A contemporary review of incarcerated and strangulated obturator hernia repair: Is staged laparoscopic repair with mesh warranted after tissue repair?

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Introduction

- Obturator hernias are rare and usually seen in frail elderly female patients with multiple comorbidities[1].
- Given the mortality of up to 47.6% associated with incarcerated and strangulated obturator hernias [2-6], prompt surgical repair is critical.
- We sought to provide a thorough literature review focusing on outcomes between different operative techniques in obturator hernia repair and whether a staged approach with delayed laparoscopic mesh placement is a viable option.

Methods

- A literature search was conducted using the keyword “obturator hernia” in the PubMed database on July 10th, 2020.
- Inclusion criteria were studies that: (1) were written in English language and published within the last 10 years; (2) included as keywords the terms “obturator hernia” and/or “incarcerated” and/or “strangulated”; (3) reported the operative approach used for repair; (4) reported postoperative outcomes.

	Mean Hospital LOS	Postoperative Complications	30-day Mortality
Open (N=360)	13.4 days	145 (40.3%)	35 (9.7%)
Laparoscopic (N=65)	7.9 days	2 (3.1%)	0 (0%)

Table 1: Comparison *of postoperative outcomes in open and laparoscopic approach. .*

Results

- 225 studies were found and 53 met the inclusion criteria for our analysis. 425 patients were pooled.
- The mean age of the patients was 83.3 years old and 419 (98.6%) were females and 6 (1.4%) were males. The mean BMI was 18.1kg/m2.
- In patients who underwent open surgery, 239 (56.2%) had primary repair while 121 (28.5%) had mesh repair. In the group who had laparoscopic repair, 44 (10.4%) underwent mesh repair and 21 (4.9%) primary repair.
- Small bowel resection (SBR) was performed in 171 (40%) patients, 161 patients in the open group and 10 in the laparoscopic group.
- The combined recurrence rate of laparoscopic and open cases was 7.7% with a mean follow up period of 20.5 months.
- The overall recurrence rate in the open group was 7.9%; open repair with mesh demonstrated a recurrence rate of 0.9% and without mesh 11.4% at a mean follow up of 21.3 months.
- The overall recurrence rate in the laparoscopic repair group was 6.1% with mean follow up of 37.5 months, all of them were from laparoscopic primary repair which had 25% recurrence rate. No recurrences were reported with laparoscopic mesh repairs.
- Regardless of the surgical approach, only one recurrence was reported in mesh repair (0.7%), while 28 (12.1%) were reported with non-mesh repair (Table 4).
- Eleven studies (20.7%) reported follow up period greater than 24 months, with a total of 232 patients (54.5%). Of these patients with reported long-term outcomes, the long-term mortality was found to be 40.9% with mean follow up of 4 years (48.6 months).
- Studies that had mean follow up of more than 2 years reported 79.3% of all recurrences noted overall (23 out of 29).

	Open	Laparoscopic	Mean Hospital LOS	Postoperative Complications	30-day Mortality
No bowel resection (N=126)	71 (56.4%)	55 (43.6%)	9.6 days	20 (16%)	4 (3.2%)
Bowel resection (N=55)	47 (85.5%)	8 (14.5%)	17.7 days	28 (50.9%)	6 (10.9%)

Table 2: *Postoperative outcomes on patients with bowel resection and without bowel resection.*

	Mean Hospital LOS	Postoperative Complications	30-day Mortality
Open (N=71)	12 days	18 (25.3%)	4 (5.6%)
Laparoscopic (N=55)	6.5 days	2 (3.6%)	0 (0%)

Table 3: *Postoperative outcomes by operative approach on patient that did not undergo bowel resection*

	Recurrence
Mesh repair (N=145)	1 (0.7%)
Non mesh repair (N=232)	28 (12.1%)

Table 4: *Recurrence rates on mesh and non-mesh repair group (mean follow up of 20.5 months).*

Discussion

- Laparoscopic repair had almost half of the hospital length of stay of open repair, more than a ten-fold decrease in postoperative complications, and no deaths within 30 days while open repair had 9.7% 30-day mortality.
- It is important to highlight that more patients in the open repair group underwent small bowel resection which was associated with worse postoperative outcomes (Table 2).
- Laparoscopic repair also demonstrated improved postoperative outcomes in patients without bowel resection only (Table 3).
- Even with the underestimated prevalence of obturator hernia recurrence, we found clinically significant less recurrence in mesh repairs (0.7%) than non-mesh repairs (12.1%). Given these findings, mesh should be used in obturator hernia repair unless contraindicated.
- Exploratory laparotomy with tissue repair is the most common type of obturator repair, most likely because many patients will present with extensive contamination preventing the use of mesh and many surgeons are not comfortable with laparoscopy in the setting of a small bowel obstruction.
- When mesh placement is contraindicated or not performed at the index operation, a delayed laparoscopic repair with mesh demonstrates significant advantages in reducing recurrence rates, morbidity, and mortality.

References

- 1 - Stamatiou D, Skandalakis LJ, Zoras O, Mirilas P. (2011) Obturator hernia revisited: surgical anatomy, embryology, diagnosis, and technique of repair. Am Surg. 77(9):1147-1157.
- 2 - Rodríguez-Hermosa JI, Codina-Cazador A, Maroto-Genover A, et al. (2008) Obturator hernia: clinical analysis of 16 cases and algorithm for its diagnosis and treatment. Hernia. 12(3):289-297.
- 3 - Ng DC, Tung KL, Tang CN, Li MK. (2014) Fifteen-year experience in managing obturator hernia: from open to laparoscopic approach. Hernia. 18(3):381-386.
- 4 - Karasaki T, Nomura Y, Tanaka N. (2014) Long-term outcomes after obturator hernia repair: retrospective analysis of 80 operations at a single institution. Hernia. 18(3):393-397.
- 5 - Nasir BS, Zendejas B, Ali SM, Groenewald CB, Heller SF, Farley DR. (2012) Obturator hernia: the Mayo Clinic experience. Hernia. 16(3):315-319.
- 6 - Yokoyama Y, Yamaguchi A, Isogai M, Hori A, Kaneoka Y. (1999) Thirty-six cases of obturator hernia: does computed tomography contribute to postoperative outcome?. World J Surg. 23(2):214-217.