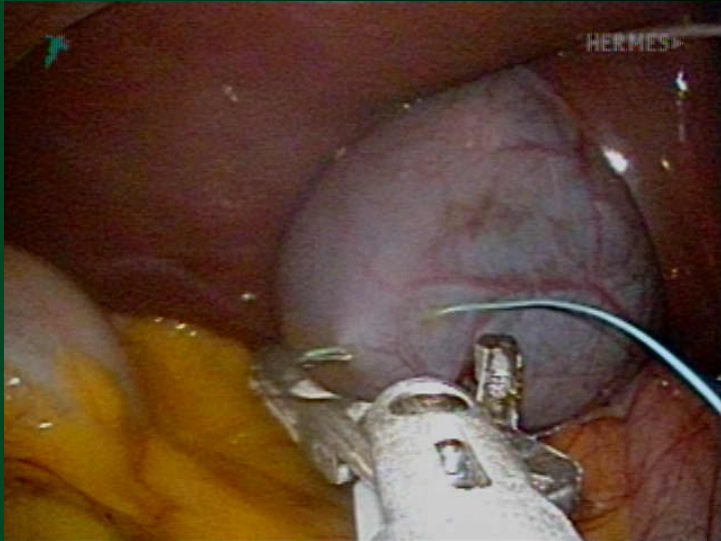
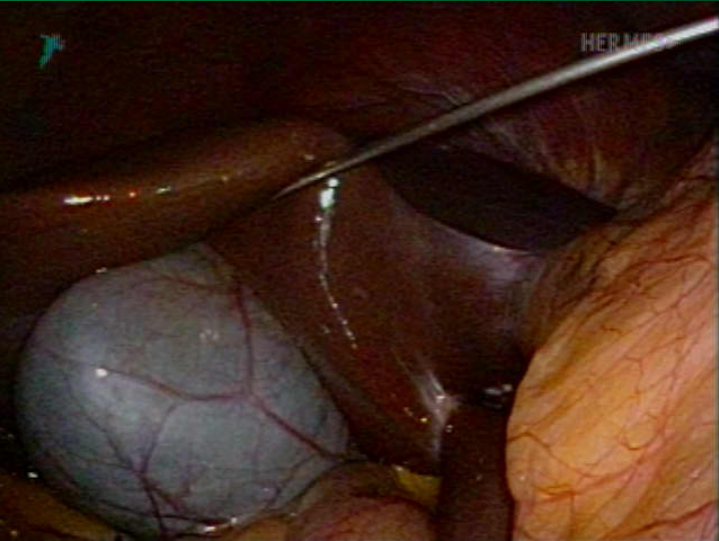
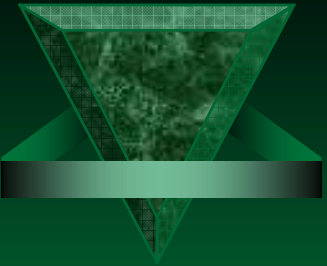
▼ Stage II: Exposure

- 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

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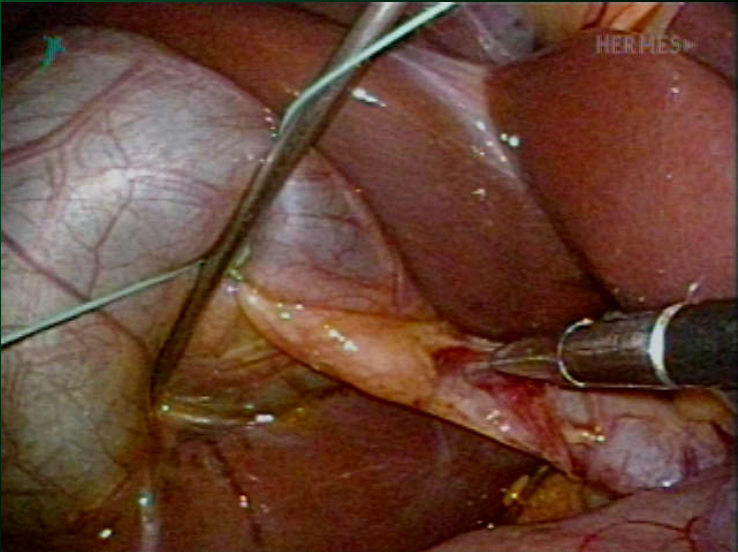
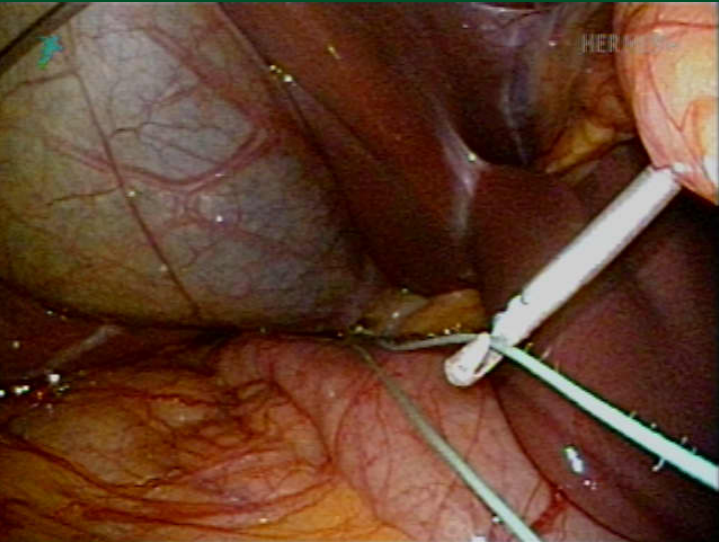
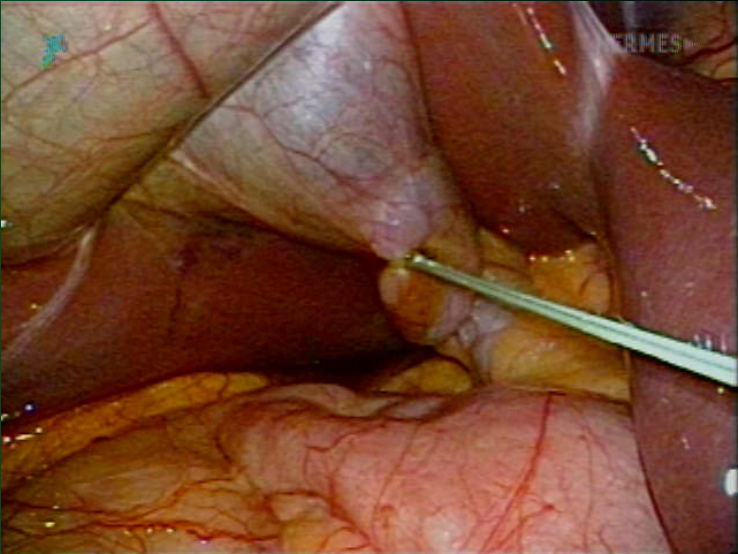
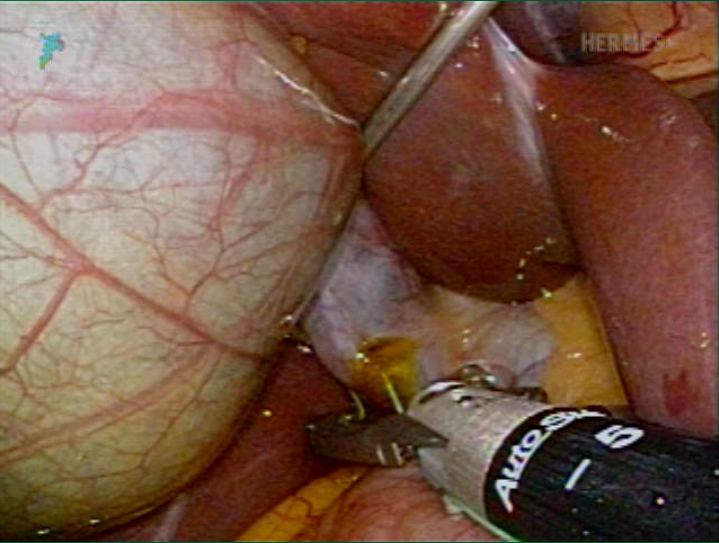
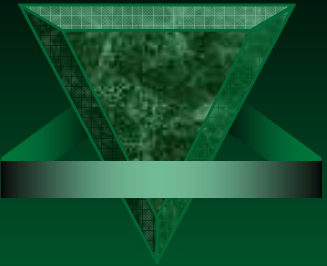
Stage II: Exposure



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Stage II: Exposure



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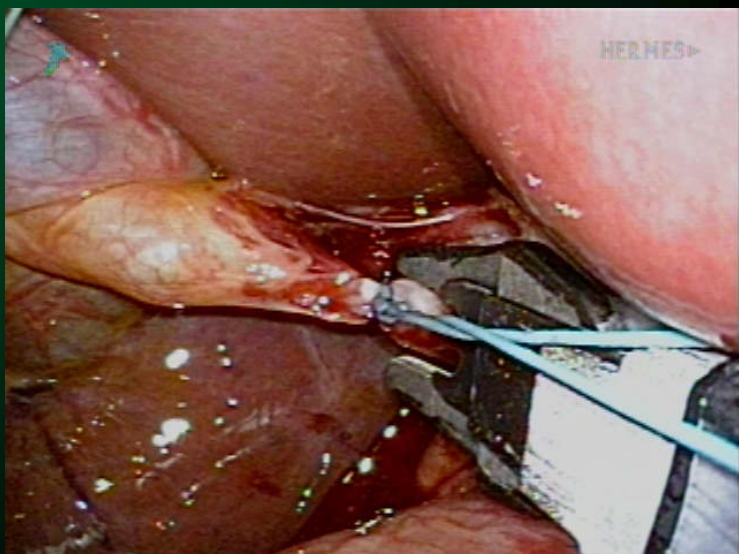
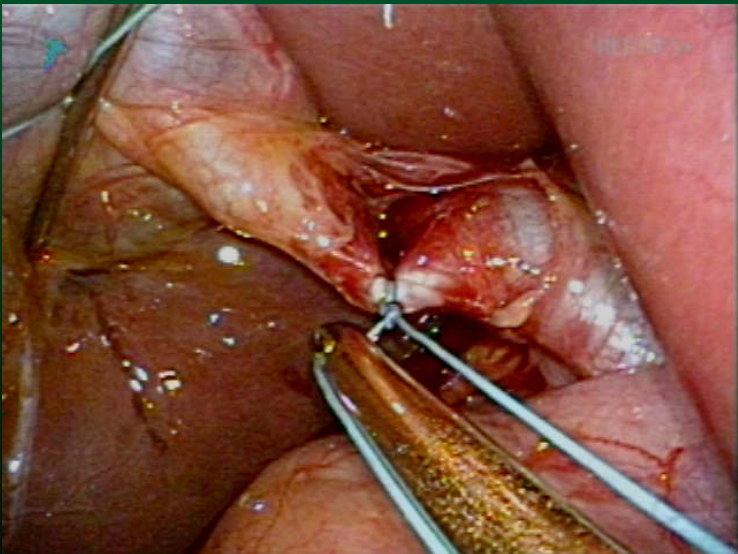
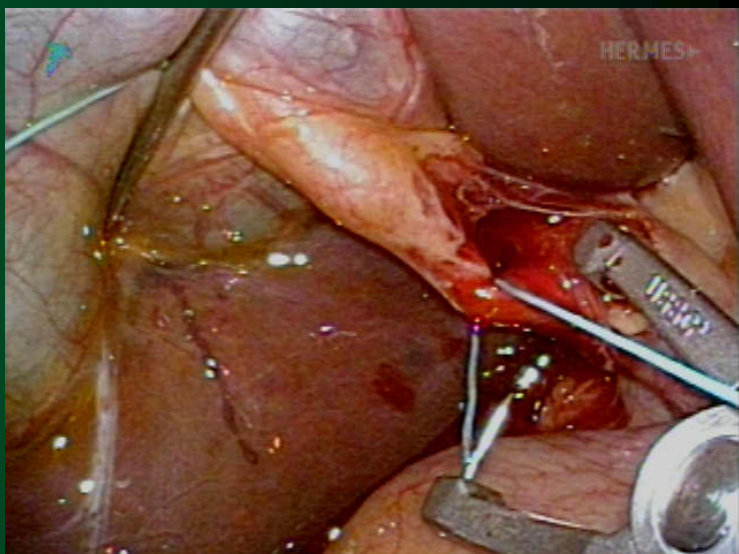
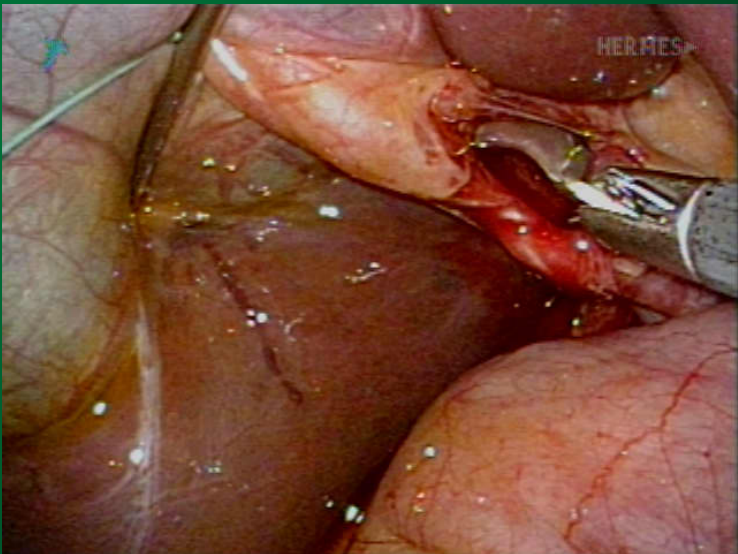
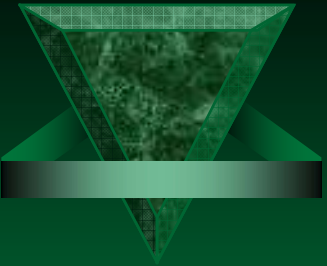
Step by Step

▼ **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 applicator to clip the cystic duct and cystic artery
- Step 12: Transaction of both structures.



Stage III: Isolation & Clipping



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Step by Step

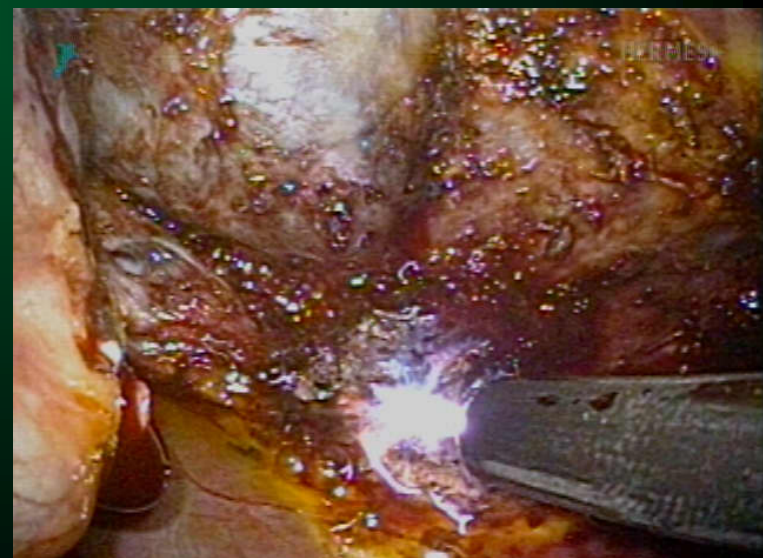
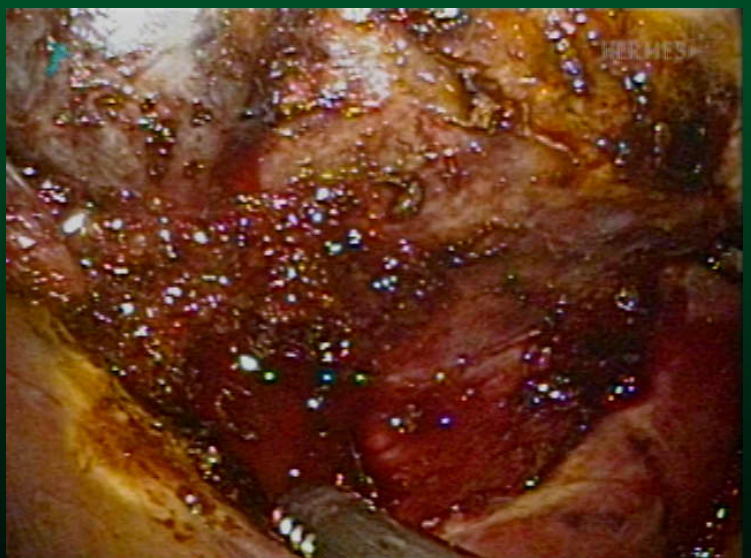
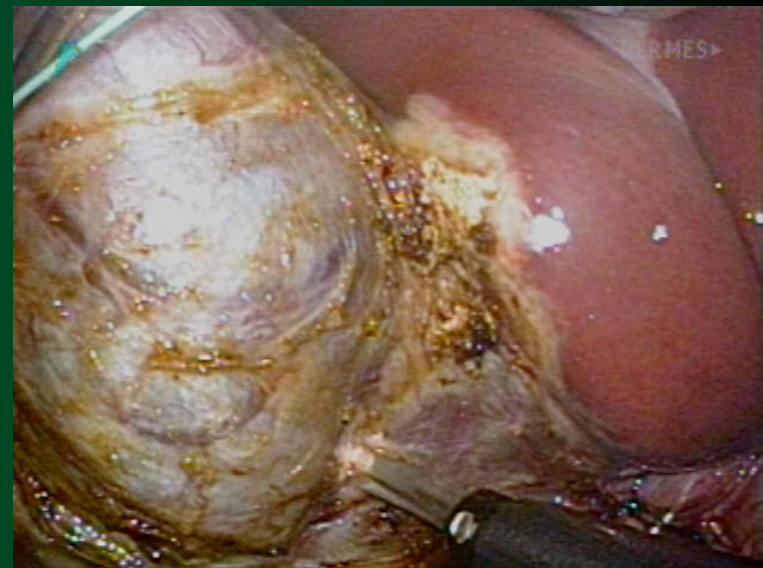
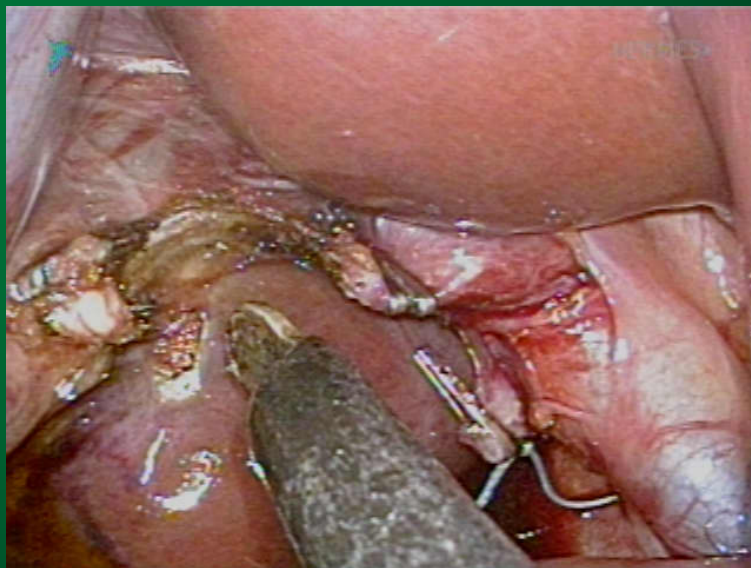
✔ **Stage IV: Dissection, Hemostasis, & Cleaning**

- 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

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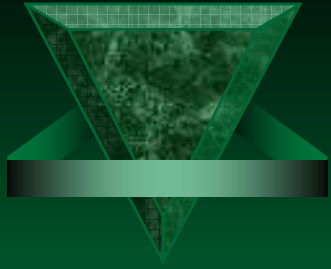


Stage IV: Dissection, Hemostasis & →

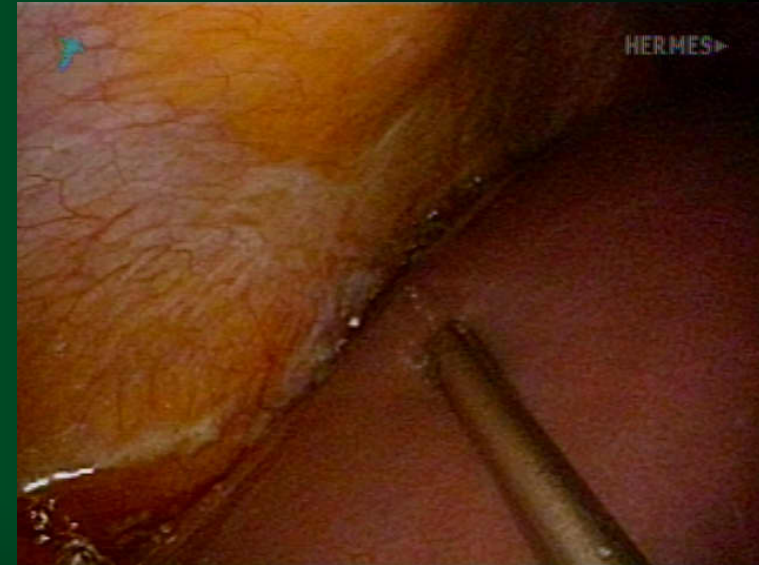
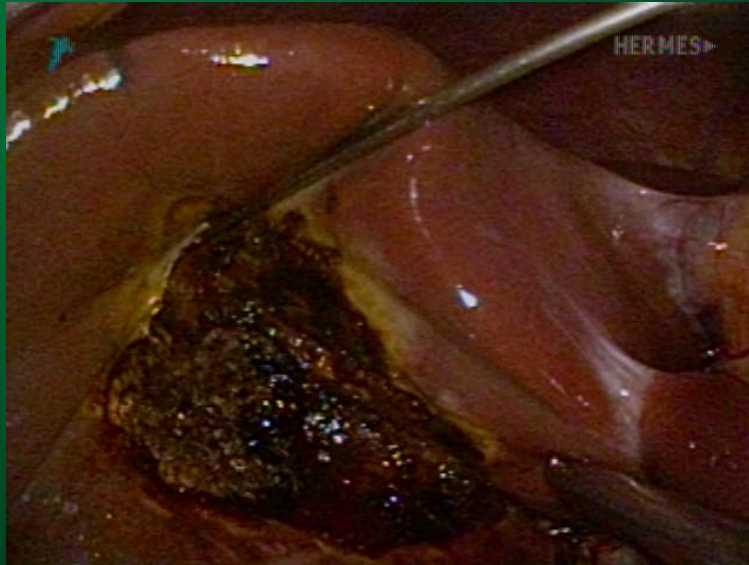


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Stage IV: & → Cleaning



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Step by Step



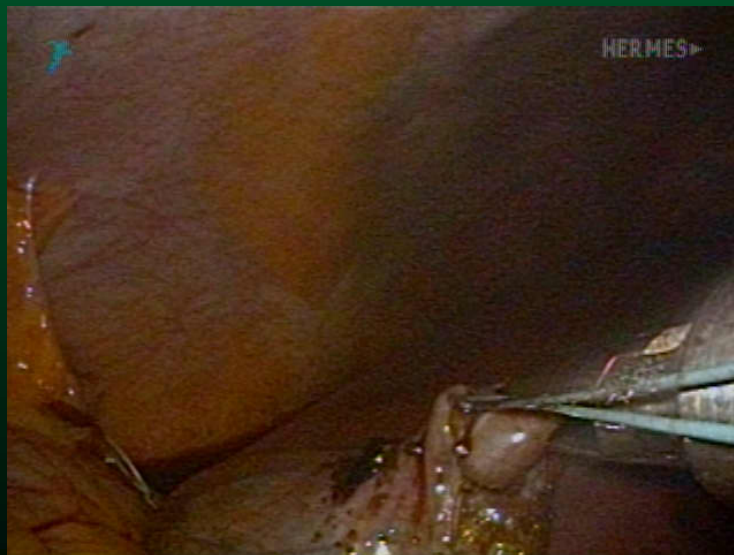
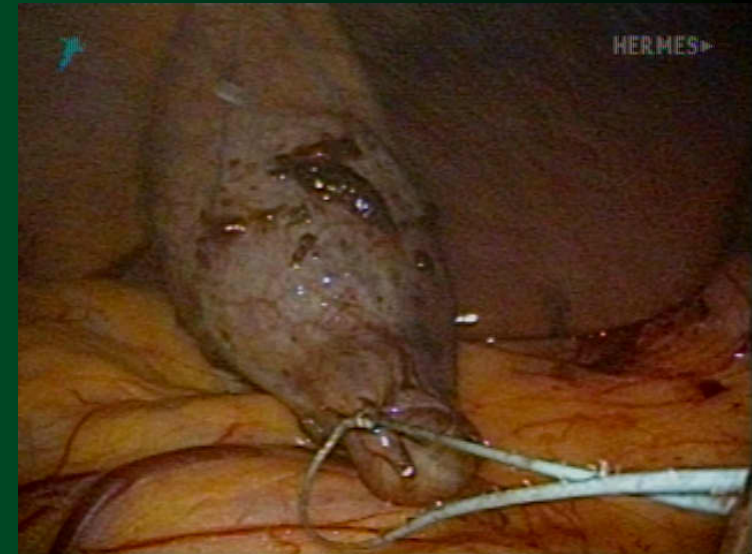
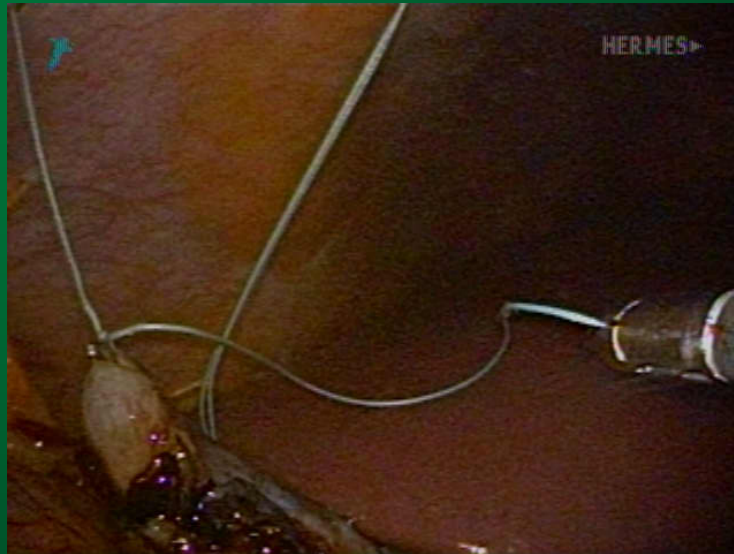
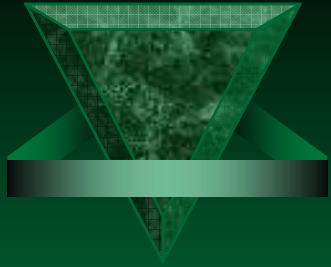
▼ Stage V: Extraction and wound closer

- 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

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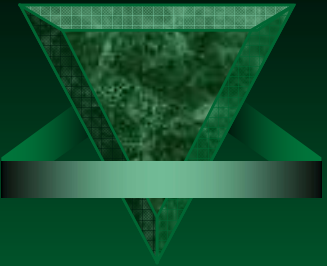


Stage V: Extraction & Closure



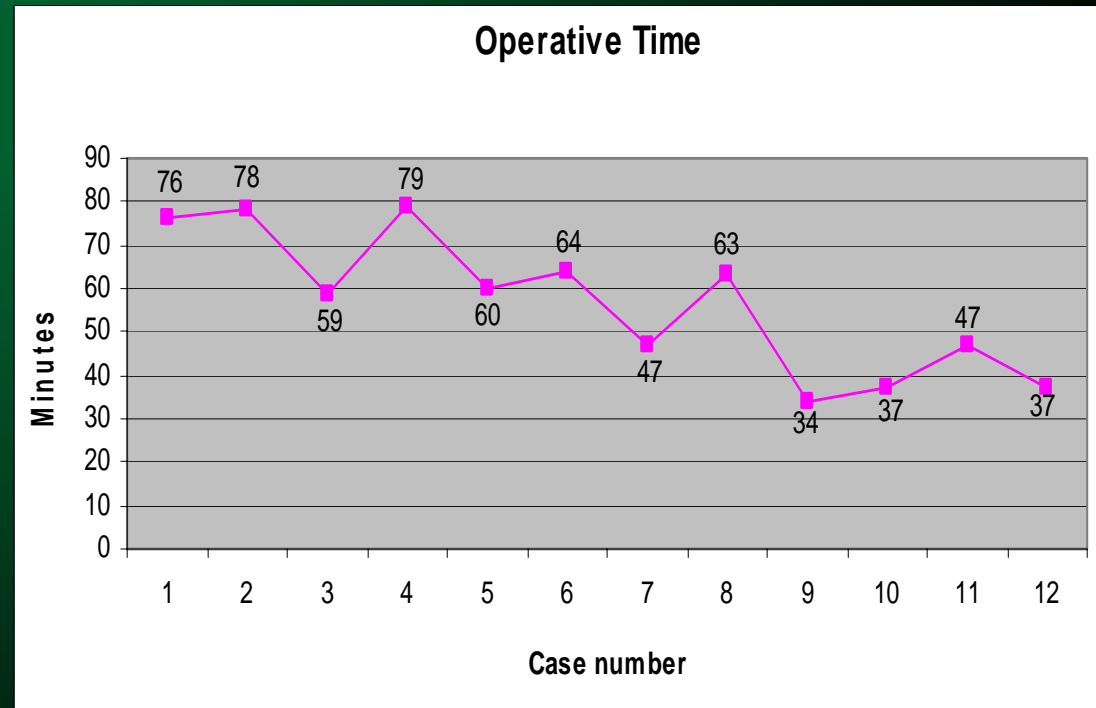
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St. John Experience with SILC

- 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

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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

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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*

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Conclusion

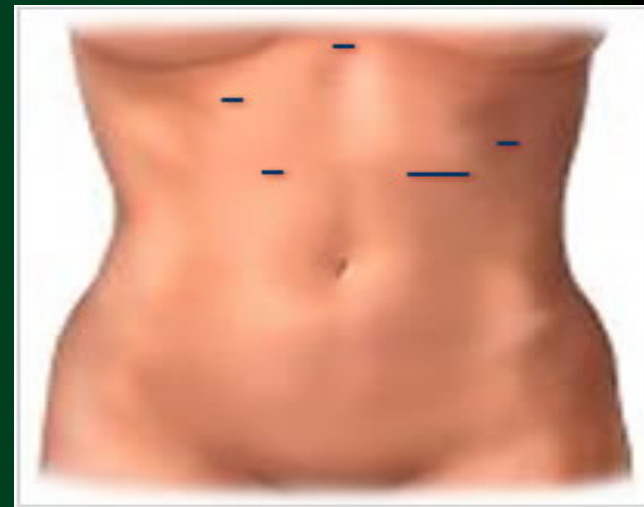
- ✔ *SILC* is safe if done in a systematic standardized method
- ✔ A team approach is very important
- ✔ Specific instruments can help in making the operation feasible and safe
- ✔ Experience in traditional *LC* is very important
- ✔ Knowing the anatomy can't be more emphasized than in *SILC*
- ✔ Credentialing 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*



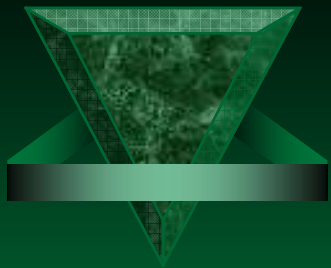
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Lap-band single incision

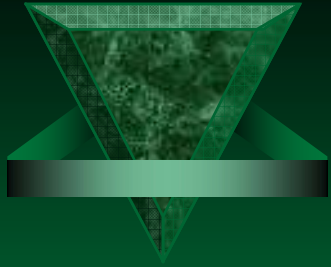
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The Future of Surgery is Here



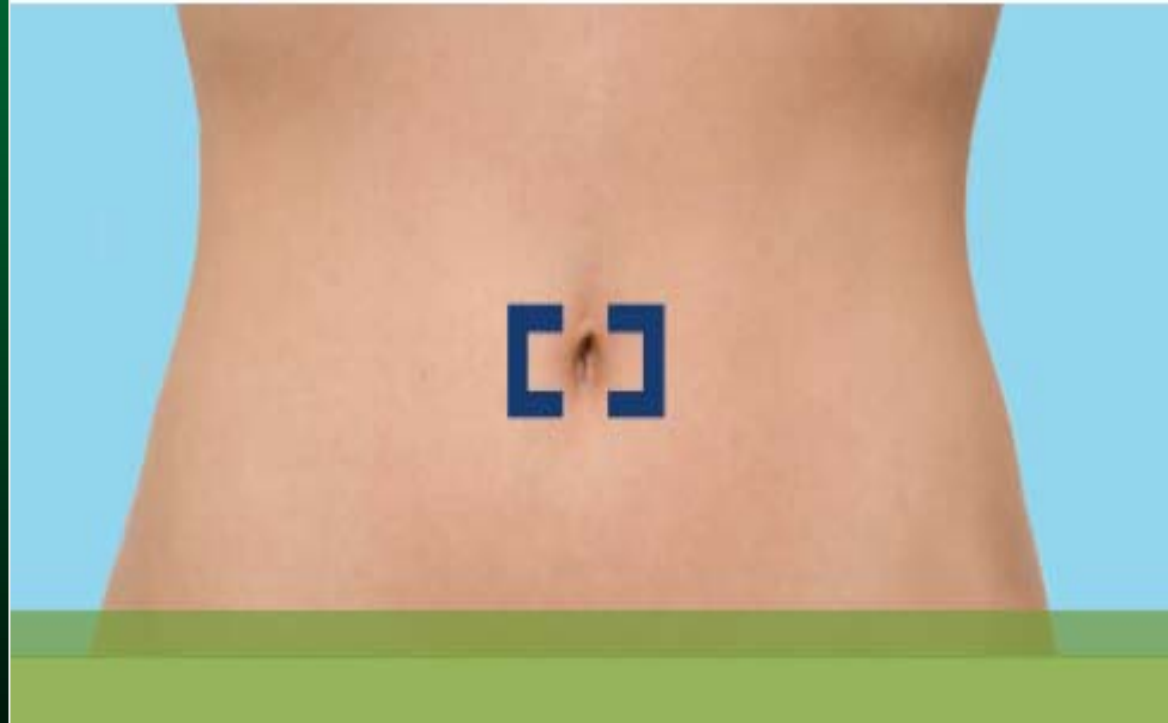
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Thank You

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