Unusual association of diseases/symptoms

Late onset mesh infection following laparoscopic inguinal hernia repair

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Correspondence to Mr Abdus Samee, abdussamee2003@yahoo.co.uk**Summary**

In our series of 710 consecutive laparoscopic total-extra-peritoneal hernia repairs over a period of 10 years (2001–2010), the authors report a rare case of delayed mesh infection developing 7 years postoperatively. A 56-year-old patient presented with diarrhoea and fullness in right iliac fossa region. Radiological imaging confirmed a floating mesh in a fluid-containing cavity. Subsequent exploration revealed a large preperitoneal cavity containing 550 ml of pus with a floating mesh in it. The mesh was removed and the patient was discharged after making a good recovery.

BACKGROUND

The incidence of mesh-related infection following hernia repair has been reported to be 1%–8%¹ and is influenced by various factors such as operative technique, choice of mesh, underlying comorbidities, antibiotic prophylaxis etc. While majority of patients present with mesh-related infection within weeks or months of operation, delayed presentation after years is very rare.

With the regular use of prosthetic materials for the primary repair of inguinal hernia, late onset deep-seated prosthetic infection is a possibility and should be considered in any patient with fever of unknown origin, or presenting with symptoms or signs of abdominal wall inflammation following hernia repair.

CASE PRESENTATION

A 56-year-old gentleman presented with history of vague lower abdominal pain and diarrhoea. He was otherwise fit and well with no known pre-existing comorbidities. His surgical history included an open bilateral inguinal hernia repair, followed by a unilateral recurrence 4 years later. A

laparoscopic total extraperitoneal (Lap-TEP) approach was used to repair this recurrent inguinal hernia in 2003 using a 15×15 cm polypropylene mesh. The postoperative recovery was uneventful.

On examination, the vital parameters were normal. Abdominal examination, however, revealed a diffuse non-tender mass in the right iliac fossa. Rectal examination was normal.

INVESTIGATIONS

Blood investigations were within normal range. Barium enema was reported as satisfactory. An ultrasound scan examination, revealed a 12×7×7 cm mass in the right groin containing a linear echogenic structure consistent with mesh from previous inguinal hernia repair. The mesh was surrounded by a well-defined fluid collection in pelvic cavity (figure 1). The CT scan showed a fluid density collection in the right side of the pelvis (figure 2). The mesh, however, was not properly visualised. The large bowel was reported as normal.

Figure 1 Ultrasound scan images showing curled up mesh in fluid-containing cavity.

Figure 2 CT scan image showing a well-defined fluid density collection.

DIFFERENTIAL DIAGNOSIS

Although the finding indicated the mesh related complication as the most likely aetiology, a caecal or appendicular pathology were considered in our differential diagnosis.

TREATMENT

The patient underwent an elective exploration of right inguinal region with an aim to remove the mesh and drain the collection. Exploration revealed a large preperitoneal thick walled abscess cavity containing 550 ml of pus and a freely floating mesh (figure 3). There was no evidence of its extension into the peritoneal cavity. The mesh was removed followed by cavity washout and a drain. Postoperative recovery was uneventful and the patient was discharged subsequently. The pus culture reported no bacterial growth.

OUTCOME AND FOLLOW-UP

It has now been more than a year and the patient continues to remain asymptomatic with no clinical evidence of recurrence of hernia or infection.

DISCUSSION

The incidence of infection following laparoscopic repair has been reported to be 0.1 to 0.2%.²⁻⁴ The conventional anterior surgery and laparoscopic surgery (Coala) multi-centre randomised controlled trial⁵ reports serious wound infection to be around 1.2% in the open group compared to 0% in laparoscopic repair group.

While basic surgical principles such as delicate tissue handling, gentle dissection and meticulous homeostasis are essential to prevent any potential wound infection, poor surgical techniques or breaks in sterile principles may result in infection. Factors such as presence of mesh, its type, filament pore size, type of suture material used

have been implicated as potential contributory factors for infection.⁶⁻⁸

Laparoscopic approach offers advantage of smaller incisions, minimal tissue handling and enlarged magnification (leading to meticulous haemostasis) and wounds not directly over the mesh repair site, all of which have been considered as contributory factors towards a decreased wound infection rate.

Fluid collection or seroma in the inguinal canal and around the mesh is not uncommon and in most cases requires no intervention. Patients with symptoms, however, may need aspiration although removal of the mesh is usually inevitable in infected cases.⁹ A case of acute mesh infection extending retro-peritoneally into psoas 10 months following repair has been reported.¹⁰ Mesh migration into urinary bladder needing partial cystectomy has also been reported.¹¹ Septic complications of the prosthetic mesh have been reported to occur in 0.2–0.8% of patients.¹² Superficial wound infections usually settle down with antibiotics while deep-seated infections involving mesh may need aggressive intervention including drainage of abscess and removal of mesh.¹³

The true incidence of late onset mesh infection, however, yet remains to be established as only few cases have been reported in the literature. Long-term complications related to the mesh are reported to be rare.¹⁴ Gukas has reported a life-threatening complication 5 years after laparoscopic TEP hernia repair surgery.¹⁵

It has now been more than a year and the patient continues to remain well with no clinical evidence of recurrence of hernia. The true incidence of hernia recurrence following removal of infected mesh is not known. In a study looking at 40 patients with chronic mesh infection needing subsequent mesh removal, Rehman has reported a 5% recurrence.¹⁶ Factors like smoking, longer operating times or re-do surgery may act as independent

Figure 3 Intraoperative images showing mesh in a pus-containing cavity.

predictors of mesh infection as shown in a study carried out by Swenson involving 506 patients with incisional (ventral) hernia,¹⁷ and it would be interesting to see whether these factors play a similar role in the inguinal hernia repair.

The clinicians, of late, have been challenged by an increasing variety of delayed mesh-related complications following its widespread use in the hernia repair. The cause still remains a mystery. It does not seem to correlate with intraoperative prophylactic antibiotics use, the type of mesh inserted, or the fixation material used.¹⁸ Systemic infection elsewhere in the body may result in haematogenous spread of organisms into the mesh resulting in mesh sepsis.

Although rare, this is an important report of delayed onset deep-seated mesh infection associated with TEP inguinal hernia repair occurring as late as 7 years after the primary repair. This should warn the clinicians that a delayed mesh infection is always a possibility and the patients should be made aware of this.

Learning points

- ▶ With the ever widespread and increasing use of prosthetic materials for open and laparoscopic hernia repair, the possibility of a mesh-related infection occurring weeks or even years after hernia repair should be considered in any patient presenting with fever of unknown origin, or symptoms and/or signs of abdominal wall inflammation.
- ▶ Patients should be made aware of late onset mesh-related infection.

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