Ankara Eğt. Arş. Hast. Derg., 2021 ; 54 (1) : 145-147

Olgu Sunumu / Case Report

DOI: 10.20492/aeahtd.760476

A RARE COMPLICATION AFTER INCISIONAL HERNIA REPAIR; MESH MIGRATION INTO THE ILEUM: A CASE REPORT

İNSİZYONEL HERNİ ONARIMI SONRASI GÖRÜLEN NADİR BİR KOMPLİKASYON; İLEUM İÇİNE MESH MİGRASYONU: OLGU SUNUMU

Yılmaz UNAL[1], Berkay KUCUK[2], Salih TUNCAL[1], Mevlüt Recep PEKCICI[1]

ABSTRACT

Incisional hernia repair is often done by mesh products and the results are usually favorable. Many mesh products are designed to be used in the peritoneal cavity in conjunction with increased use of laparoscopic repairs. To prevent mesh adhesion to the underlying organs, adding a second layer containing a more inert substance is designed and many studies demonstrate its efficiency. However, some complications may occur ranging from simple seromas to mesh rejection or migration. This is a case presentation of a 74 year old female patient, who previously underwent incisional hernia repair by polypropylene mesh, and who presented to our clinics with acute abdomen.

Keywords: *Incisional hernia, mesh migration, complications*

ÖZET

İnsizyonel hernilerin onarımı sıklıkla mesh ürünlerinden biri ile yapılır ve sonuçları genel olarak olumludur. Laparoskopik onarımın da devreye girmesiyle, günümüzde birçok yeni mesh ürünü tasarlanmaktadır. Buna rağmen mesh kullanımı sonucu basit bir seromadan, meshin reddine veya migrasyonuna kadar uzanan bazı komplikasyonlar görülebilmektedir. Bu çalışmada kliniğimize başvuran, akut karın tablosu olan ve daha önce polipropilen mesh ile insizyonel herni onarımı yapılmış 74 yaşındaki kadın hasta sunulmuştur.

Anahtar Kelimeler: *İnsizyonel Herni, Mesh Migrasyonu, Komplikasyonlar*

[1] Ankara Training and Research Hospital, Department of General Surgery, Ankara, Turkey
[2] Ankara City Hospital, Department of Intensive Care, Ankara, Turkey

Geliş Tarihi / Submitted : Eylül 2020 / September 2020 Kabul Tarihi / Accepted : Ocak 2021 / January 2021

Sorumlu Yazar / Corresponding Author:
Yılmaz UNAL
Ankara Training and Research Hospital, Department of General Surgery, Ankara, Turkey
Gsm: +90 532 451 50 66
E-mail: yilmazunall66@gmail.com

Yazar Bilgileri /Author Information:
Yılmaz UNAL (ORCID: 0000-0001-9712-5827)
Berkay KUCUK (ORCID: 0000-0002-5166-1429) E-mail: berkaykck@hotmail.com,
Salih TUNCAL (ORCID: 0000-0002-6633-6557) E-mail: tuncalsalih7@gmail.com,
Mevlüt Recep PEKCICI (ORCID: 0000-0002-5566-8134) E-mail: pekcici@yahoo.com,

This work is a case report. Ethics committee approval is not required. Informed consent was obtained from the patient.

INTRODUCTION

Incisional hernia is a form of iatrogenic hernia occurring after abdominal surgery and incisional hernia surgery is among the most frequently performed surgeries. Incisional hernia incidence is 3-20% after laparotomy and is 0.2-1.2% after laparoscopy . When incisional hernia repair is done with primary repair, the recurrence rates vary between 31-54%, however, with the use of the mesh products, the rates has receded below 10% (1). Therefore synthetic meshes are used at many centers for the incisional hernia repair. Polypropylene meshes are often preferred since they are cheaper than the other ones.

It is suggested that together with complications such as seroma, granuloma, fistula formation and chronic pain; mesh contraction and migration may have an effect on hernia recurrences (2).

Mesh migration into the intestines is considered to occur by the migration of polypropylene sutures to the abdominal wall initially, then by the free floating of the mesh in the abdominal cavity and finally by the chronic erosion on intestinal wall. In constitution of this condition, patient factors are effective as well as the technical factors. In the formation of mesh migration, it is accepted that the type of the mesh and the type of fixation has a role (3).

Mesh migration into the intestine is a rare complication following the incisional hernia repair by mesh. The aim of this case report is to remind that mesh complications in patients who underwent mesh repair in incisional hernias may lead to signs of acute abdomen.

CASE REPORT

74 year old female patient presented to the emergency service with abdominal pain lasting for 3 days, intermittent vomiting and inability to excrete gas and feces. The history of the patient informs that she had type 2 diabetes, hypertension and cardiac disease for approximately 30 years and that she had been operated twice; initially for open cholecystectomy 20 years ago and then for incisional hernia 8 years ago.

In the physical examination, the upper and lower abdominal midline incisional scar was present. There was widespread abdominal tenderness and rebound. There was a palpable mass on the right side of the umbilicus. There was no significant result in laboratory findings. Standing direct abdominal radiography revealed air-fluid levels. There was a hernia sac, herniating from the 8 cm defect in the lower part of the mid abdominal region towards the anterior of the abdominal wall in the contrast computed tomography. There was dilatation and increased thickness of the walls of the intestinal loops in the sac and there was free air levels in the sac **(Figure 1).**

Upon taking the oral and written consent, the patient underwent emergency surgery. Hernia sac was reached passing through the skin and the subcutaneous tissue via the old incision scar. There were disorders in the blood supply and microperforations in the ileal loop in the sac. In addition, the ileal loop was observed to be fistulized to the fascia. When the ileum loop was opened by dissection, a 7-8 cm polypropylene mesh covered by intestinal contents was observed in the lumen, migrated in a folded form **(Figure 2).** At 40 cm proximal from the ileocecal valve, a 30 cm intestinal loop was resected and double barrel end ileostomy (because of the diameter differences between the proximal and distal loops and of the edema) was performed. The fascia defect is primary repaired. Postoperative subcutaneous infection developed, the patient was discharged on day 14. The patient's ileostomy was closed in the 3rd month post-operatively and no hernia recurrences has been observed yet.

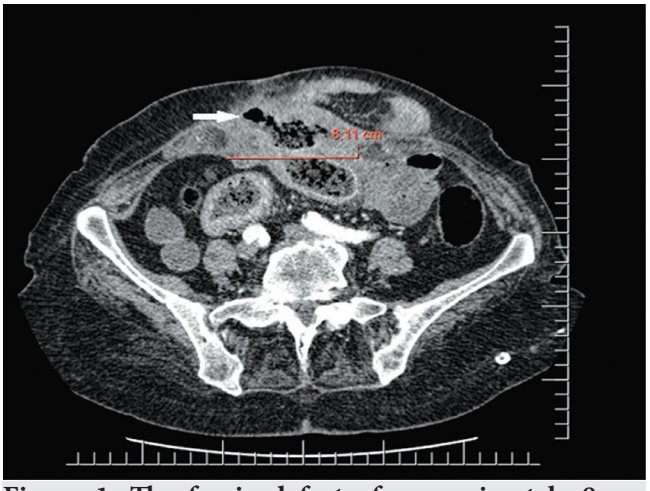

Figure 1: The fascia defect of approximately 8 cm in the anterior wall of the abdomen and herniated intestinal loops, which are extending from the defect to the subcutaneous tissues are observed. The density (arrow) due to the air observed out of the intestinal lumen indicates perforation.

Figure 2: The view of the migrated mesh into the ileum and the prolene sutures.

DISCUSSION

Incisional hernia repair with mesh is recognized as a standard treatment today. In the long term retrospective

studies, as the recurrence rate in the incisional hernias repaired by primary suturing reaches 50%s, this rate is below 10%s in the repairs by synthetic meshes(1).

Initially in 1940s metallic meshes were used, however the use of these meshes were abandoned in 1970s due to wound complications. In 1959, polypropylene meshes, which are used routinely in open hernia surgeries were produced. However, in cases when some part of the abdominal wall has been lost, and in cases when it is impossible to approximate the tissues, the use of propylene meshes is unfavorable because they can adhere to the intraabdominal organs. Upon this, composite meshes with the addition of a second layer containing more inert material are produced to prevent adhesions onto the organs beneath. The meshes can be used safely in ventral hernia repairs by both open and laparoscopic techniques(4).

Again, by the end of 1990s, biological (natural) mesh production commenced due to the complications, which may occur due to the synthetic meshes(4). Biological meshes are expensive options. However, they should be used in patients, who has no possibilities for other treatment options.

An ideal mesh should be accessible easily, should not be carcinogenic, could be integrated into the human tissue, but should not cause hypersensitivity or foreign body reaction, and should have the sufficient strength to stand the mechanical tension created by the internal abdominal pressure(4). But an ideal mesh including all of these qualities has not yet been produced. There are advantages and disadvantages of each mesh type. Mesh is a foreign object for the body and eventually after mesh use, complications such as seroma, hematoma, infections, organ damage, mesh contraction, mesh erosion, fistula formation and mesh migration may occur. Among these complications, mesh migration is much rarer(2).

Erosion of the mesh and mesh migration may lead to acute intestinal obstruction and chronic abdominal pain. Mesh migration typically occurs via two mechanisms. Primary mechanical migration occurs either as a result of insufficient fixation of the mesh or as a result of its displacement by means of external forces along the adjacent anatomical regions including less resistance. The secondary migration occurs by the transanatomical planes and is the result of erosion triggered by the foreign body reaction. This mechanism is supported by the presence of inflammatory granulation tissue in the field of migration. Secondary migration is a slowly developing process and can take several years (3,5).

The structure of the mesh, the fixation method and mesh infection have been proposed to be effective in the mesh migration (6). In the literature, mesh migration into the bladder and to the intestines following incisional hernia repair has been reported (7,8).

Mesh can be placed onlay (onto the fascia), inlay (onto the sheet of posterior rectus) and sublay (between the posterior sheet and the peritoneum). Especially sublay placed meshes have been demonstrated to have a higher risk of migration into the bladder and into the intestines due to chronic erosion by its direct contact to the intraabdominal organs (9).

The clinical symptoms of mesh migration vary from one patient to the other and depends on the organ. Due to mesh migration into the bladder, hematuria and recurring urinary tract infections have been reported (7). Mesh migration may sometimes lead to occlusion of the small intestine as it occurred in our case (10). As understood, our case underwent open cholecystectomy 20 years ago and incisional hernia repair with mesh 8 years ago. In our case, mesh's detachment from the area of fixation, then its convolution in the preperitoneal area and eventually its adhering to the intestinal wall and eroding it can be explained as a late complication. This condition presented itself as acute small bowel obstruction at the clinics. In addition, the patient's having diabetes, hypertension and heart disease for nearly 30 years might be predisposing factors.

CONCLUSION

Mesh migration into the intestine is a rare complication following the incisional hernia repair by mesh. This condition may present as the cause of acute abdomen at the clinics. There is no explicit reason of this complication, however research goes on new mesh fixation techniques along with development of new mesh types. Avoiding direct contact of mesh to intestines may help to prevent this complication.

REFERENCES

1.)Cobb WS, Kercher KW, Heniford BT. Laparoscopic repair of incisional hernias. Surg Clin North Am. 2005; 85 :91-103.
2.)Aziz F, Zaeem M. Chronic abdominal pain secondary to meowing incisional hernia repair: a case report and literature review. Journal of Clinical Medicine Research. 2014; 6 : 153-5.
3.)Agrawal A, Avill R. Mesh migration following repair of inguinal hernia; a case report and review of literature hernia. 2006; 10 :79-82.
4.)De Bord JR.The historicall development of prosthetics in hernia surgery.Surg Clin North Am.1998; 78 :973-1006.
5.)Ojo P, Abenthroth A, Fieldler P, et al. Migrating mesh mimicking colonic malignancy. Am Surg. 2006; 72 :1210-1.
6.)Hamouda A, Kennedy J, Grant N, et al. Mesh erosion into the urinary bladder following laparoscopic inguinal hernia repair: is this the tip of the iceberg? Hernia.2010; 14 : 317-9.
7.)Su YR, Chan PH. Mesh migration into urinary bladder after open ventral herniorrhaphy with mesh: a case report. İnt. Surg. 2014; 99: 410-3.
8.)Norton C, Culver A, Mostafa G. Intraluminal mesh migration after ventral hernia repair. J Gastrointest. Surg. 2016; 20: 1920-2.
9.)DeGuzman LJ, Nyhus LM, Yared G, et al. Colocutaneous fistula formation following polypropylene mesh placement for repair of a ventral hernia: diagnosis by colonoscopy. Endoscopy 1995; 27 :459-61.
10.)Ferrone R, Scarone PC, Natalini G. Late complication of open inguinal hernia repair: small bowel obstruction caused by intraperitoneal mesh migration. Hernia. 2003; 7 : 161-2.

This work is a case report. Ethics committee approval is not required. Informed consent was obtained from the patient.