

## Case Report

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### Migrated Dual Meshes Causing Fluid Collections Due to Folding Over on itself: A Rare Complication of Laparoscopic Hernia Repair

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#### Abstract

After development of laparoscopic hernia repair with mesh, the recurrence and the complications rates decreased due to reduced tissue dissections with less invasive procedure. Mesh is an synthetic instrument used in hernia repair procedures. Dual meshes, one of the mesh type, consist of different inert materials on each surface. Although laparoscopic treatment of abdominal wall hernias is a safe and cost-effective procedure, some complications can be seen. Hernia repair procedure related complications are hematoma, seroma, foreign body reaction and fistula formation. Migration of the mesh is also an another complication which is very uncommon. In this report we aimed to present a case with fluid collection due to dual mesh folding over itself with migration after laparoscopic treatment of an incisional and bilateral inguinal hernias.

**Keywords:** Dual Mesh; Hernia; Inguinal Hernia; Mesh Migration; Ventral Hernia

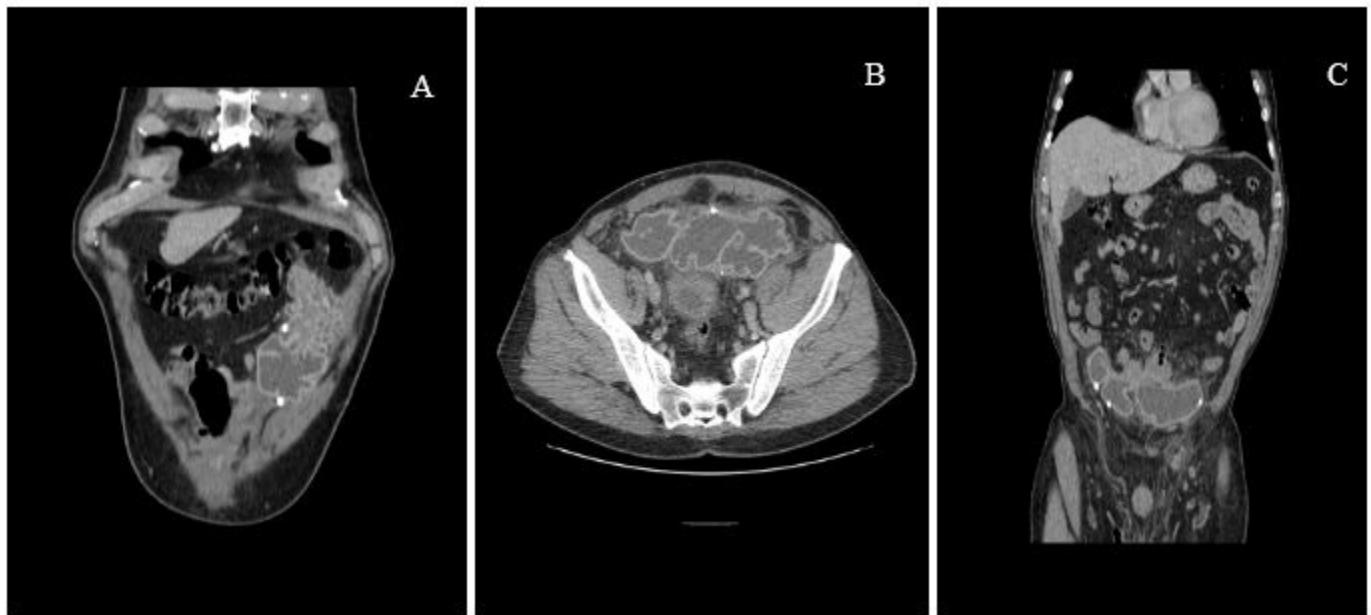
#### Introduction

Inguinal and incisional hernias are the most common two types of abdominal wall herniation. Inguinal hernias are the most common site of abdominal wall hernias (80% of them). Incisional hernias are frequently seen after abdominal surgery, with an incidence of 10-15%, with a recurrence rate of 20-40% [1]. Laparoscopic treatment of abdominal wall hernias is a safe and cost-effective option [2], but complications can be seen. We describe in this report a case complicated with fluid collection due to dual mesh folding over itself with migration after laparoscopic treatment of an incisional and bilateral inguinal hernias.

#### Case Report

A 60 year-old male patient referred to the general surgery polyclinic with swelling and pain in bilateral inguinal and epigastric region. He had epigastric hernia repair with onlay polypropylene mesh 8 years ago. Physical examination showed swelling in the

epigastric region under the epigastric incision and bilateral inguinal hernia. Ultrasonography confirmed bilateral inguinal herniation and a -5 cm incisional hernia in the epigastric region. Bilateral inguinal and concomitant incisional hernia repair with dual mesh was planned laparoscopically. Transabdominal intraperitoneal inguinal hernia repair (12x8 cm dual meshes) and epigastric hernia (15x10 cm dual mesh) repair with dual meshes (Polymesh DUAL) were performed. Tacker (Protack™ 5 mm autosuture) were used for mesh fixation. Postoperative course was uneventful and patient discharged on the fourth day. Four months later the patient admitted to the internal medicine polyclinic with complaints of fatigue, fever and night sweating. C-Reactive Protein (CRP) and White Blood Cell (WBC) elevations were detected in the blood tests and patient referred to general surgery polyclinic. Physical examination revealed a palpable mass of approximately 10 cm on the left upper quadrant and sensitivity on bilateral lower quadrants with palpation. Contrast enhanced computed tomography revealed a 6x15x116 mm fluid collection in left upper quadrant, and a 52x151x60 mm fluid collection in pelvis. Additionally wall of the collections are formed with dual mesh materials (Figure 1).



**Figure 1:** (A) Coronal reformatted contrast enhanced computed tomography reveals liquid collection in left upper quadrant. Axial (B) and (C) coronal reformatted contrast enhanced computed tomography reveals liquid collection in pelvis. Note thick hyperdense undulating walls of collections with a few tucks on both images.

These collections were aspirated percutaneously with Ultrasonography (US)-guidance and samples were sent for culture and microbiological investigation. According to culture antibiogram, *Escherichia coli* susceptible antibiotic was started. Complaints of the patient continued after two weeks control. CRP and WBC levels were high. In control US another collection between the folds of mesh was found. No fistula was detected on computed tomography. The patient was diagnosed with a mesh reaction and excision of meshes were decided. The patient underwent laparotomy and dual meshes in left upper quadrant and pelvis were excised (Figure 2). Because of the dense granulation tissue in the pelvic region, it was decided that inguinal hernia repair was not necessary. The median incision was closed without mesh. The patient was discharged on postop day 5. Pathology report was consistent with the acute mesh reaction. There was no problem in the patient during 6 months follow-up.



**Figure 2:** Photo showing collection postoperatively, similar to CT images. Fibrosis and fat accumulation is seen on outer surface of collection.

## Discussion

Obesity, intraabdominal ascites, chronic pulmonary disease, pregnancy, advanced age, malnutrition and corticosteroid usage are the main risk factors for incisional hernia development [3]. Since development of laparoscopic hernia repair in 1993 the recurrence rates decreased from 30% to 4-16%, and the complications rates due to reduced tissue dissections with less invasive procedure. Mesh is an synthetic instrument used in hernia repair procedures. Dual meshes, one of the mesh type, consist of different inert materials on each surface aiming less adhesions to the underlying viscera. Hernia repair procedure related complications are hematoma, seroma, foreign body reaction and fistula formation. Migration of the mesh is also an another complication which is very uncommon [4]. Mesh migration caused acute intestinal obstruction, mass formation, bowel perforation, fistula formation and chronic abdominal pain have also been reported. Mesh fixation can be done with both tacker and sutures.

Mesh migration can be due to inadequate fixation of mesh to the fascia or by external forces on appropriately placed mesh and detachment from weak spots into abdomen. Migration can be acute or chronic along in many years due to mesh erosion caused by inflammation and mesh fixation technique [5]. Tandon A et. al showed no significant relation between mesh fixation with transfascial sutures and non-absorbable tackers [6]. Although the difference is not statistically significant, we think a good fixation with both sutures and tacks during laparoscopic ventral hernia repair may lower recurrence rates, US is useful but limited in diagnosing mesh migration and associated complications. CT has a higher diagnostic accuracy than US in terms of mesh migration and associated complications. In our case, unlike the literature, dual meshes used at laparoscopically treated incisional and inguinal hernias have folded on its own and have become collections. Although, migration of prothesis is a well-known phenomenon, formation of a pocket is unusual.

## Conclusion

Inguinal and incisional hernias are common hernias of the anterior abdominal wall and can be treated laparoscopically using dual mesh. An adequate fixation with both sutures and tacks may lower complication rates. Although there are many complications related to mesh, it is the first time reporting collection of dual mesh due to folding on its own.

## Conflicts of Interest

All authors declare that they have no conflicts of interest.

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