

Enterocutaneous Fistula Occurring 15 Years after the Prosthetic Mesh Repair of a Recurrent Incisional Hernia - A Case Report

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Rezumat

Fistulă enterocutanată survenită la 15 ani după cura chirurgicală cu plasă a unei eventrații recidivate - prezentare de caz

Prezentăm cazul clinic al unei paciente de 78 de ani, operată în 1999 pentru eventrație post-operatorie recidivată voluminoasă, când s-a montat o plasă de substituție de 20/20 cm, cu evoluție favorabilă timp de 15 ani. Pacienta a fost internată în ianuarie 2015 cu semnele clinice ale unei supurații parietale. Examenul local a arătat prezența unei fistule cutanate cu debit de 30-50 ml puroi/zi. Fistulografia a evidențiat comunicarea cu lumenul intestinului subțire. Am efectuat o enterectomie, care a îndepărtat 2 leziuni localizate pe aceeași ansă ileală: una având în interiorul lumenului un fragment înglobat parțial din plasa parietală, iar cealaltă - strâns aderentă de suprafața internă a plasei, în iminență de fistulizare. Refacerea tranzitului s-a făcut prin anastomoză termino-terminală entero-enterală. A fost necesară de asemenea excizia largă a prostezei parietale infectate, în final fiind posibilă numai sutura tegumentului. Evoluția a fost favorabilă, cu externarea pacientei în ziua a 14-a post-operator, urmând să revină pentru refacerea parietală după câteva luni. Cazul clinic prezentat este ilustrativ pentru o complicație severă a unui procedeu alloplastic, survenită după un interval liber asimptomatic de 15 ani.

Cuvinte cheie: fistulă enterocutanată, eventrație recidivată

Abstract

A 78 year-old female patient who had been operated in 1999 for a recurrent large incisional hernia, with a 20/20 cm prosthetic mesh sutured to the lateral muscular layers of the abdominal wall, has had a favourable postoperative evolution for over 15 years. The patient was admitted in our clinic for a wound infection in January 2015. The clinical examination revealed a cutaneous fistula with large purulent drainage from the deep space; the outflow was between 30 and 50 ml/day. The fistulography identified the communication with the small bowel. The surgical procedure consisted of an enterectomy, which achieved the excision of 2 lesions of an ileal loop; one of them had a fragment of the prosthesis inside the lumen, while the other was strongly adherent to the internal surface of the prosthesis. An end-to-end anastomosis was then performed, as well as the large excision of the infected prosthesis. Finally, the only possible option was the skin closure. Postoperative recovery was uneventful, and the patient was discharged after 14 days; the reconstruction of the abdominal wall using a composite mesh is expected after few months. This clinical case is demonstrative for a rare and serious complication of a prosthetic mesh repair, which occurred after a very long period of normal clinical condition.

Key words: enterocutaneous fistula, recurrent incisional hernia

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Introduction

Although the repair of incisional hernias using a prosthetic mesh is nowadays widely performed, due to the lower recurrence rate and to the large availability of high quality

materials, serious complications may still occur. Among them, the lesions produced by the long-term pressure of the mesh on the intestinal wall can be the most frustrating and difficult to treat. They usually appear after many years of apparently normal clinical evolution and require a surgical solution for the intestinal lesion, as well as for the abdominal wall infection.

Case report

A 78 years-old female patient was admitted in our clinic in January 2015, after several surgical procedures. Her significant medical history had started at the age of 48, when radical hysterectomy and postoperative radiation therapy were performed for cervical cancer, stage II-A. In the following decade, two repairs of the midline incisional hernia were attempted, without using prosthetic materials; both of them failed to achieve their purpose. Finally, in 1999 a 20/20 cm prosthetic mesh was placed between the lateral layers of the abdominal wall; the larger omentum was interposed between the mesh and the intestinal loops, in order to avoid an enterocutaneous fistula.

The clinical appearance was normal for more than 15 years. In December 2014, about 1 month before the admission in our clinic, the common clinical signs of a wound infection (localized swelling with signs of inflammation and tenderness) suddenly appeared. After a few days, a cutaneous fistula with purulent drainage occurred; its average outflow was between 30 and 50 ml/day. The pathogens causing this infection were mixed: MRSA and *E coli* were identified among them. The fistulography showed the communication with a small bowel loop (Fig. 1) and thus an enterocutaneous fistula produced by the mesh became obvious.

Intraoperative findings consisted of several small bowel loops, as well as the sigmoid colon, strongly adherent to the internal surface of the prosthetic mesh. The source of the fistula proved to be an ileal loop, which had been eroded on almost half of its circumference, with a fragment of the mesh inside the lumen (Fig. 2). Another lesion was found on the same loop, at a distance of about 15 cm from the first one, where the intestinal wall and the mesh could not be separated; another fistula was probably going to occur at that level, too. An enterectomy which resected both lesions was performed, followed by an end-to-end anastomosis (Fig. 3). A large excision of the prosthetic material, which had been infected by the intestinal liquid, was also associated (Fig. 4). Finally, the large defect of the abdominal wall could not be repaired and we considered that skin closure and reconstruction using a composite mesh after 6 months would be the optimal solution.

Postoperative recovery was uneventful, therefore we were able to discharge the patient after 14 days, in a good clinical shape; we recommended the patient to wear an elastic band, in order to improve the abdominal contention.

Discussion

The importance of avoiding midline incisions, whenever it



Figure 1. Fistulography: communication with an intestinal loop



Figure 2. The specimen: fragment of prosthetic mesh inside the intestinal lumen

is possible, in order to decrease the incidence of ventral hernias, has been recently highlighted by the European Hernia Society (1). In our patient, the hysterectomy was performed using a lower midline incision, which has been identified as a significant risk factor for these hernias (2). Postoperative radiation therapy, as well as the neoplastic disease itself, may also have favoured the onset of the

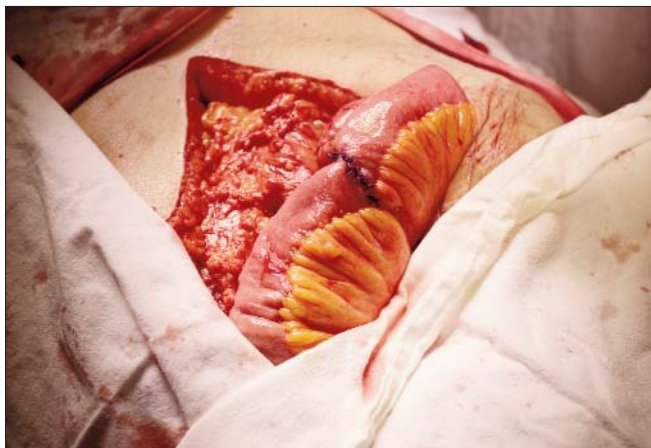


Figure 3. Intra-operative view: end-to-end intestinal anastomosis



Figure 4. Intra-operative view: excision of the prosthesis

incisional hernia. The incidence of this complication is about 17% in gynecologic oncology patients (3).

We are not aware of the reasons for performing primary closure of the abdominal wall as a treatment of the first two episodes of incisional hernia, instead of prosthetic-mesh repair. We may only presume that the tension-free concept had not yet been clearly stated and accepted, so the surgeon might have chosen a procedure which had been widely applied before. The method was mentioned in medical literature during the 9th decade of the previous century (Lichtenstein-1986) (4), and has developed in the following years, in the same period of time in which our patient has been operated.

The fistula was produced by the long-term contact between the mesh and the intestinal wall. The most likely pathogenic theory regarding the incorporation of the prosthesis inside the small bowel lumen seems to be the "protein absorption theory" (5). In this case, the complication was made possible by the foreign body reaction, which had been slowly developing during 15 years.

The best method to prevent such an event is to avoid the contact between the prosthesis and the intestinal loops. Interposition of the greater omentum (6) and/or of the peritoneal layer (7) were performed in order to achieve that goal. Modern materials, such as expanded polytetrafluoroethylene (PTFE) prosthesis, have a surface that serves as a protective interface against the bowel (8) and represent a better therapeutic alternative, whenever they are available.

The fistula usually appears after several months or years of normal clinical evolution, as a long period of time is required for the foreign body reaction and the chronic inflammatory lesions to develop and to finally erode the intestinal wall (9). The above-mentioned clinical case, in which the fistula became obvious after more than 15 years, is proof that a much longer evolution is still possible.

The approach of the abdominal wall defect was the most interesting challenge of the above-mentioned clinical case, as the excision of the infected prosthesis had widely enlarged its size. Meanwhile, the surgical field had been seriously infected

by the intestinal liquid, during at least a month of chronic evolution of the fistula. These were the reasons why we decided that the closure of the skin would be a safer option and the reconstruction of the abdominal wall, using a composite prosthesis, should be delayed for a few months. We found many articles in medical literature which plead for a different approach (10,11); nevertheless, we still think that we have tried (and achieved) the goal of avoiding postoperative septic complications, which could have significantly altered the evolution of our 78 year-old patient.

Conclusion

The enterocutaneous fistula after the prosthetic mesh repair of an incisional hernia is very rare; its incidence rate could hardly be estimated. However, it is a serious complication, as it significantly involves an intestinal loop, as well as the abdominal wall, which is largely infected. We may thus consider it a life-threatening lesion, which may follow the routine operation of a benign disease and may rise challenging medical and legal issues.

While the excision of the involved intestinal loop is unanimously accepted, the reconstruction of the abdominal wall is still debated. We considered that the closure of the skin and the delayed repair using a composite mesh was a safer solution. However, many authors plead for replacing the infected mesh during the same operation, in order to fully achieve the main therapeutic objectives; their results seem to be conclusive for this attitude.

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