

Midwest Surgical Association

Modified retrorectus ventral hernia repair



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Repair;
Mesh;
Complications**Abstract**

BACKGROUND: Traditional retrorectus techniques for ventral hernia repair often produce abdominal wall pain related to transfascial suture placement. This report details results of a retrorectus mesh herniorrhaphy technique avoiding transfascial suture fixation.

METHODS: A retrospective review of 90 patients who underwent retrorectus ventral hernia repair between 2009 and 2015 was performed. All were treated with primary posterior rectus fascial closure and retrorectus mesh placement. Standard weight polypropylene mesh was used with polypropylene tacking sutures to the posterior rectus sheath with medialization of the rectus muscles and primary closure of the anterior rectus sheath over the mesh repair.

RESULTS: The overall complication rate was 19.6%. Hernia recurrence occurred in 2 patients (2.2%) with mean follow-up of 3.0 years. There were 4 cases of superficial infection (4.3%). Two patients (2.2%) developed hematomas and 2 patients developed seromas (2.2%). Late abdominal pain occurred in 6 (6.5%) patients, eventually resolving in all but 2.

CONCLUSIONS: Retrorectus ventral hernia repair avoiding transfascial suture placement produces a functional repair with minimal chronic pain and a low rate of complications.

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Ventral hernia is a common problem faced by general surgeons. Conservative estimates suggest that surgeons in the United States perform greater than 100,000 operations annually for ventral hernias.¹ Historically, many techniques have been used to treat this condition. Primary fascial closure alone is complicated by unacceptably high recurrence rates.^{2,3} Tension-free repairs with mesh placement have been well-demonstrated to decrease recurrence rates,⁴ however, have been shown to carry with them additional wound-related risks. Traditional retrorectus repairs using transfascial sutures can produce significant pain at the sites of these sutures. This series presents the surgical outcomes

of a series of ventral hernia repairs performed using a modified retrorectus technique, avoiding placement of transfascial fixation sutures.

Methods

Data acquisition

Patients who underwent a modified retrorectus ventral hernia repair (RRVHR) between July of 2009 and July of 2015 were included in this review. Ninety-two total cases in 90 patients were included, and all surgeries were performed by a single surgeon at the Mayo Clinic Hospital in Arizona. An Institutional Review Board approved retrospective chart review was performed for this group of patients to evaluate the surgical outcomes. Data were obtained from preoperative, intraoperative, and postoperative documentation including clinic notes, hospital notes, and anesthesia

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records. The mean postoperative time from surgery was 3.0 years.

The primary end point was the overall complication rate of patients undergoing retrorectus repair of ventral hernia. Complications included any postoperative morbidity that deviated from the expected postoperative course. Secondary end points evaluated in this analysis included hernia recurrence, wound-related infection, chronic pain (>90 days from surgery), hematoma, seroma, reoperation, mesh explantation, hospital length of stay, operative time, hospital readmission, and reoperation.

Technical procedure

In this series, all patients who underwent repair of ventral hernia had primary closure of abdominal fascia, without requirement of interposition mesh. Primary closure of the posterior rectus fascia was achieved in all cases using looped 0 PDS (Ethicon, Cincinnati, OH) suture, without the use of component separation. Mesh was placed in the retrorectus plane, anterior to the posterior rectus fascia. The mesh was placed in standard tension-free fashion. Three to 5 centimeters of mesh overlap was achieved in all directions from the closed posterior rectus fascial edges. Standard weight polypropylene mesh was used in all cases and was secured to the closed posterior fascia using interrupted 2-0 Prolene sutures. The anterior rectus fascia was closed with interrupted figure-of-eight, 0 Prolene sutures. The subcuticular space was closed with interrupted 3-0 Vicryl suture, and skin closure was performed with 4-0 Monocryl suture.

Results

Patient characteristics

A total of 92 cases in 90 patients were included in this analysis. Of these, 45 were male, and 45 were female. The mean age at time of surgery in this population was 58.8 years old (median 61.5 years). Notably, this was an obese population with a mean body mass index at time of operation being 32.4 kg/m² (median 31.5 kg/m²). Five patients endorsed active tobacco use. The mean number of previous abdominal operations in this population was 3.2 (median 3.0), with a range from 0 to 10 prior abdominal procedures. Forty-three cases (46%) were recurrent hernias. The average number of prior ventral hernia repair operations was 1 (range 0 to 7). Three patients had stomas (ileostomy or colostomy) at the time of hernia repair. At the time of data collection, the mean time from surgery was 3.0 years (median 2.9 years).

Outcomes

Most complications resulting from the procedure were minor. The primary outcome measured was the overall complication rate for patients undergoing RRVHR which

Table 1 Summary of postoperative complications with associated rates

Complications	n	Rate (%)
Hematoma	2	2.2
Seroma	3	3.3
Surgical site infection	4	4.3
Pain >90 days	6	6.5
Hernia recurrence	2	2.2
Other: urinary tract infection	1	1.1
Overall complications	18	19.6

totaled 19.6% (n = 18). Postoperative complications are summarized in [Table 1](#).

Postoperative pain lasting greater than 90 days from surgery occurred in 6.5% (n = 6). Wound infection was experienced by 4.3% (n = 4) of patients. However, no patients developed deep wound infections or infections requiring explantation of mesh.

Two patients (2.2%) developed hematomas postoperatively. Both of these required reoperation and hematoma evacuation. Recurrent hernia was experienced by 2.2% (n = 2) of patients. Both of these patients required reoperation. In total, 4 patients required reoperation which was 4.3% of the study population. Three patients developed seromas postoperatively (3.3%). One final patient experienced a postoperative urinary tract infection (1.3%). The hospital readmission rate was 4.3% (n = 4).

The mean length of stay for patients undergoing RRVHR was found to be 3.9 days. The average estimated blood loss at the time of surgery was 77 mL. The mean operative time was 189 minutes. Enterotomies were made in 2 patients and were repaired primarily at the time of injury. There were no mortalities.

Comments

Ventral hernia repair has been performed using many techniques. The ideal technique should result in low recurrence, reconstruction of a functional abdominal wall, avoidance of mesh to bowel contact, and low rate of complications. In this series of patients who underwent a modified retrorectus repair, the overall complication rate of 19.6% was found. Chronic pain was the most common long-term postoperative problem; however, this occurred in only 6.5% of patients and only 2 of these 6 patients had persistent pain at follow-up beyond 90 days. This is remarkably low in comparison to other available long-term results. Iqbal et al⁴ reported 27% of patients endorsing pain at long-term follow-up of 70 months after undergoing a modified Rives–Stoppa repair. Transfascial sutures used in other herniorrhaphy techniques traverse all muscular and fascial layers of the abdominal wall and are a frequent source of site-specific pain. It is the author's belief that the avoidance of transfascial sutures, securing mesh to the posterior rectus fascia, decreases the development of chronic

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