Treatment of Obturator Hernia in a Patient Undergoing Peritoneal Dialysis

An obturator hernia is a rare type of internal hernia that was first described in 1724 by Arnaud de Ronsil (1). This hernia is characterized by protrusion of the abdominal contents through the obturator foramen. The signs and symptoms of obturator hernia are nonspecific, and a missed diagnosis can result in significant morbidity and mortality. We present the case of a patient being treated by continuous ambulatory peritoneal dialysis (CAPD) who was diagnosed with an obturator hernia and describe the treatment and successful outcome.

CASE REPORT

A 58-year-old woman, who had borne 2 children and was on CAPD due to liver cirrhosis and massive ascites that were secondary to chronic hepatitis B and C viral infections and end-stage renal disease, presented with a 1-year history of a right proximal, medial thigh mass. The soft, non-tender, reducible mass was approximately 10 cm in diameter. The patient denied abdominal pain, nausea, vomiting, or constipation. Ultrasound indicated a 7 × 4.2 cm cystic lesion in the right inguinal region that appeared to be related to fluid extravasation through the obturator foramen. Pelvic computed tomography (CT) indicated fluid extending from the right obturator foramen to the right thigh, about 13.1 cm in the largest dimension. There were no definitive bowel loops in the hernia sac (Figure 1).

Hernia surgery involved a skin incision from the pubic tubercle to 10 cm above the mid-thigh. The surgical field was opened down to the adductor magnus muscle. The gracilis muscle and the adductor longus muscle were dissected. The anterior and posterior branches of the obturator nerve were recognized and protected. The

Figure 1 — Pelvic computed tomography (CT) scanning indicated fluid (about 13.1 cm in the largest dimension) extending from the right obturator foramen to the right thigh.

hernia sac was then identified and carefully dissected. The abdominal fluid was then released from the CAPD catheter using a suction machine. The hernia sac was reduced into the peritoneal cavity, and a cone plug (Optilene Mesh Elastic, B. Braun Melsungen AG, Germany) was inserted into the obturator canal. A 5 × 8 cm mesh (Optilene Mesh Elastic, B. Braun Melsungen AG, Germany) was then sutured to the superior ramus of the pubic bone superiorly, the adductor magus muscle inferiorly, the pectineal muscle anteriorly, and the obturator externus muscle posteriorly. A Jackson-Pratt drain was inserted into the obturator area, and the skin was closed with 4-0 nylon. A hernia belt was used to compress the hernia site for three months after surgery. Continuous ambulatory peritoneal dialysis was continued, but with half the amount of the dialysate and twice the frequency for 2 weeks after surgery. The Jackson-Pratt drain was removed after the drainage had decreased. The patient was discharged 4 days after surgery and was in stable condition. There was no evidence of a recurrent hernia during the 50 months of follow-up.

DISCUSSION

Obturator hernias account for approximately 0.073% of all hernias (1). In Taiwan, 9 patients (8 females) presented with this condition from 1993 to 2003 at Kaohsiung Veterans General Hospital. Most patients are elderly multiparous women (2). Igari *et al.* reported 10 cases of obturator hernia affecting elderly, thin women (3), all of whom had symptoms of intestinal obstruction (i.e. vomiting with abdominal and/or thigh pain), but

none of whom had previous abdominal surgery. The differential diagnosis in such cases should include obturator hernia, because early diagnosis and prompt initiation of treatment reduces the risk of surgical complications and is associated with improved outcomes (4). Our patient had none of the symptoms suggestive of an intestinal obstruction; however, the presence of increased intra-abdominal pressure as a result of massive ascites from liver cirrhosis and end-stage renal disease likely contributed to the formation of the obturator hernia. Meziane *et al.* first reported the use of CT scanning for the diagnosis of obturator hernia in 1983 (5). Since the widespread adoption of CT scanning, the pre-operative diagnosis has improved from 43% to 90% in some reports (6). In our case, a pelvic CT scan indicated a mass with septations and fluid extending from the right obturator foramen into the right thigh. There were no bowel loops in the hernia sac.

There are various methods for repair of an obturator hernia (7), and most of these are similar to the methods used for a femoral hernia (8). A midline incision provides the best exposure, allows reduction of the hernia contents, and facilitates bowel resection if necessary. However, exploratory laparotomy and the inguinal approach were contraindicated for our patient. The patient could not tolerate hemodialysis due to the risk of a precipitous drop in blood pressure. It was necessary to maintain an integral abdominal cavity so that CAPD could be continued, because this was the only renal replacement therapy available for this patient.

Thus, we considered a thigh approach to be better for our patient. Lobo *et al.* presented a simple technique for obturator hernia repair in which a polypropylene mesh (Ethicon Endo-Surgery, Inc, Ohio, USA) is sutured to Cooper's ligament (7), and then allowed to cover the obturator canal. This method is similar to the tension-free mesh femoral hernioplasty proposed by Irving Lichtenstein in 1974 (9). The tension-free mesh covers the hernia defect and micrifies it by the resulting inflammation reaction. Another repair method, proposed by Nelson *et al.* in 2003 (10) and modified by Tanaka *et al.* in 2010 (11), utilizes an incision from the pubic tubercle to 10 cm above the mid-thigh. The hernia sac is identified and reduced into the peritoneal cavity, followed by insertion of a cone plug. The technique employs a mesh plug, which is now well established in groin hernioplasty. This plug sits astride the defect of the obturator canal in the preperitoneal plane, with the position effectively maintained by the essential intra-abdominal pressure.

In our case, we modified Lockwood's infra-inguinal approach and combined the concepts of tension-free mesh and a plug. Thus, we used a plug to resolve the increased intra-abdominal pressure caused by CAPD and

a tension-free mesh to stimulate a local inflammation reaction, with the edematous tissue improving access to the obturator hernia. We also used a hernia belt to maintain compression for three months after surgery. After 50 months of follow-up, there was no recurrent hernia or other significant problems. The technique described here is especially useful for patients undergoing CAPD. We recommend that this simple method be considered as standard for treatment of an obturator hernia in a patient undergoing CAPD.

DISCLOSURES

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