CASE REPORT

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A Rare Case Mimicking Abdominal Wall Neoplasms: Meshoma

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ABSTRACT In surgery clinics, inguinal hernia repair is one of the most common operations in adults. Prosthetic material usage increased in hernia repair worldwide after prosthetic material usage was shown to reduce hernia recurrence. The use of mesh in the treatment of hernia does not alter the rate of superficial wound infection. The factors that increase the infection rate are co-morbid diseases, diabetes, immunosuppression, obesity and the other factors include hernia type, operative approach, use of prosthetic material and use of drains. Late-onset deep mesh infection is an uncommon complication that has been reported in a small number and its incidence is unknown. This complication is increasing with the widespread use of mesh. In our case, a 32-year-old woman who had undergone inguinal hernia surgery is presented with a rare case of meshoma as a late-onset deep-mesh infection with a rare cystic mass in abdominal wall, leading to chronic pain.

Keywords: Hernia; mesh; pain

More than 700.000 inguinal hernias are repaired annually in the United States, making hernia repair one of the most common operations.[1] Antibiotherapy has an important role in surgical prophylaxis.[2] On the other hand, most would agree that there is no need to use routine antimicrobial prophylaxis for hernia repair. Patients, American Society of Anesthesiology score of 3 or more, receive perioperative antimicrobial prophylaxis. The placement of mesh does not increase the risk for infection, and does not affect the need for prophylaxis.[3]

After hernia operation, a distinction should be made between superficial wound infection and deep graft infection. Superficial wound infection occurs in the early postoperative period and is not affected by the use of mesh.[4] Deep prostatic infection occurs months or years after surgery as a delayed complication. Deep mesh infection has been reported rarely in the literature after open or laparoscopic mesh-operated hernia operations.[5,6] Increased use of synthetic materials in primary and recurrent hernia repair is likely to increase in the number of patients with late mesh infection over time.[4] We report a case of meshoma due to deep-mesh infection after inguinal hernia repair, mimicking cystic neoplasm which is very rare.

CASE REPORT

A 32-year-old female patient was admitted with complaints of sensitivity, severe pain and fullness in the right inguinal region for about 5-6 years. It was learned that she had undergone open herniography 11 years ago using polypropylene mesh with the diagnosis of inguinal hernia. In the patient's history, there was not any additional disease. Also, there was no fever and palpable mass on physical examination. The biochemical parameters were unremarkable. The white blood cell (WBC) count was measured at 11.600 µL. In order to explain the pain and sensitivity in the right inguinal region, it was decided to perform abdominal and superficial tissue ultrasono- graphy (USG). A dense cystic lesion (110x50x35 mm)

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with membranous structures was detected in the ultrasonography in right inguinal region at previous surgical location. Abdominal contrast-enhanced magnetic resonance imaging (MRI) was performed to determine the relationship of the lesion with the abdomen. In the right inguinal region an accurate walled cystic structure with dimensions of 113x46x33 mm extending to the anterior abdominal wall was reported (Figure 1a, b, c). The case was evaluated as meshoma due to deep mesh infection and the patient was operated. After passing through the previous incision line, about 10x5 cm of dimensions cystic encapsulated lesion was observed above the fascia transversalis. After the abscess had been found to be purulent with aspiration, the capsule was opened and the abscess was drained. The fixation sutures of the mesh were opened and mesh was seen to be wrapped around itself (Figure 2). Unfortunately, abscess sample was not taken for antibiogram. The mesh and the cavity formed by the capsule were removed. The area was washed abundantly with saline. Primary hernia repair was deemed appropriate since the mesh was completely removed with its capsule and inflammation in the surrounding tissue was minimal. Fascia transversalis and inguinal ligament were anatomically repaired with prolene sutures without tension. The operation was terminated by placing a hemovac drain. In the first days of follow-up about 100-150 cc seropurulent fluid came from the drain per day. After the third day about 100 cc serous fluid began to come from the drain per day. At the 8th day, the drain was withdrawn as there was no drainage. Considering the follow-up of the drain and the clinical status; the patient was treated with ampicillin and sulbactam (4x1.5 g) intravenously for two weeks in accordance with the recommendation of infectious diseases specialist. After the dis-

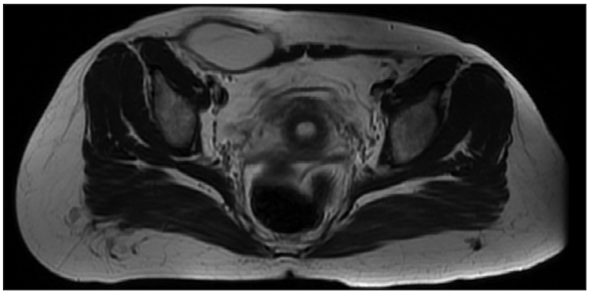

FIGURE 1a: Meshoma axial image (MRI).

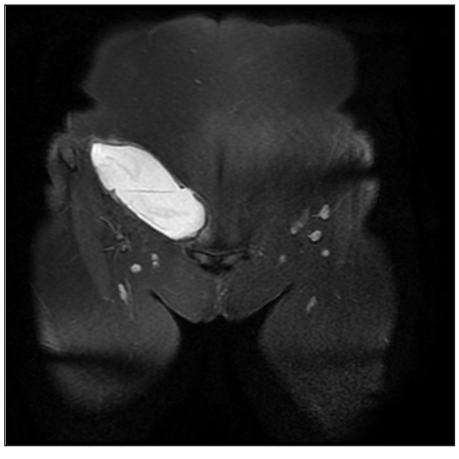

FIGURE 1b: Meshoma coronal image (MRI).

FIGURE 1c: Meshoma sagittal image (MRI).

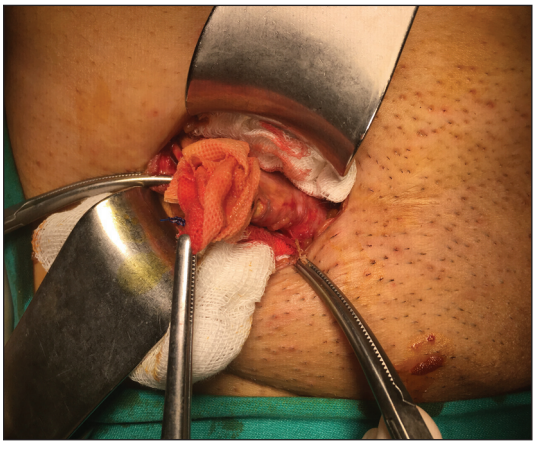

FIGURE 2: Intraoperative image of meshoma.

charge, amoxicillin and clavulanic acid combination (2x1 g tb) was used per-oral for 1 week and treatment was completed in 3 weeks. In the postoperative period, no new infection or recurrent hernia was observed at 6 months.

DISCUSSION AND CONCLUSION

Wound infection after hernia surgery is an uncommon and unwanted complication. Antibiotics usage for hernia surgery is still an unresolved issue and a debated problem.[7] The reported incidence of mesh-related infections following hernia repair is variable in different studies ranging from 0.03 to 8%.[8,9] Due to the study of Lockhart et al. published at Cochrane library, wound infections were found more commonly in mesh group.[10] Mesh implantation led to an increased rate of infections following repair of both simple and complex hernias.[11] Similarly, the results of a randomized trial of 160 patients with simple or complex hernias showed that the rate of infectious complications was lower following non-mesh suture repair than other techniques.[12] On the other hand, both a study involving 200 umbilical hernia patients who had surgery with and without mesh and a meta-analysis of 20 studies (5016 participants) including inguinal hernia operations showed that the use of mesh did not increase wound infection.[13,14]

Biological reactions to the prosthetic mesh material were studied. It was seen that the implanted mesh fuses into the surrounding tissues by fibrous infiltration, resulting in a linear new fascia under normal conditions. The main concern about the use of synthetic materials is the risk of infection. According to Delikoukos et al., late-onset deep mesh infection is neither associated with the type of mesh placed in the superficial wound site infection nor the type of mesh or the fixation material.[4] Systemic or topical use of prophylactic antibiotics for clean herniography surgery is discussed to reduce the occurrence of infection. It is more important than antibacterial selection to observe asepsis during implantation and mesh preparation. Resterilization or use of previously opened mesh increases bacterial contamination. Asepsis should be considered for implantation and mesh preparation.[15]

Mesh infection and inadequate mesh fixation may cause meshoma in hernia surgeries using prosthetic material. The meshoma is formed over time as the mesh becomes infected by collecting around itself with a cavitary capsule shape. Rare cases of mesoma following hernia surgery may mimic the abdominal wall cystic neoplasms. The palpable and non-malignant masses in the anterior abdominal wall usually consist of hematoma, lipoma, hemangioma and desmoid tumors. Malignant masses on the anterior abdominal wall are mostly metastatic. Metastases occur either directly or through the bloodstream, which are usually caused by internal organ malignancies. Ultrasonography, computerized tomography and MRI can be used in the diagnosis of desmoid tumors on the anterior abdominal wall. As surgery method, laparoscopic or laparotomic surgery can be used in selected cases. Chronic pain (inguinodynia or orchalgia) is the most important surgical indication. In our case report, we performed laparotomic surgery for treatment. However, in literature, there are also laparoscopic cases for treatment of meshoma/chronic pain.[16-18]

Our case was investigated due to chronic pain and chronic inflammation findings. Since the inguinal hernia repair operation of our case was performed in another center, sufficient information could not be collected about the operation conditions and postoperative recovery process. The drainage of the abscess enabled complete recovery and no recurrent hernia was observed as a result of direct hernia repair after removal of the mesh material and capsule. On the other hand, the drainage of the abscess can be done by catheter in cases where there is no recurrence of hernia. Late deep mesh infection is an important complication that is rarely reported on developing after open or laparoscopic inguinal hernia operations. With increasing use of synthetic materials in primary and recurrent hernia repair, it is possible that the number of cases with late mesh infection will increase over time. Asepsis should be considered for implantation and mesh preparation. Resterilization or use of previously opened mesh prepares the ground for bacterial contamination. The size of the graft used in graft-related infections is important. For this reason, it is recommended that the graft area should be minimized during the hernia operation, the graft should be spread out in accordance with surgical

procedures, and the necessity of graft use should be questioned because the foreign material placed is a suitable environment for bacterial colonization.[19] In patients with chronic pain who have undergone hernia surgery, if a cystic mass compatible with the previous surgical localization is detected, it is necessary to consider the differentiated lesions due to prosthetic material (eg, meshoma) in the differential diagnosis.

Informed Consent

There is no need for a consent form in this paper, since no personal information belonging to the patient was disclosed as all data and figures were anonymized.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: *Tolga Kalaycı;* ***Design:*** *Tolga Kalaycı;* ***Control/Supervision:*** *Ümit Haluk İliklerden;* ***Data Collection and/or Processing:*** *Tolga Kalaycı, Ümit Haluk İliklerden;* ***Analysis and/or Interpretation:*** *Tolga Kalaycı, Ümit Haluk İliklerden;* ***Literature Review:*** *Ümit Haluk İliklerden;* ***Writing the Article:*** *Tolga Kalaycı, Ümit Haluk İliklerden;* ***Critical Review:*** *Tolga Kalaycı, Ümit Haluk İliklerden;* ***References and Fundings:*** *Tolga Kalaycı, Ümit Haluk İliklerden.*

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