First 100 ETEP's: initial experience and learning curve at a single institution

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Introduction & Objectives

Ventral hernias are a significant source of morbidity in the American population, as well as a tremendous cost to the healthcare system. While both these can be primary or incisional ventral hernias, incisional ventral hernias alone are thought to have an incidence of up to 25% of all laparotomies(1). The extended totally extraperitoneal (ETEP) approach is a surgical technique to repair a ventral hernia using a mesh in a retromuscular sublay in a minimally-invasive way.

The objective of this study was to analyze the first 100 robot-assisted laparoscopic retromuscular ventral hernia repairs via the ETEP approach. Surgeons who were trained during fellowship were compared to those who were not and different variables were analyzed to characterize differences and review the series overall.

Methods

- Study Design: Retrospective Case Series
- Setting: Group of three minimally-invasive surgeons at Mission Hospital
- Population Studied: 100 total subjects undergoing ETEP +/- a concomitant surgical procedure
- Outcome Measures:
  - Primary outcome = operating room time
  - Secondary outcomes = hospital length of stay (LOS), hernia recurrence, surgical complications, wound complications
- This research was determined to be exempt from IRB oversight consistent with OHRP Title 45 CFR 46.102(l) and in accordance with institutional policy.

Results

Complication	Out of all surgeries	Non-concomitant only	
Wound complications	4	4	Hematoma requiring drainage, SSI-PI, SSO-PI (2)
Converted to open	1	1	
Recurrence < 1 year	1	1	
30 day complication	3	3	COPD exacerbation, Pneumonia, UTI
Total	9	9	

Table 1: Summary of Complications encountered in review

Variable	Non-fellow (n = 65)	Fellow (n = 32)	Overall (n = 95)	P-value	Type of test
OR Times, hrs	3.7 (1.3)	2.3 (0.8)	3.3 (1.4)	**< 0.001**	t-test
LOS, days median (Q1-Q3)	0 (0-1)	0 (0-0)	0 (0-1)	NS (0.44)	Mann-Whitney U test
EBL, ml median (Q1-Q3)	10 (10-10)	10 (5-10)	10 (5-10)	NS (0.81)	Mann-Whitney U test
BMI, kg/m2	33.8 (8.1)	34.7 (9.0)	34.1 (8.4)	NS (0.60)	t-test
Age, years	58.0 (12.9)	58.4 (14.5)	58.1 (13.4)	NS (0.89)	t-test
ASA	2.6 (0.55)	2.6 (0.56)	2.6 (0.55)	NS (0.73)	t-test
Dichotomized* ASA	0.60 (0.50)	0.63 (0.49)	0.61 (0.49)	NS (0.84)	t-test
TAR	0.29 (0.61)	0.45 (0.81)	0.34 (0.68)	NS (0.27)	t-test
Dichotomized* TAR	0.21 (0.41)	0.26 (0.52)	0.22 (0.42)	NS (0.58)	t-test

All values are mean (standard deviation) except where noted: median (middle 50% of data).
* dichotomized ASA: 1 & 2 = low, 3 & 4 = high; dichotomized TAR: 0 = N, 1 & 2 = Y.
NS= Not Significant

Table 2: Univariate statistical analysis of variables between fellowship-trained surgeons and those who are not

Discussion

- 77% of patients included underwent retro-rectus dissection alone while 23% required unilateral or bilateral TAR (transversus abdominis release).
- Other characteristics of our study population include an average BMI of 34.1, age of 58.4 years and ASA classification of 2.6.
- On multivariate analysis, mean OR time was significantly shorter in the surgeon who learned this technique during fellowship (2.3 vs 3.7 hours, P<0.001).
- TAR was found to add an average of 1.5 hours to the case but this was not associated with statistically significant longer LOS (P = 0.07).
- Higher BMI was associated with longer LOS, with a five-unit increase in BMI correlating to a 31% longer LOS (P = 0.05).

Limitations

- Retrospective study
- Limited experience of involved surgeons

Conclusions

Majority of cases were performed on an outpatient basis with a low complication and readmission rate. LOS and OR time were significantly shorter in surgeons who were trained on this technique in fellowship

Promising evidence that this could be incorporated into more general surgery practices.

References

1. Rutkow IM. Demographic and socioeconomic aspects of hernia repair in the United States in 2003. Surg Clin North Am. 2003;5:1045–51.

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