

## Case Report

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# Complete intraluminal migration of IPOM mesh causing sub-acute intestinal obstruction: a rare case report

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## ABSTRACT

Incisional hernia is a common complication following an abdominal surgery. They have ideally managed with open/ laparoscopic mesh repair. Mesh related complication are many due to increasing number of surgeries. This is a case of complete transluminal migration of a IPOM mesh and an eroding Onlay mesh presenting as a sub-acute intestinal obstruction after 2 years of incisional hernia surgery. Mesh migration is one of the complications of incisional hernia repair because of inadequate fixation or by ongoing inflammation (foreign body reaction). Complete trans luminal mesh migration is a rare complication with very few reports noted on bowel and urinary bladder. Transluminal migration into small bowel is a rare complication and it should be considered in differentials whenever patient comes with abdominal symptoms with past history of hernia repair.

**Keywords:** IPOM, Mesh migration, Intraluminal mesh migration

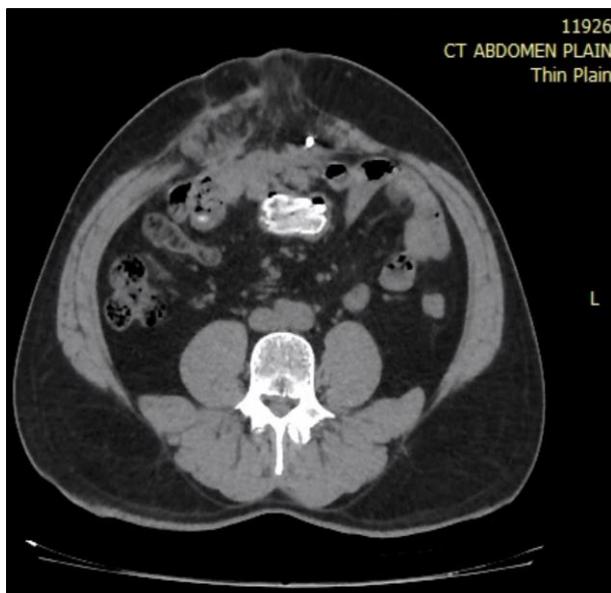
## INTRODUCTION

Incisional hernia is a common long term morbidity following the abdomen surgery with the incidence as high as 13%.<sup>1,2</sup> Those hernias further can be complicated with chronic pain, intestinal obstruction, incarceration, strangulation of bowel. So it is recommended that symptomatic Hernias should be repaired surgically either by open or laparoscopically with or without mesh.<sup>3</sup> Laparoscopic incisional hernia repair is replacing the open repair because it is the preferred approach in obese and also it reduces the wound infection five times when compared to open repair.<sup>1,3</sup>

It is recommended to do the mesh reinforcement for all ventral hernias with diameter >1 cm to reduce the recurrence.<sup>3</sup> In our case report, we are presenting a case of mechanical small bowel sub- acute obstruction due to migrated complete intraluminal IPOM mesh.

## CASE REPORT

A 60 years old male presented to our hospital with the chief complaints of abdomen pain which is on and off for last one month, history of constipation and abdominal distention. He had the past history of diabetes for 5 years for which he is on oral medication. He got operated for appendicitis with open surgery 22 years back and history of laparoscopic intraperitoneal Onlay mesh repair for incisional hernia 3 years back. Again he underwent open Onlay mesh repair for recurrent incisional hernia 2 years back. All three surgeries he had underwent in an outside hospital. On physical examination a Para median incision noted and an irreducible swelling of 5×5 cm noted in supra-umbilical region with no cough impulse. On cross-sectional imaging we have noted the recurrent incisional hernia with small bowel adhesion with anterior abdominal wall with displaced intraperitoneal mesh.



**Figure 1: Abdominal CT showing the migrated intraluminal mesh inside the ileum, small bowel adhesion and ventral hernia.**



**Figure 3: The resected surgical specimen (distal ileum) and the eroded IPOM mesh prosthesis with tackers taken out of the ileal loop.**

Post-operative course was uneventful and discharge on 7th postoperative day.

## DISCUSSION

Incisional hernia is the most common complication following any form of open abdominal surgery with the incidence of 2- 20%.<sup>4</sup> It is causing further complication ranging from chronic pain up to strangulation of bowel. Since an emergency hernia repair leading to high morbidity and mortality it has been recommended that all symptomatic hernia hernias should be treated surgically. While laparoscopic hernia surgeries are evolving and replacing the open technique because of its advantage over the reduced infection rate, less postoperative pain, early recovery and discharge.<sup>1</sup> Meanwhile it can also cause some serious complications like unrecognised bowel injury, intraperitoneal mesh related complications. It has been recommended that all hernias with defect size  $>1$  cm diameter should be repaired with mesh reinforcement to prevent the recurrence.<sup>3</sup> Artificial mesh related complications have been reported many times in open and laparoscopic repair like seroma, hematoma, mesh infection, mesh failure due to shrinkage, mesh migration and enterocutaneous fistula.<sup>5</sup> Among which mesh migration and intra peritoneal mesh erosions are relatively a rare complication but it can lead to abscess formation, mass mimicking malignancy, obstruction or viscous perforation and fistula.<sup>5</sup> There are many case reports on mesh migration into intra-abdominal organs/hollow viscous (colon and urinary bladder) following open/laparoscopic hernia repair.<sup>6,7</sup> Complete intra-luminal migration of a mesh into a small bowel is rare events, they are very few case reports on it with varying presentation (Table 1).<sup>2,5,8,9</sup> In our case report, there are two mesh complicating into subacute intestinal obstruction, one IPOM mesh with tackers completely migrated into the small bowel another Onlay mesh causing dense small bowel adhesion (Figure 2 and 3).



**Figure 2: Migrated mesh taken out of the small bowel (ileum) through an enterotomy.**

Intraoperatively there was incisional line hernia and dense small bowel adhesion with anterior abdominal wall with parietal wall mesh. On tracing down the ileal loop intraluminal Ipom mesh with tackers noted completely lying inside causing partial bowel obstruction which has been taken out through an enterotomy. Limited resection has been done for 60 cms of unhealthy segment and double stapler side to side anastomosis has been done. Incisional hernia has been repaired with posterior component separation.

In previous studies few possible pathophysiology were proposed like primary mesh migration into plane of least resistance due to inadequate fixation, displacement by external forces or secondary mesh migration through planes following mesh erosion due to foreign body reaction/ chronic inflammation at the site.<sup>5,6,10</sup> Apart from method of fixation, choice of material, size, shape, positioning of the mesh or any ongoing inflammation also plays the role in mesh migration.<sup>10</sup> On choosing the mesh

for intraperitoneal Onlay repair, safer mesh prosthesis should be chosen which is inert for intra-abdominal organs and any on-going inflammation to be ruled out before placing mesh. Other factor like technique of mesh placement (Onlay, sublay, inlay, intraperitoneal Onlay) as the risk factor for mesh migration is not well established. Although new composite mesh with protective barrier(e-PTFE) decreases bowel adhesion, it does eliminate the risk of adhesion and complication.<sup>8,11</sup>

**Table 1: Previous case reports of intra-luminal mesh migration.**

Case report	Age /sex	Symptoms	Location	Mesh placed	Management
<b>Triantafyllou</b>	72/ female	Asymptomatic	Small intestine	Detail -NA	Resection, anastomosis
<b>Nelson</b>	65/ male	Enterocutaneous fistula	Sigmoid colon	Laparoscopic - composite	Resection, anastomosis
<b>Azizs</b>	56/ female	Chronic abdominal pain	Cecum	?open – polypropylene mesh	NA
<b>Ceci</b>		Chronic anemia	Small bowel	Open IPOM- composite mesh	Resection, anastomosis
<b>Millas</b>		Chronic abdominal pain	Sigmoid colon	Open composite mesh	Resection, anastomosis
<b>Piccho</b>	84/ female	Intermittent abdomen pain	Ileum	Open inlay polypropylene mesh	Resection, anastomosis

So it is better to place the mesh preperitoneally or interposing omentum to avoid direct contact with bowel.<sup>2</sup>

## CONCLUSION

Mesh migration and erosion though it is a rare complication, it is causing major morbidity. It may be asymptomatic for long years or presents with luminal/ varying atypical clinical presentation. Being one of the most common surgery, while doing incisional hernia repair, type of mesh, adequate fixation, method and approach are to be planned carefully. Meanwhile mesh related complication should be kept in the differentials whenever post incisional hernia repair patient comes with abdominal compliant for timely diagnosis and appropriate management.

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