Open Access

Migration of Mesh through Trans-Rectal Route: An Unusual Complication of Laparoscopic Inguinal Hernia Repair

Avtar Pachauri^{1*}, Harvinder Singh Pahwa¹, Awanish Kumar¹

¹Department of General Surgery, King George Medical University, Lucknow, Uttar Pradesh, India

*Corresponding Author: Avtar Pachauri, Department of General Surgery, King George Medical University, Lucknow, Uttar Pradesh, India; Email: dr.avtar.pachori@gmail.com

Received Date: 04-12-2020; Accepted Date: 31-12-2020; Published Date: 08-01-2021

Copyright© 2020 by Pachauri A, et al. All rights reserved. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

Abstract

Majority of inguinal hernia repairs today, open or laparoscopic, are performed with mesh tension-free repair. The introduction of mesh, though beneficial, poses its own gamut of postoperative problems; mesh migration being the most unusual, increases morbidity and financial burden. Only a handful of cases of mesh migration have been reported in literature. Here we report the first case to our knowledge, of mesh migration through rectum developing 2 years postoperatively. The mesh was removed manually and the patient was managed conservatively and discharged. This case highlights the importance of recognising mesh migration as a complication of hernia repair and thus we suggest that all the cases of mesh migration should be reported and further research should be done to find out the cause of this occurrence and thereby taking necessary steps to prevent its incidence.

Keywords

Laparoscopic Hernia Repair; Mesh Migration; Total Extra-Peritoneal Repair

Introduction

The inguinal hernia repair is the most frequently performed procedure in general surgery. Laparoscopic repair is a reasonable alternative to traditional open technique for the treatment

Pachauri A | Volume 2; Issue 1 (2021) | JSRP-2(1)-011 | Case Report

Citation: Pachauri A, et al. Migration of Mesh through Trans-Rectal Route: An Unusual Complication of Laparoscopic Inguinal Hernia Repair. J Surg Res Prac. 2021;2(1):1-7.

DOI: <http://dx.doi.org/10.46889/JSRP.2020.2101>

of hernia by the placement of mesh [1]. In the coming future this approach tends to become the gold standard procedure for the inguinal hernia. Early complications like superficial wound infection, seroma, hematoma, urinary retention and chronic pain are all reported and well known [2]. Late complications like mesh infection and mesh migration following laparoscopic approach are very low with reported incidence of mesh infection 0.1% to 0.2% only [3-5]. We report the first rare case of mesh migration through rectum following Total Extra Peritoneal (TEP) inguinal hernia repair.

Case Report

A 60 year old man presented to surgery emergency of our hospital with complaints of something coming out from anus since 2 days associated with vague lower abdominal discomfort. There was no associated history of fever, vomiting, abdominal distension, altered bowel habit or any abdominal trauma. Patient is a known diabetic and controlled on oral hypoglycemic drugs. The patient had underwent laparoscopic total extra peritoneal repair of bilateral inguinal hernia two years back from the current presentation, by using 2 mesh of size 7×15 cm polypropylene mesh with non-absorbable tacker fixation. Post-operative period was uneventful. On examination, he was afebrile, with stable hemodynamic parameters. There was no significant finding on per-abdominal examination. Per rectal examination revealed a foreign body (mesh) hanging out approximately 2 cm from anal verge (Fig.1).

Total leucocyte count was 8,600 and HbA1c was 5.70. Digital X-ray KUB region shows metallic tacker used for mesh fixation in right inguinal region (Fig 2). Contrast enhanced tomography was suggestive of well-defined hyperdensity noted in rectum with mild circumferential thickening of rectal wall and perirectal fat plane stranding with few air specks noted within the right lateral wall of rectum near the intraluminal hyperdensity (Fig 3).

Initially it was planned for performing per rectal examination under spinal anaesthesia and proceed for laparotomy accordingly, but it was found that mesh was lying loosely into the rectal canal without tacker. So the mesh was removed manually followed by per rectal examination which showed no signs of breach in the rectum (Fig 4). Postoperatively patient was kept nil per oral for one day. Recovery was uneventful and the patient was discharged subsequently. Patient was followed up for 1 year and he remained asymptomatic with no clinical evidence of recurrence of hernia or infection.

Figure 1: Foreign body hanging out from anus.

Figure 2: Non absorbable tackers in right inguinal region.

Figure 3: Abdominal CT scans showing hyperdensity in rectum.

Figure 4: Mesh after removal.

Discussion

Late complication related to mesh placement is rare. Mesh migration after laparoscopic inguinal hernia repair is just being encountered as an emerging complication. Only a handful of cases of mesh migration into urinary bladder, small bowel and large bowel after laparoscopic inguinal hernia repair have been reported so far [6-14]. In most of these reported cases, patients

Pachauri A | Volume 2; Issue 1 (2021) | JSRP-2(1)-011 | Case Report

Citation: Pachauri A, et al. Migration of Mesh through Trans-Rectal Route: An Unusual Complication of Laparoscopic Inguinal Hernia Repair. J Surg Res Prac. 2021;2(1):1-7.

DOI: <http://dx.doi.org/10.46889/JSRP.2020.2101>

presented with abdominal complaints and underwent laparotomy with removal of mesh [7,8,14-16]. However, in contrast our patient did not have any abdominal complaint and painless migration of mesh occurred and managed conservatively.

Few mechanisms responsible for painless mesh migration have been described by two authors in their study which can also be the possible explanation of painless presentation in our case [9,17]. Sha Liu, et al., proposed possible 4 mechanisms of painless mesh migration in their study [9]:

1. The foreign body reaction to mesh enables gradual movement of the mesh through the anatomic planes in the abdominal cavity, particularly along the paths of low resistance
2. In some occasions, the mesh can be encapsulated by the omentum during its migration and create a channel into hollow organs along with inflammatory reaction and peristaltic bowel movement
3. Gram-positive cocci are generally responsible for superficial wound infection and can further trigger the deeper infection. Bacterial biofilm can develop over the mesh due to chronic contamination by staphylococcus species, which results in painless mesh migration through the tissue
4. Prosthetic mesh material decreases the formation of the mesothelial cell layer in peritoneal repaired defects, predisposing the irregular surface of mesh to be surrounded by scar tissue, thus the inflammation is localized

Agrawal A, et al., divided the mechanism of painless mesh migration into two types- primarily mechanical and secondarily due to erosion of surrounding tissue [17]. In primarily mechanical factor responsible for mesh migration is inadequate fixation or external displacing force which cause displacement into adjoining anatomical spaces. While secondary mechanism is slow and gradual movements of the mesh through trans-anatomical planes. These are secondary to foreign body reaction induced erosion, it is mainly dependant to a great extent on the nature of mesh biomaterial and on the type of fixation of the mesh, Thus the mesh initially may be displaced but later erode into adjacent tissue.

The exact mechanism causing mesh migration is still not clear, but few factors have been attributed for it like intra-op peritoneal breach, inadequate repair, inadequate mesh size, improper unfolding of mesh after placement, improper fixation of mesh with tackers, injury of visceral serosa by prosthetic mesh or tackers and strenuous activity in immediate post op period [7,18,19]. However in our case we could not ascertain any factor mentioned above responsible for mesh migration.

Thus our objective to report this case is to throw light on this possible, rarely reported complication of mesh placement following laparoscopic inguinal hernia repair. Although the exact mechanism and contributing factors responsible could not be ascertained but we hope that more reporting of such cases and further insight into the probable mechanism might benefit by implementing proactive or corrective measures to prevent such complication.

Conclusion

Case based reporting and study of detail of these cases gives us clue to recognising various possible mechanism and faulty technique of repair which leads to mesh migration as a complication of hernia repair and thus we suggest that all the cases of mesh migration should be reported and further research should be done and thereby taking necessary steps to prevent its incidence.

References

1. Neumayer L, Jonasson O, Fitzgibbons Jr R, Henderson W, Gibbs J, Carrico CJ, et al. Tension-free inguinal hernia repair: the design of a trial to compare open and laparoscopic surgical techniques. *J Am Coll Surg.* 2003;196(5):743-52.
2. Lauwers P, Bracke B, Hubens G, Vaneerdeweg W. Unusual complications of preperitoneal mesh implantation in the treatment of inguinal hernia. *Acta Chir Belg.* 2003;103(5):513-6.
3. Ramshaw B, Abaid F, Voeller G. Polyester (Parietex) mesh for total extraperitoneal laparoscopic inguinal hernia repair: initial experience in the United States. *Surg Endosc.* 2003;17:498-501.
4. Jalilvand A, Sarker S, Fisichella PM. A rare case of mesh infection 3 years after a laparoscopic Totally Extraperitoneal (TEP) inguinal hernia repair. *Surg Laparoscopy Endo Percutaneous Techniq.* 2015;25(2):e69-71.
5. Yadav AK, Bindal V, Jangra VK, Khan Z, Ahangar S, Sharanappa V, et al. Delayed mesh infection: a rare complication of laparoscopic inguinal hernia repair (TEP-Totally Extra-Peritoneal Repair). *Surg Sci.* 2016;7(10):453-60.
6. Bodenbach M, Bschleipfer T, Stoschek M, Beckert R, Sparwasser C. Intravesical migration of polypropylene mesh implant 3 years after laparoscopic hernioplasty. *Urologe A.* 2002;41:366-8.
7. Hume R, Bour J. Mesh migration following laparoscopic inguinal hernia repair. *J Laparoscopic Surg.* 1996;333-5.
8. Baldassarre E, Valenti G, Porta IP, Viganò M. Re: Mesh Migration into the bladder after TEP Repair: a rare case report. *Surg Laparosc Endosc Percutan Tech.* 2006;16: 52-3.
9. Liu S, Zhou XX, Li L, Yu MS, Zhang H, Zhong WX, et al. Mesh migration into the sigmoid colon after inguinal hernia repair presenting as a colonic polyp: a case report and review of literature. *World J Clin Cases.* 2018;6(12):564-9.
10. Falk GA, Means JR, Pryor AD. A case of ventral hernia mesh migration with splenosis mimicking a gastric mass. *BMJ Case Rep.* 2009.
11. Hamouda A, Kennedy J, Grant N, Nigam A, Karanjia N. Mesh erosion into the urinary bladder following laparoscopic inguinal hernia repair; is this the tip of the iceberg? *Hernia.* 2010;14:317-9.

12. Aggarwal S, Praneeth K, Rathore Y, Waran V, Singh P. Laparoscopic management of mesh erosion into small bowel and urinary bladder following total extra-peritoneal repair of inguinal hernia. *J Minim Access Surg.* 2016;12:79-82.
13. Goswami R, Babor M, Ojo A. Mesh erosion into caecum following laparoscopic repair of inguinal hernia (TAPP): a case report and literature review. *J Laparoendosc Adv Surg Tech A.* 2007;17:669-72.
14. Asano H, Yajima S, Hosoi Y, Takagi M, Fukano H, Ohara Y, et al. Mesh penetrating the cecum and bladder following inguinal hernia surgery: a case report. *J Med Case Rep.* 2017;11:260.
15. El Hakam MZ, Sharara AI, Chedid V. Persistent left lower abdominal pain. *Gastroenterol.* 2010;138:e5-e6.
16. Sha Liu, Xin-Xin Zhou, Lin Li, Mo-Sang Yu, Hong Zhang, Wei-Xiang Zhong, et al. Mesh migration into the sigmoid colon after inguinal hernia repair presenting as a colonic polyp: A case report and review of literature. *World J Clin Cases.* 2018;6(12):564-9.
17. Agrawal A, Avill R. Mesh migration following repair of inguinal hernia: a case report and review of literature. *Hernia.* 2006;10:79-82.
18. Demir U, Mihmanli M, Coskun H, Dilege E, Kalyoncu A, Altinli E, et al. Comparison of prosthetic materials in incisional hernia repair. *Surg Today.* 2005;35:223-7.
19. Choy C, Shapiro K, Patel S, Graham A, Ferzli G. Investigating a possible cause of mesh migration during Totally Extraperitoneal (TEP) repair. *Surg Endosc.* 2004;18:523-5.