Enterocutaneous fistula 30 years after prosthetic mesh repair of ventral hernia

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ABSTRACT

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CASE REPORT

A 64-year-old female, with a one-week history of a mid-abdominal mass, presented to the emergency department with focal tenderness and cramp-like abdominal discomfort. She denied fever, chills, recent trauma, or changes in bowel habits. Her past medical history included diabetes, obesity, hypertension and asthma. Past surgical history was notable for a laparoscopic cholecystectomy and four ventral hernia repairs ultimately requiring mesh placement approximately thirty years ago. Computed tomography scan demonstrated an abscess in the right rectus sheath measuring 8.2x3.8x7.2 cm with phlegmon extension to the level of the umbilicus. Moreover, locules of gas and calcification were notable on the posterior aspect of the abscess. The patient was placed on broad-spectrum antibiotics. Interventional radiology was consulted for percutaneous drainage. A 5 French needle was subsequently used to drain 30 cc of purulent material. Pathology confirmed the presence of *Escherichia coli* within the abscess.

Six days after percutaneous drainage, surgical exploration demonstrated an infected polypropylene mesh intimately adherent to the abdominal wall and small bowel forming a fistula. The majority of the infected mesh was then removed, the abscess was further drained,

and vacuum-assisted closure dressing was placed. A follow-up small bowel series with barium performed two days later demonstrated an ostomy within the abdominal wall and a corresponding enterocutaneous fistula (Figure 1). Conservative measures were initiated for the following weeks with little resolution of the fistula due to its high output (>1 L per day on an oral diet with somatostatin and 400–600 mL per day on parenteral nutrition). An exploratory laparotomy was consequently performed during which a portion of small bowel was resected with primary anastomosis and further removal of the infected mesh. The abdominal wound began to granulate after correction of the fistula and placement of the vacuum-assisted closure dressing.

DISCUSSION

Large or recurrent ventral hernias are best managed with placement of a prosthetic material to ensure support of the abdominal defect. Polypropylene mesh is a commonly used prosthetic material utilized in open and laparoscopic methods for management of ventral hernias. A prosthetic mesh can be placed in three ways including onlay, subfascial, and intraperitoneal. Intraperitoneal repair is the most popular method due to ease of technique

Arron J. Gravina¹, Joshua A. Cuoco², Edward H. Cussatti³
Affiliations: ¹BS, Third year medical student, Department of Biomedical Sciences, New York Institute of Technology College of Osteopathic Medicine, Old Westbury, New York, USA; ²MS, Third year medical student, Department of Biomedical Sciences, New York Institute of Technology College of Osteopathic Medicine, Old Westbury, New York, USA; ³MD, Chairman of Department of Bariatric Surgery, Good Samaritan Hospital, West Islip, New York, USA.

Corresponding Author: Arron J. Gravina, 16 Riviera Ct, Great River, NY, USA, 11739, USA- (631) 859-0688; E-mail: agravina@nyit.edu

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Figure 1: Small bowel series with barium illustrates (A) an ostomy within the abdominal wall and, (B) corresponding enterocutaneous fistula.

and lower recurrence rate [1]. Placement of uncoated polypropylene mesh is performed when the omentum is sufficient to cover the bowel, thereby protecting the intestines from interaction with the mesh [1]. When omentum is insufficient, double layered polypropylene and vicryl or newer anti-adhesive meshes may be utilized [1].

Although polypropylene mesh is well tolerated by most patients, the use of such apparatuses is not without risk. Known complications in using polypropylene mesh include bacterial infection, hematoma and/or seroma development, adhesion formation, sinus formation, bowel obstruction, mesh extrusion, mesh migration, and enterocutaneous fistula formation [2]. Although rare, the most serious complication associated with mesh placement is enterocutaneous fistulation, which is usually a consequence of intestinal erosion by the mesh [2].

Enterocutaneous fistulation consequent to erosion of the bowel after mesh placement for a ventral repair was first described in literature in 1981 [3]. Since then, studies have reported the incidence of enterocutaneous fistulation following mesh placement to be between 3.0–3.5% [4, 5]. Nevertheless, the 30 years delayed presentation of enterocutaneous fistulation after mesh placement in our patient is unique such that it indicates risk of fistulation does not completely dissipate with time. Rather, polypropylene mesh provides patients with a life-long risk for the development of enterocutaneous fistulation.

CONCLUSION

Here, we present a patient that exhibited enterocutaneous fistulation 30 years after mesh placement for repair of a ventral hernia. As such, this case demonstrates that mesh placement may predispose patients to a life-long risk for enterocutaneous fistulation.

Keywords: Complications, Enterocutaneous fistula, Surgical mesh, Ventral hernia

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Arron J. Gravina – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Joshua A. Cuoco – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Edward H. Cussatti – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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