International Surgery Journal
*Reddy SM et al. Int Surg J. 2018 Mar;5(3):1141-1144*
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: http://dx.doi.org/10.18203/2349-2902.isj20180847

**Case Report**

# A rare complication of prosthetic mesh repair of a ventral incisional hernia: erosion and enterocutaneous fistula formation

**Sridhar Reddy M.*, Naresh M., Alok Rath, Saleem M. A.**

Department of General Surgery, Care Hospital, Banjara Hills, Hyderabad, Telangana, India

**Received:** 10 January 2018
**Accepted:** 31 January 2018

***Correspondence:**
Dr. Sridhar Reddy M.,
E-mail: sridhar.muthadi@gmail.com



## ABSTRACT

Recurrence of hernia has significantly reduced with mesh repair. But mesh is a foreign material which has its own complications like haematoma, infection, sinus formation, mesh migration and erosion. Mesh migration and erosion although rare, is a challenging complication which requires surgical intervention. There are very few such mesh related complications reported in the literature. Authors report a case of mesh erosion resulting in chronic infection and formation of enterocutaneous fistula following incisional hernia repair 5 years after surgery. In this case small bowel segment containing mesh was resected and primary anastomosis was done. Migration of mesh also depends on the nature of mesh (biomaterial) and type of fixation. Although many techniques of hernia repair have been described (open or laparoscopic) care must be taken to fix the mesh to abdominal wall for prevention of delayed complications. Different techniques of repair, types of meshes have been discussed to prevent such complications.

**Keywords:** Erosion, Hernia, Mesh migration

## INTRODUCTION

Primary suture repair of incisional hernia results in recurrence rate as high as 50%.[1] Tension-free mesh repair has lowered the reported recurrence to between 0% and 10%. There is increased trend of mesh repair of ventral hernias using different types of mesh. Nevertheless, several mesh-related complications have been reported post repair.[2,3] These complications are associated with type of mesh, intra-operative findings, and surgical technique. Complications observed are wound infection, seroma, delayed wound healing, sinus formation, mesh migration and erosion into adjacent structures, enterocutaneous fistula, and recurrence. Although mesh migration is the rarest of these complications, the diagnosis is difficult. There are very few such mesh related complications reported in the literature. We wish to report a case of mesh erosion resulting in chronic infection and formation of enterocutaneous fistula following incisional hernia repair 5 years after surgery.

## CASE REPORT

A 48-year-old lady, hypertensive, who underwent abdominal hysterectomy (10 years ago) and incisional hernia repair with mesh (5 years ago), presented to us with complaints of swelling and pain over scar which ruptured with discharge of pus 1 year ago. Since then multiple episodes of local abscesses with spontaneous rupture and healing occurred, but there was an increase in discharge since 1 month.

On examination, there was an infraumbilical midline scar with indurated area and discharging sinus. Culture of wound swab showed Escherichia coli, and was treated with IV antibiotics as per sensitivity. Later food particles were seen through the opening along with a high feculent

output. There was erythema and excoriation surrounding the fistulous opening. A CT scan of abdomen with oral contrast was suggestive of a defect of 42mm with herniation of small bowel loops, and contrast was seen to pass externally (Figure 1).

**Figure 1: CT scan abdomen (oral contrast) showing fistulous tract and contrast extravasation.**

The case was diagnosed as recurrent incisional hernia with entero-cutaneous fistula. Initially output was 400 ml which gradually stabilized to less than 100 ml over the next 2 months. She was planned for laparotomy and MR fistulogram was done to know the exact anatomical details. MRI showed communication between abdominal wall and proximal ileal loops (Figure 2).

**Figure 2: MRI abdomen showing fistulous tract communicating with bowel.**

Intra-operatively mesh was seen extruding through the external opening. Extensive adhesions between small bowel and parietes were lysed. Small bowel which was densely adherent to sac and the skin at fistulous opening was released (Figure 3).

Mesh was seen eroding into the lumen of the small bowel (Figure 4). A segment of small bowel of 6 inches resected (Figure 5) and an end to end anastomosis performed in two layers. In view of fecal contamination, a decision was taken for a tissue repair. The post operative period was uneventful and patient was allowed liquids after 48 hours and normal diet after 72 hours. On the seventh postoperative day SSI developed involving 75% of the wound.

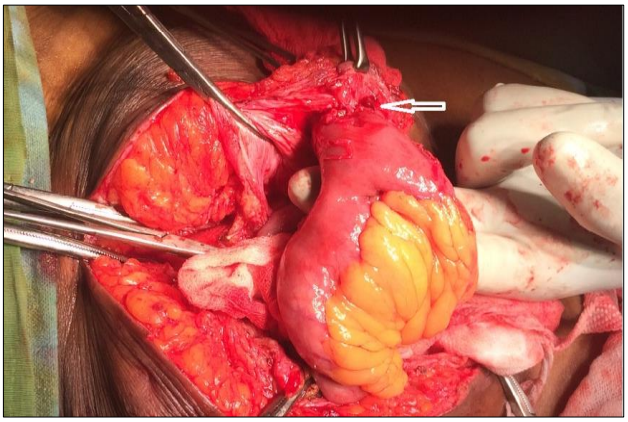

**Figure 3: Small bowel densely adherent to parietes and sac at site of fistula.**

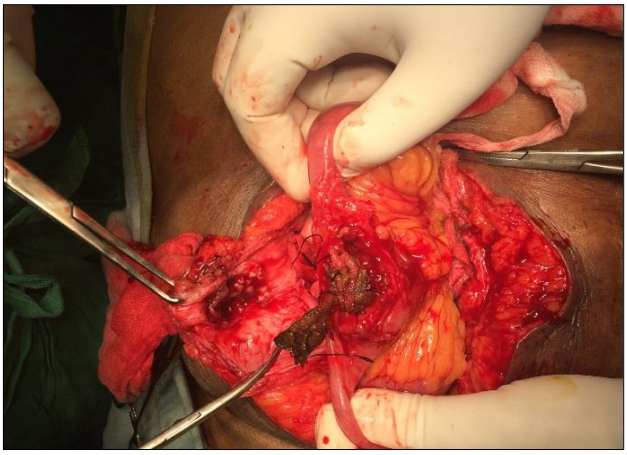

**Figure 4: Mesh seen eroding into the lumen of small bowel.**

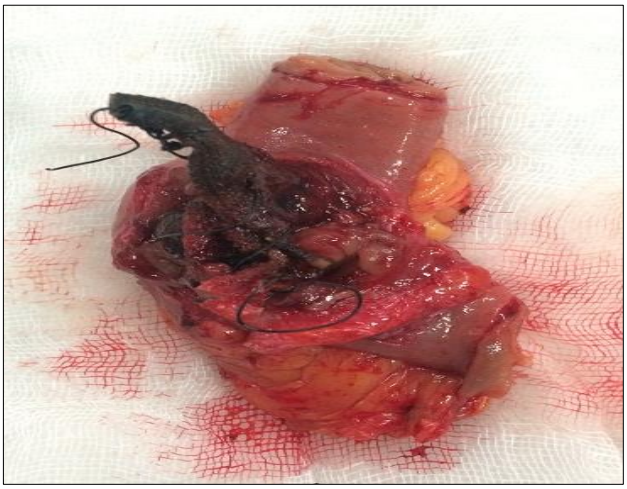

**Figure 5: Specimen showing mesh eroded into bowel.**

## DISCUSSION

Mesh repair has significantly reduced the incidence of recurrence. A systemic review and network meta-analysis was done by Holihan et al, to identify the ideal mesh location associated with lowest recurrence following an open ventral hernia repair.[4] This meta-analysis demonstrated that sublay placement of mesh showed improved outcomes compared to onlay, inlay and underlay repair. Sublay repair allows for tissue integration from posterior rectus sheath and anterior myofascial complex. In addition, this location protects mesh from exposure to superficial wound complications, intra abdominal adhesions and contamination. Underlay has advantage of protecting mesh from superficial wound complications and has highest potential for mesh overlap. However repair by open underlay technique leaves the mesh susceptible to organ and space infection.

Incidence of mesh infection in open surgery is 6-10% which drops to 0-3.6% with laparoscopic procedure.[5,6] Mesh introduction through trocar avoids skin contact and placement away from trocar incision.[7] Migration of surgical mesh and subsequent infection is less reported in literature but is a dangerous complication of hernia repair. This can cause recurrence of hernia, intestinal occlusion, erosion and peritonitis with enteric fistula.[8] The cut edges of mesh become sharp, damaging surface of viscous and evoking an inflammatory reaction thereby leading to weakness, erosion and finally infection.[9] Basoglu emphasized the need for peritoneal or omentum coverage for prevention of contact of bowel to mesh.[10]

Migration of mesh also depends on the nature of mesh (biomaterial) and type of fixation. Composite meshes which combine inert surface on visceral side and a more porous surface on parietal side allows intraperitoneal placement of mesh with minimal adhesion to visceral organs and tissue ingrowth on parietal surface.[11] Mesh shrinks by about 24-30% within 4 weeks of repair which can contribute to mesh displacement, migration and recurrence of hernia. Light weight prolene meshes and meshes with big pores, showed less shrinkage.[12] Mesh that is fixed with transfascial sutures showed less shrinkage when compared to those fixed by tacks alone.[13] However transfascial sutures can cause nerve entrapment, and therefore limiting number of transfascial sutures and compensating with tacks is an equally satisfactory approach.

Once there is migration and erosion of mesh into bowel, it has to be repaired. Repair would entail laparotomy, mesh explantation, bowel resection and anastomosis. However there is high chance of hernia recurrence after mesh removal, and placement of mesh at index surgery has high probability of infection. It is suggested to perform a staged operation, with mesh/bowel resection first followed by hernia repair at a later date. In our experience superficial SSI was noticed on the seventh postoperative day and hence decision to defer a primary mesh repair appears more apt. Another option in study of literature points to the use of biocompatible meshes which has shown more promise. Despite all the benefits, there are many complications of mesh repair which can increase the morbidity and mortality. Although mesh migration, particularly erosion, to the intestine and development of an enterocutaneous fistula is a rare complication of any incisional hernia repair, certain precautions during initial repair will help decrease this. It should also be recognized that mesh erosion tend to occur years later for which surgery is the mainstay of treatment.

*Funding: No funding sources*
*Conflict of interest: None declared*
*Ethical approval: Not Required*

## REFERENCES

1. Luijendijk RW, Hop WC, Van Den Tol MP, De Lange DC, Braaksma MM, IJzermans JN, et al. A comparison of suture repair with mesh repair for incisional hernia. New England Journal of Medicine. 2000 Aug 10;343(6):392-8.
2. Gandhi D, Marcin S, Xin Z, Asha B, Kaswala D, Zamir B. Chronic abdominal pain secondary to mesh erosion into cecum following incisional hernia repair: a case report and literature review. Annals of Gastroenterology: Quarterly Publication of the Hellenic Society of Gastroenterology. 2011;24(4):321.
3. Sippey M, Pender JR, Chapman WH, Manwaring ML, Kasten KR, Pofahl WE, et al. Delayed repair of obstructing ventral hernias is associated with higher mortality and morbidity. The American Journal of Surgery. 2015 Nov 1;210(5):833-7.
4. Holihan JL, Nguyen DH, Nguyen MT, Mo J, Kao LS, Liang MK. Mesh location in open ventral hernia repair: a systematic review and network meta-analysis. World journal of surgery. 2016 Jan 1;40(1):89-99.
5. Cobb WS, Carbonell AM, Kalbaugh CL, Jones Y, Lokey JS. Infection risk of open placement of intraperitoneal composite mesh. The American Surgeon. 2009 Sep 1;75(9):762-8.
6. Eriksen JR, Gögenur I, Rosenberg J. Choice of mesh for laparoscopic ventral hernia repair. Hernia. 2007 Dec 1;11(6):481-92.
7. Foschi D, Corsi F, Cellerino P, Trabucchi A, Trabucchi E. Late rejection of the mesh after laparoscopic hernia repair. Surgical endoscopy. 1998 May 1;12(5):455-7.
8. Basoglu M, Yildirgan MI, Yilmaz I, Balik A, Celebi F, Atamanalp SS, et al. Late complications of incisional hernias following prosthetic mesh repair. Acta Chirurgica Belgica. 2004 Jan 1;104(4):425-48.
9. Chowbey PK, Bagchi N, Goel A, Sharma A, Khullar R, Soni V, et al. Mesh migration into the bladder after TEP repair: a rare case report. Surgical Laparoscopy Endoscopy & Percutaneous Techniques. 2006 Feb 1;16(1):52-3.

10. Basoglu M, Yildirgan MI, Yilmaz I, Balik A, Celebi F, Atamanalp SS, et al. Late complications of incisional hernias following prosthetic mesh repair. Acta Chirurgica Belgica. 2004 Jan 1;104(4):425-48.
11. Nelson EC, Vidovszky TJ. Composite mesh migration into the sigmoid colon following ventral hernia repair. Hernia. 2011 Feb 1;15(1):101-3.
12. Klinge U, Klosterhalfen B, Müller M, Öttinger AP, Schumpelick V. Shrinking of polypropylene mesh in vivo: an experimental study in dogs. The European journal of surgery. 1998 Jan 1;164(12):965-9.
13. Beldi G, Wagner M, Bruegger LE, Kurmann A, Candinas D. Mesh shrinkage and pain in laparoscopic ventral hernia repair: a randomized clinical trial comparing suture versus tack mesh fixation. Surgical endoscopy. 2011 Mar 1;25(3):749-55.

**Cite this article as:** Reddy SM, Naresh M, Rath A, Saleem MA. A rare complication of prosthetic mesh repair of a ventral incisional hernia: erosion and enterocutaneous fistula formation. Int Surg J 2018;5:1141-4.