Stop Using Drains: A Retrospective Review of Drain Placement in Robot-Assisted Enhanced View Totally Extraperitoneal Retro-Rectus Ventral Hernia Repair

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Overview

Retrospective review of a single institution experience with drain placement in robotic eTEP.

Hypothesis – retrorectus drain placement during eTEP is associated with decreased surgical site occurrence (SSO).

Background

- Robot-assisted enhanced view totally extraperitoneal (eTEP) retrorectus ventral hernia repair is an increasingly used technology for ventral hernia repair.[1]
- Surgical site occurrences (SSO) are costly and may require post operative intervention.[2,3]

Methods and procedures

- Retrospective review of all robotic eTEPs at our institution from November 2019 to October 2022 with 30-day follow up.
- Categorical variables analyzed with Pearson chi-square analysis and continuous variables analyzed with nonparametric Mann-Whitney U test/Wilcoxon Rank Sum test.

Results

- 102 patients underwent eTEP. 10 (9.8%) received drains.
- Lysis of adhesions was performed more often in the drain group 30.0% versus 8.70%, p<0.039. Operative time (hours) and estimated blood loss (mL) were greater in the group that received drains, 5.03 versus 3.49, p<0.002 and 24.1 versus 11.9, p<0.027 respectively.
- The length of stay (days) was higher in the group that received drains 1 versus 0 days, p<0.0002.
- The 30-day emergency department visits, readmission, return to the operating room, hernia recurrence, SSO, complications were all low in absolute number and without significant difference between groups.

Patient demographic and preoperative comorbid disease

Values	No drain	Drain	*p* values
Demographics			
n	92	10	–
Age (years)	55.0 ± 12.3	53.1 ± 12.1	0.736
Sex – male (%)	59.8	60.0	0.989
Height (meters)	1.68 ± 0.0947	1.72 ± 0.0910	0.279
Weight (kilograms)	90.0 ± 17.2	89.1 ± 17.9	0.719
BMI (kg/m^2)	31.8 ± 5.06	30.2 ± 5.02	0.251
Comorbidities			
Current smoking (%)	16.3	30.0	0.281
Former smoking (%)	38.0	40.0	0.904
Alcohol use (%)	46.7	80.0	0.046*
Prior hernia repairs			0.017*
0	67.4	50.0	–
1	28.3	30.0	–
2	4.4	10.0	–
3	0	10.0	–
Hypertension (%)	53.3	60.0	0.685
Diabetes (%)	17.4	10.0	0.551
Hyperlipidemia (%)	35.9	40.0	0.796
Coronary artery disease (%)	6.52	10.0	0.679
Chronic obstructive pulmonary disease (%)	14.1	0	0.203
Stroke (%)	1.09	0	0.739
Myocardial infarction (%)	3.26	0	0.562
Congestive heart failure (%)	0	0	–
American Society of Anesthesiologists Classification			0.594
1	2.17	0	–
2	63.0	50.0	–
3	34.8	50.0	–
4	0	0	–
5	0	0	–
6	0	0	–

Conclusions

- Drain placement was not associated with lower SSO.
- Drain placement was seen more often in patients with higher numbers of prior hernia repairs, increased lysis of adhesions, increased estimated blood loss, and longer operative time.
- Drain placement was associated with increased length of stay.

Perioperative and postoperative outcomes

Values	No drain	Drain	*p* values
Hernia characteristics			
Total hernia defect size (cm^2)	63.9 ± 147.42	97.4 ± 121.09	0.119
Total mesh size (cm^2)	475.48 ± 254.46	507.29 ± 300.41	0.701
Mesh fixation (%)	18.5	30.0	0.383
Rectus diastasis (%)	64.1	80.0	0.315
Lysis of adhesions (%)	8.70	30.0	0.039*
Number of hernia defects			0.796
1	66.3	50.0	–
2	18.5	30.0	–
3	8.70	10.0	–
4	2.17	0	–
5	1.09	0	–
Swiss cheese	3.26	10.0	–
Perioperative			
Operative time (hours)	3.49 ± 1.09	5.03 ± 1.62	0.002*
Estimated blood loss (mL)	11.9 ± 10.5	24.1 ± 31.7	0.027*
Length of stay (days)	0.00 (0 – 1)	1.00 (1 – 2)	0.0002*
30-day emergency department visit (%)	2.17	10.0	0.164
30-day readmission (%)	2.17	0	0.638
Return to operating room (%)	1.09	0	0.740
Hernia recurrence (%)	1.09	0	0.732

Postoperative complications

Values	No drain	Drain	*p* values
Overall complications			
All complications (%)	18.48	20.0	0.801
Surgical site occurrence (%)	18.48	10.0	0.830
Wound complications			
Seroma (%)	11.96	0	0.247
Hematoma (%)	1.09	0	0.740
Superficial surgical site infection (%)	2.17	10.0	0.164
Deep surgical site infection (%)	0	0	–
Skin necrosis (%)	0	0	–
Wound dehiscence (%)	1.09	0	0.740
Posterior layer break (%)	2.17	0	0.638
Mesh infection (%)	0	0	–
Non-wound complications			
Ileus (%)	0	0	–
Urinary tract infection (%)	0	0	–
Acute renal insufficiency (%)	0	0	–
Venous thromboembolism (%)	0	0	–
Respiratory complication (%)	0	0	–
Myocardial infarction (%)	0	0	–
Congestive heart failure (%)	0	0	–
Other complication (%)	0	10.0	0.002*

References

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