Fundus First Laparoscopic Cholecystectomy with Ultrasonic Dissection

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The Sundsvall Journey

- The idea
- The science
- The implementation
Background Cholecystectomy

- Sweden: 12,000 operations / year
- US: 750,000 operations / year
- Patients at productive age
- Laparoscopic cholecystectomy feasible
- Day-care surgery feasible
- Fast recovery has socio-economic impacts

NIH 1992; Sep 14-16(10(3)):1-20
Swedish Gallstone Registry (Gallriks) 2011
Efficacy – Random. Trial 1

- Conventional laparoscopic cholecystectomy with electrosurgery starting at the triangle of Calots (n 37)

- Fundus first laparoscopic cholecystectomy with ultrasonic dissection (n 43)
Single-center Study

- All perioperative procedures standardized
- Randomization after anesthesia
- Patient and post-op care blinded
- Follow-up after 24h and 30 days
Variables

- Operation time
- Pain and nausea scores
- Overnight hospital stay
- Sick leave
Ultrasonic Fundus First Results

• Shorter operation time (46 vs 61 min)
• Less pain and nausea score at 4 and 24h
• Higher day-care success (95% vs 73%)
• Shorter sick leave (5.5 vs 9.3 days)
• Outcome only related to dissection technique

Br J Surg 2005; 92(7):810-813
Efficacy – Random Trial 2
A Multicenter Study

- Are the results reproducible?
- Outcome related to method or ultrasonic dissection?
- Fundus First with electrosurgery?
Methods

15 Surgeons

Ersta — Västa Frölunda — Östersund — Sundsvall

- All perioperative procedures were standardized
Results

- Fundus First Ultrasonic
  - Conventional Electrosurgery
    - Fundus First Electrosurgery
Ultrasonic Fundus First
VS the two other methods

• Faster
• Less bleeding
• Fewer perforations
• Less pain and nausea after 4-6 hours
• Shorter sick leave (6 vs 9.4 days)
Conclusions Laparoscopisc Cholecystectomi

• Fundus first Laparoscopic cholecystectomy with Harmonic is quick and associated with a shorter recovery

• The difference is related to the energy (Ultrasonic dissection)
Ultrasonic Fundus First Concept

Cost Effective?
Health Economy

Conventional technique vs Ultrasonic fundus-first

Compare direct and indirect cost differences
# Health Economy

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<th>Conventional</th>
<th>Fundus First</th>
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<td>Surgical ward</td>
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<td>Anaestesia</td>
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<td>Operation time</td>
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<td>Dissection Instrument</td>
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<table>
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Surgical Endoscopy 2013
Conclusions Health Economy

Fundus First with ultrasonic dissection is associated with lower direct and indirect costs than a conventional laparoscopic cholecystectomy using electrosurgery

Surgical Endoscopy 2013
Ultrasonic Fundus First Concept

Safety?
Safety

Gallriks: Swedish Gallstone Registry

• >90% of all operations performed are registered

• Validation: All units are regularly monitored by Registry Inspectors

• >95% conformity of registry variables and operative records
Sundsvalls Experience
Elective operations

- 55% normal gallbladder
- 35% Chronic fibrosis
- 8% Severe chronic fibrosis
- 2% other
Sundsvall vs Gallriks

- 94% daycare vs 25%
- 92% sucess-rate vs 30%
- 0% bileduct injury vs 0.6%
Summary

Patients outcome +++

Safety ++++

Health economy +++

What does a bileduct injury cost?