Single Center Experience With Robotic-Assisted Transversus Abdominus Release (r-TAR) and Extended-View Totally Extraperitoneal (eTEP) Repairs

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Introduction

- Robotic ventral hernia repair is becoming more prevalent.
- Robotic-assisted transversus abdominus release (r-TAR) is a transabdominal approach of bilateral transversus abdominus release (TAR) for defect closure.
- Extended-view totally extraperitoneal (eTEP) repair is an extraperitoneal approach to allow for defect closure that may or may not include TAR.
- Studies support decreased length of stay (LOS), less postop pain, and decreased recurrence rates after robotic approaches.
- However, there are no defined standard outcomes as these are still new and evolving techniques.

***Study Aim*: To characterize early postoperative outcomes following r-TAR and eTEP at a single academic institution.**

Methods

- Performed retrospective analysis of all patients undergoing r-TAR and eTEP repairs for primary ventral and incisional hernias at our institution between 2018 and 2022.
- Exclusion criteria:
  - patients with flank and parastomal hernias as well as hybrid operations (robotic dissection with open mesh placement/closure)
  - prior hernia repair
- Pre- and post-operative characteristics and outcomes, including LOS, pain, operative times, morphine milligram equivalents, and complications were documented.
- Student's t tests used for comparison of continuous variables, Chi-square used for dichotomous variables.

Results

Table 1. Patient demographics and preoperative characteristics.

Variable	Total (n=56)	r-TAR (n=15)	eTEP (n=41)
Age at Surgery, years	58.4	63.7	57.9
Body Mass Index, kg/m^2	31.1	30.4	31.3
Female Gender	30 (68.2 %)	9 (60.0%)	21 (51.2%)
Preoperative Pain, N(%)			
Mild	24 (42.9%)	9 (60.0%)	15 (36.6%)
Moderate	7 (12.5%)	1 (6.7%)	6 (14.6%)
Severe	6 (10.7%)	4 (26.7%)	4 (2.4%)
Preoperative Symptoms			
Nausea, N(%)	7 (12.5%)	3 (20.0%)	4 (9.8%)
Obstruction, N(%)	1 (1.8%)	0	1 (2.4%)
Symptom Duration, months	48.7	42.5	50.8

Table 2. Perioperative Outcomes.

Variable	Total (n=56)	r-TAR (n=15)	eTEP (n=41)	*p* value
Operative Time, minutes	288.0	317.2	258.7	0.12
Length of Stay, hours	41.9	57.4	26.4	<0.01
Conversion to open, N (%)	4 (7.1%)	4 (26.7%)	0	<0.01
Time to Follow up Visit, days	15.9	14.9	16.8	0.37

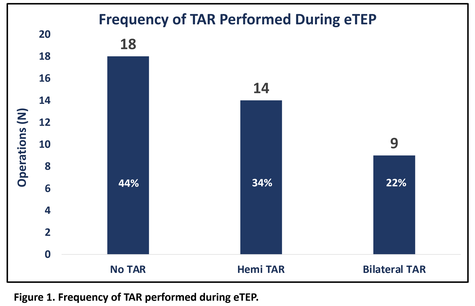


Figure 1. Frequency of TAR performed during eTEP.

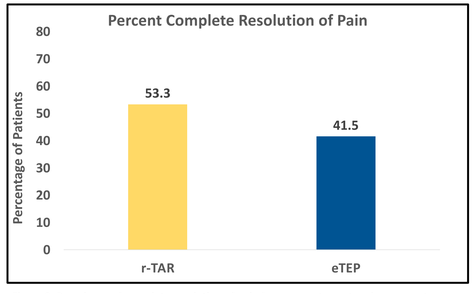


Figure 2. Prevalence of complete resolution of pain from preop to postop, by surgery type.

Results Continued

Figure 3. Change in pain profile from preop to postop following r-TAR.

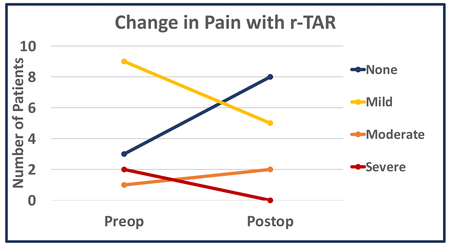


Figure 4. Change in pain profile from preop to postop following eTEP.

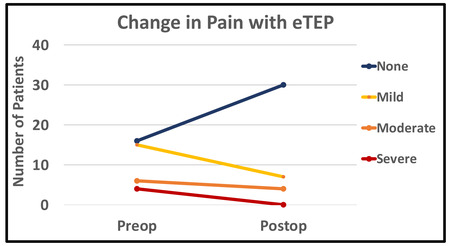


Figure 5. Perioperative pain medicine (in morphine milligram equivalents) used inpatient and prescribed outpatient, by surgery type. Note, there was no statistically significant difference between r-TAR and eTEP with either inpatient use or narcotics prescribed.

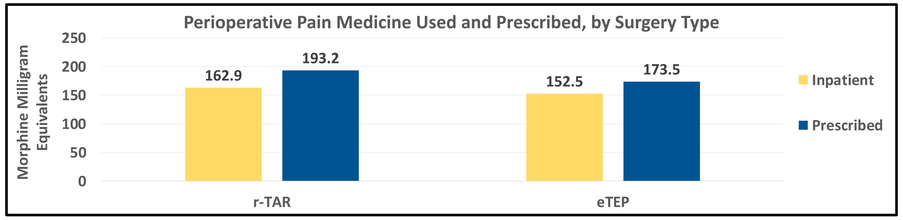


Table 3. Postoperative Complications.

Variable	Total (n=56)	r-TAR (n=15)	eTEP (n=41)
Any 30-day complication, N (%)	7 (12.5%)	2 (13.3%)	5 (12.1%)
Readmission, N (%)	3 (5.3%)	0	3 (7.3%)
Death, N (%)	0	0	0
Early Recurrence, N (%)	0	0	0

Conclusion

- r-TAR and eTEP are safe and effective procedures for the repair of primary ventral and incisional hernias with promising early outcomes.
- At this center, r-TAR is typically reserved for more complex abdominal wall repairs, as reflected by greater operative time, conversion rates, and length of stay compared to eTEP.
- Both operations were associated with high rates of symptom resolution and low complication rates in the short term.
- Further data is needed to evaluate the long-term effects and safety profile of these operations.