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CASE REPORT

Achromobacter xylosoxidans mesh related infection: A case of delayed diagnosis and management

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Summary We present the first case of mesh related infection caused by *Achromobacter xylosoxidans* after ventral hernia repair. After repair of a small paraumbilical hernia, the postoperative course was complicated by persistent discharging sinuses despite the removal of underlying polypropylene mesh. Removal of an intrabdominal omental inflammatory mass containing pus that showed growth of *A. xylosoxidans* led to the resolution of all the symptoms.

Case report

A 65 years old male underwent open mesh repair of a small paraumbilical hernia in June 2008. In the postoperative period he developed multiple sinuses along the operative wound with discharge of thin seropurulent fluid. After an initial conservative management he underwent sinus exploration with sinus tracts excision two months after the index surgery. Histopathological examination of the excised tissue revealed nonspecific chronic inflammation. Wound sinuses, however, persisted postoperatively. After six months of sinus tracts excision he underwent wound exploration, wide debridement, and removal of the polypropylene mesh. The wound healed well after mesh removal. He was well for about a month when he again had a single discharging sinus with intermittent discharge of purulent fluid every 10—15 days.

He was managed conservatively for about eight months with various antibiotics for variable durations and local wound care. These antibiotics were given empirically as culture of the wound discharge or removed mesh was not obtained. He consulted our center for a paraumbilical

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swelling that he noticed one week back. There was no history of pain in the swelling or in the abdomen, abdominal distension, fever and vomiting. He was nondiabetic, but had a past history of hypertension and coronary artery disease. There was no other relevant past medical history. Physical examination revealed a 3 × 5 cm periumbilical abscess at the site of previous surgery. It was nontender with normal skin temperature over and around the abscess. Surrounding skin, however, was erythematous.

He underwent contrast enhanced computed tomography (CT) of the abdomen showing a small incisional hernia at previous operative site with omentum as content, and a small collection in relation to the sac (Fig. 1). In addition, there was a 2.7 × 3.7 × 4 cm mass in the greater omentum with surrounding inflammatory changes located subparietally near the hernia (Fig. 1a). Blood investigations including hemoglobin, total and differential leucocyte counts, liver and renal function tests, serum electrolytes, and random blood sugar were within normal limits.

At exploratory laparotomy, there was about 10 ml of thick, yellowish white pus without any odour in the subcutaneous space outside the hernia sac which contained inflamed omentum without gangrenous changes. There was a small hernial defect of ~2 × 2 cm at previous operative site. Further exploration revealed a large (~5 × 6 cm) omental mass containing pus of the similar nature as was present in the subcutaneous space. Pus cavity of this mass was communicating with the subcutaneous pus cavity adjoining the hernia sac through a narrow track passing along the omentum separate and slightly away from the main hernial defect. Rest of the visualized abdomen was normal. Herniated omentum along with the omental mass was excised, and the primary suture repair was performed.

Separate pus samples from both the subcutaneous space as well as from the omental mass were sent for laboratory evaluation. The resected hernial sac, skin edges and the omental mass were sent for histopathological examination.

On Gram stain, both the pus specimens revealed presence of pus cells (6-10 cells per oil immersion field); however, no organisms were seen in either. Ziehl—Neelsen stain for acid-fast bacilli was found to be negative on both the specimens. Both the specimens were inoculated on MacConkey agar, Blood agar and Chocolate agar. Upon overnight incubation at 37 ° Celsius, pure and significant growth of 2—3 mm grayish, thin, regular, oxidase positive colonies were obtained. Both the isolates were identified as *Achromobacter xylosoxidans* with ID32GN strips of MiniAPI (BioMerieux, France) with 99.9% and 77% grade of identification for species and biotype respectively, signifying excellent identification. Antimicrobial susceptibility with ATB PSE5 strips of MiniAPI (BioMerieux, France) was identical for both the isolates (Table 1). Further laboratory evaluation of the pus for the presence of tuberculosis by qualitative nested DNA real-time PCR (polymerase chain reaction) for mycobacterium tuberculosis complex (MTC) (Reliance Life Sciences, Mumbai, India) and culture was found to be negative. On histopathological examination, hernial sac and the skin edges did not reveal any specific pathology. The omental mass, however, showed central abscess with infiltration by polymorphonuclear leucocytes, lymphocytes, epithelioid histiocytes, and some giant cells in the wall of the abscess cavity.

Patient was given ceftriaxone (1 g IV 12 hourly) initially for three days followed by oral levofloxacin (750 mg/day) for a total duration of 10 days. Postoperative period was uneventful, and the patient was discharged on postoperative day six without any wound related complication. He is well after one year of follow up with no clinical or radiological (on ultrasonography) recurrence of wound related problems e.g. infection, sinuses and recurrent hernia, or omental abscess.

Discussion

Infection is one of the most feared complications after mesh hernia repair as mesh infection results in significant morbidity. The average rate of early and late mesh infections is ~7%.[1] Mesh infection may manifest 2 weeks to 39 months after hernia repair.[2]

Risk factors for wound infection after hernia repair include diabetes,[3] obesity,[3] chronic smoking,[4] steroid use,[4] prolonged operative time,[4] concomitant abdominal operation,[5] and use of mesh[6] specially the polyester mesh.[3] With mesh repair, wound infection rate is higher with absorbable mesh (10%) than the permanent mesh

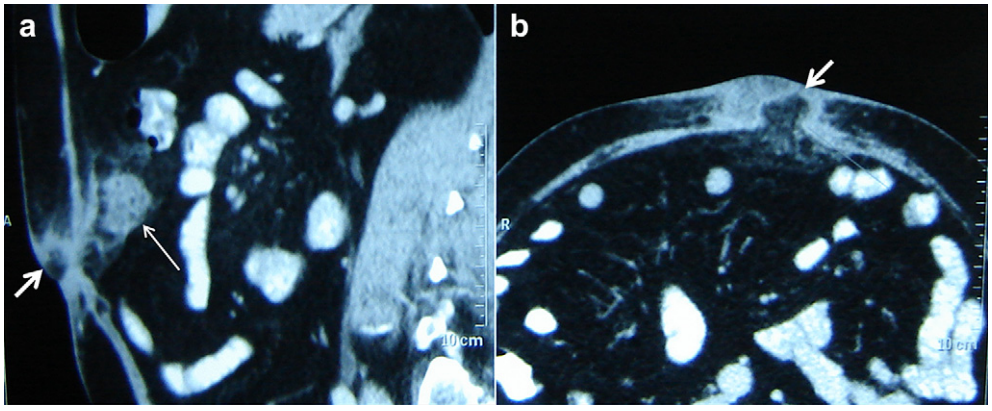

Figure 1 Computed tomography of the abdomen with sagittal (a) and axial (b) sections showing a small incisional hernia (thick white arrow) and an intrabdominal omental mass (thin white arrow) adjacent to hernia.