Mini-laparotomy versus laparoscopy for benign gynecologic conditions

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ABSTRACT

PURPOSE: To compare conversions, operative time, and estimated blood loss for patients undergoing mini-laparotomy (<4 cm vertical or transverse abdominal incision) versus laparoscopy for gynecologic conditions.

METHODS: Data were collected retrospectively for patients who underwent laparoscopy or mini-laparotomy for gynecologic conditions at a single academic medical center from 1/2002-3/2011. Patients who had a hysterectomy, cancer staging procedure, pregnancy-related procedure, or exclusively diagnostic procedure were excluded. Data were collected and analyzed in SPSS for windows 18.0.

RESULTS: 950 charts were examined, and 493 (52%) patients met the inclusion criteria of which141 (29%) patients underwent mini-laparotomy group and 352 (71%) patients underwent laparoscopy. The groups had similar indications for surgery and level of surgical assistant. Mini-laparotomy patients were older, had higher BMI, and were more likely to be operated on by gynecologic oncologists. Patients undergoing mini-laparotomy had a statistically significant shorter mean intra-operative time (49.25 vs. 91.5 minutes, p=.003). Mini-laparotomy patients also had a significantly lower estimated blood loss (19.6 cc vs 32.11 cc, p=.0001). Cumulative complication rate was not statistically different between the two groups (15% vs 16%). For each type of complication (conversion, re-operation, overnight hospital admission, re-hospitalization, emergency department visit, wound complication) only wound complication rate was higher in the mini-laparotomy group (5/141 vs 1/352, sign = 0.008).

CONCLUSIONS: Mini-laparotomy is a safe alternative to what are considered traditional minimally-invasive approaches in gynecology and may offer the additional benefits of shorter intra-operative time and decreased blood loss.

BACKGROUND

Laparoscopy has become the gold standard surgical approach to adnexal surgery in gynecology. Mini-laparotomy (defined as a horizonatal or vertical abdominal incision < 4 cm) is an alternative approach to adnexal surgery. Both surgical approaches have their own inherent advantages and disadvantages.

Advantages	Disadvantages
Shorter hospital stay	Longer intra-operative time
Less pain	Specialized instruments
Smaller incisions	Need for specialized training
Faster bowel function return	Insufflation pain
Less blood loss	Trocar injuries
Improved Quality of Life	Multiple incisions
Cost	Difficulty removing specimen/ need for morcellation
	Port site metastasis
	Cost

METHODS

Retrospective cohort study

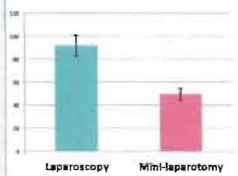
Inclusion criteria: Patients undergoing surgery on the general gynecologic or gynecologic oncology service at Stony Brook University Hospital Main Operative room and Ambulatory Surgery Center from 2002-3/2011.

Exclusion criteria: 1. if planned procedure included hysterectomy 2. pregnancy related surgery 3. if the surgery had no surgical specimen.

STUDY GROUPS

	Laparoscopy (n=352)	Mini-laparotomy (n=141)
Age	40.9 *(12-88)*	48.6 *(12-88)*
BMI	26.8 *(16-49.8)*	25.8 *(13.3-51.6)*
Resident Level	3.41 *(1-5)*	3.46 *(1-5)*
Indication	87% adnexal surgery	97% adnexal surgery

RESULTS



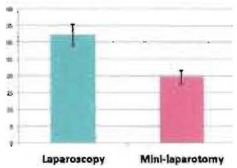
μ= 91.5 mins μ= 49.25 mins

Operative time:

There is a significantly shorter operative time in the mini-laparotomy group compared to the laparoscopy group, p = 0.000.

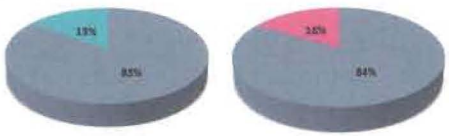
Estimated blood loss:

There is a significantly greater estimated blood loss in the laparoscopic group as compared to the mini-laparotomy group, p = 0.003.



μ= 32.11 cc μ= 19.6 cc

Cumulative complication rate: includes conversion, hospitalization, wound complication, emergency room visit, and re-operation. 52/352 laparoscopy patients and 23/141 mini-laparotomy patients had at lease one of the above complications, p = 0.667.



RESULTS

LAPAROSCOPY MINI-LAPAROTOMY

Conversion: 25/352 laparoscopy patients and 9/141 mini-laparotomy patients underwent conversion of surgery, p = 0.639

Wound Complication:1/352 laparoscopic patients and 5/141 mini-laparotomy patients had a wound complication, p = 0.008

Hospitalization day of surgery or re-hospitalization post-operative: 20/352 laparoscopy patients and 9/141 mini-laparotomy patients were admitted DOS or re-admitted within 30 days post-operatively, p = 0.765

Emergency Room Visit: 21/352 laparoscopy patients and 8/141 mini-laparotomy patients visited the ED for surgery related complaints, p = 0.288

Re-operation: 5/352 laparoscopy patients and 4/141 mini-laparotomy patients underwent re-operation within 30 days post-operative, p = 0.116

CONCLUSIONS

There is a statistically significant lower estimated blood loss and operative time in mini-laparotomy as compared to laparoscopy for minor gynecologic surgery.

There is no statistical difference in complication rate between mini-laparotomy and laparoscopy including conversion, re-operation, re-hospitalization. There is a statistically significant difference in wound complication.

Mini-laparotomy is a safe and effective minimally invasive approach in gynecologic surgery and should be added to our armamentarium of approaches offered to our patients.

LIMITATIONS

- Retrospective
- Not matched
- Bias in reporting
- Missing data
- Case selection bias

REFERENCES

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FURTHER RESEARCH

Randomized prospective clinical trial in which patients are randomized to L/S or mini-laparotomy for oopherectomy +/- salpingectomy, or ovarian cystectomy

Include patient-reported data about pain, loss of work days, return to bowel function, satisfaction

Cost-analysis