UT Southwestern Medical Center
Department of Surgery

Evolutions in Complex Hernia Repair: A Retrospective Review of 12-year Experience at a Large Tertiary Referral Center and Lessons Learned

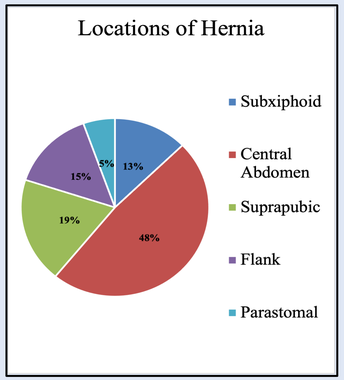
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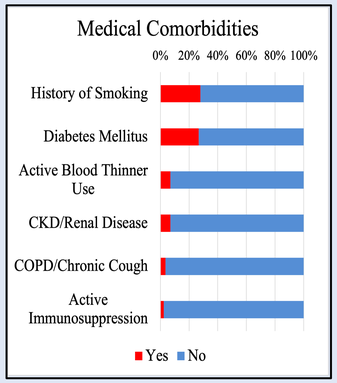
BACKGROUND

- Ventral hernias account for 500,000 operations yearly
- Complex hernias lead to significant morbidity and reduction in patient quality of life
- Variability exists in types of repair, mesh, and operative standards
- AIM: To describe the evolution and experience of a single surgeon at a tertiary referral center with complex hernia repairs

METHODS

- Retrospective analysis of complex hernia repairs
- ICD codes: K43. 0 (incisional hernia with obstruction, without gangrene), K43. 2 (incisional hernia without obstruction or gangrene), K43. 9 (ventral hernia without obstruction or gangrene), M62. 08 (separation of muscle -nontraumatic)
- Inclusion Criteria: Ventral hernia component + one of the following (BMI >35, hernia >5cm in a single dimension, mesh >15cm in a single dimension, multiply recurrent [≥ 2 previous repairs])
- Time frame 2009 – 2021
- Data are presented as median [interquartile range] or %





RESULTS

PATIENT CHARACTERISTICS

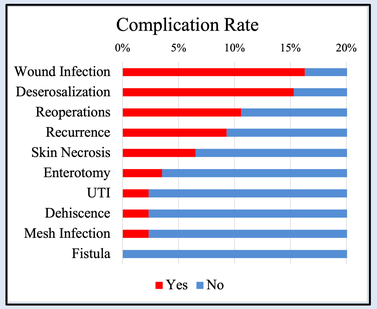
Age (years)	60 [54-69]
Initial Clinic Visit Body Mass Index (kg/m2)	31.1 [27.2-34.8]
Immediate Pre-operative Body Mass Index (kg/m2)	30.0 [26.5-32.8]
Hernia Defect on CT (cm2)	77.0 [40.8-130.1]
Previous Abdominal Operations (#)	5 [3-6]
Previous Hernia Repairs (#)	2 [1-3]
Albumin	4.2 [4.0-4.4]
Creatinine	0.85 [0.72-1.03]
Hgb A1C	5.7 [5.3-6.4]
ASA Classification	2 [2-3]

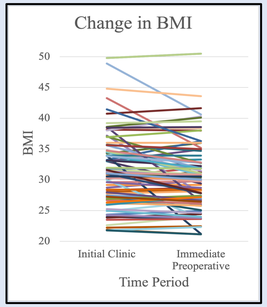
OPERATIVE CHARACTERISTICS

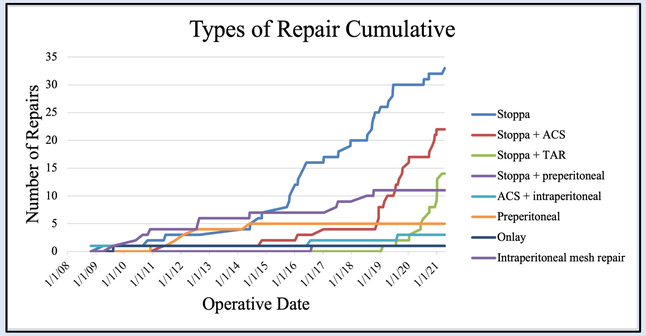
Total hernia cases	87
Cases with a second specialty surgeon (plastic surgery/urology/gynecology)	64%
Operating Time (min)	361 [271-436]
Lysis of Adhesions Time (min)	90 [60-120]
Required Previous Mesh Excision	33%
Estimated Blood Loss (mL)	125 [75-200]
Mesh Area (cm2)	518 [335-755]
Fixation Sutures (#)	17 [14-19]
Bony Overlap (cm)	5 [3-6]
Ventral Hernia Working Grade	2 [1-3]

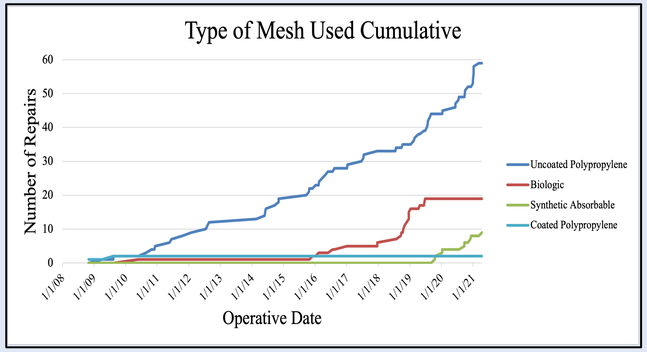
POST-OPERATIVE CHARACTERISTICS

Length of Stay (days)	6 [5-7]
Duration of Drains (days)	16 [11-20]
Duration of Antibiotics (days)	14 [8-21]
Days between surgery and latest follow-up (days)	176 [49-468]









OBSERVED TRENDS

Patient Characteristics:
- Increasing complexity of hernia locations
- Increasing medical comorbidities (obesity, DM, smoking, immunosuppressant use)

Operative Optimization:
- Notable pre-operative weight loss, especially for patients with BMI ≥ 35
- 6-staged repairs with Sleeve Gastrectomy
- Secondary surgeon –Plastic Surgery (80.3%), Urology (17.9%), Gynecology (1.8%)

Operative Technique:
- Increasing abdominal complexity – 49% with preexisting mesh, 25% LOA/Total operative time ratio, and 15% risk of deserosalization
- Preference for retrorectus repair +/- ACS or TAR (65%)
- Early years favoring of ACS, growing use of TAR more recently
- Predominant use of Uncoated Heavy Weight Polypropylene Mesh
- Large # of fixation sutures and bony overlap

Post-Operative Care
- Short length of stay, drain and antibiotic management outpatient
- Median follow-up at 176 days, however many cases are recent without enough time pass to assess adequately.

CONCLUSIONS & LESSONS LEARNED

- Despite the rise of complex ventral hernias and subsequent repair techniques, there is no consensus on repair standards
- At our high-volume referral institution, we have identified practice patterns with low complication rates that may serve to guide the hernia community

Lessons Learned:
- Pre-operative Planning: Joint operations with other specialties when appropriate, optimize BMI (staged repairs, emphasize preoperative weight loss)
- Operative Technique: Meticulous intraoperative dissection in redo abdomens, retrorectus repair with fascial release (ACS/TAR), wide bony fixation/overlap and large number of securing sutures
- Post-operative Care: Adequate drain management to minimize hematoma/seroma/infection, follow-up timeframe ideally 2 years post operatively

CONFLICT OF INTEREST DISCLOSURE

The authors have no conflicts of interest or funding sources to disclose