SHORT REPORT

Total Laparoscopic Intra-Aortic Foreign Body Retrieval

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Thrombo-embolic risk of intra-aortic foreign bodies (IAFB) is unpredictable. Endovascular retrieval is the treatment of choice but not always feasible. We report a case of total laparoscopic IAFB retrieval in a 37 years old patient. He underwent a percutaneous closure of a septal defect using a Helex device (WL Gore). Migration of the device occurred 6 months after the procedure. Device was located at the aortic bifurcation on CT scan. We performed a total laparoscopic retrieval through a transperitoneal direct approach of the abdominal aorta. Postoperative course was uneventful.

Keywords: Foreign body; Abdominal aorta; Laparoscopy.

Intra-aortic foreign bodies (IAFB) are uncommon lesions but the widespread use of endovascular procedures increases their incidence. 1 Retrieval of IAFB is recommended because of unpredictable natural history. We describe what we believe to be the first case of total laparoscopic IAFB retrieval. We discuss technical points and main advantages of this new surgical approach.

Case Report

A 37 year old man was admitted for IAFB six months after closure (Helex 20 mm, WL Gore, Phoenix, Arizona) of a septal defect. He was asymptomatic. Fluoroscopy (Fig. 1) and CT scan studies localized the device in the distal aorta. Patient was contraindicated for endovascular retrieval and referred to our department. He was scheduled for total laparoscopic retrieval for which he gave his informed consent.

We performed a transperitoneal direct approach of the abdominal aorta (LTPD). 2 Briefly patient was placed in right lateral decubitus position using an inflatable pillow. A 45-degree endoscope (Karl Storz Endoscope, Tuttlingen, Germany) was positioned in the left flank. We used four other 10-mm ports for operator and assistant instruments. With the right lateral decubitus position, the small bowel dropped to the right side of the abdomen. We opened the posterior peritoneum overlying the aortic wall, just above the aortic bifurcation. Aortic dissection was completed below the inferior mesenteric artery (IMA). Preaortic lumbar splanchnic nerves were visualized and carefully retracted on the left to avoid any trauma.

Iliac clamps were positioned transcutaneously in the left iliac fossa. Proximal aortic clamp was introduced through the subxyphoid port. After clamping, we performed a transverse aortotomy just above the aortic bifurcation using laparoscopic scalpel and Potts scissors (Karl Storz Endoscope, Tuttlingen, Germany). Device was easily retrieved from the aorta (Fig. 2). Inspection of the aortic wall didn’t show tears or dissection. Aortorraphy was performed using two short 3/0 polypropylene running sutures knotted on pledgets and tied together intracorporeally. We covered the aortotomy with suture of the posterior peritoneum using two absorbable stitches. Total operative and aortic clamping times were 120 and 25 minutes.
respectively. Blood loss was 150 cc. Patient returned to
general diet and ambulation at day one. He came back
home at day three. At three months follow he did well
without sexual dysfunction.

Discussion

Migrations of septal occluder devices have been
reported recently. Endovascular retrieval is the treat-
ment of choice but not always feasible because of their
shape or when there are embedded in the aorta. In
these cases, direct trans-aortic retrieval remains
indicated. It needs a major abdominal procedure
when a single aortotomy is required. Concept of
laparoscopy is to decrease the surgical trauma of
this procedure, avoiding abdominal incisions.

First technical point is the choice of the aortic
approach. In our case, we preferred a LTPD because pa-
tient was thin and IAFB was located at the aortic
bifurcation. Major drawback of LTPD is the falling of
bowel loops near the operative field. In the technique
we described, patient is placed in right lateral decubi-
tus and viscera drop in the right part of the abdomen.
If needed, additional tools such as a peritoneal apron
or intestinal retractors could be useful. Laparoscopic
transperitoneal retrocolic or retrorenal approach 4,5
could be more appropriate in obese patients or when
IAFB is located in the suprarenal aorta.

Second technical point is the performance of arte-
rial clamping and aortotomy. Performance of these
steps is easy for vascular surgeons who has previous
expertise in total laparoscopic aortic reconstructions.
Retrieval of the IAFB is easy if it is not embedded in
the aortic wall.

In conclusion, satisfying result obtain in our case
encourage us to offer laparoscopy when IAFB are
unsuitable for endovascular retrieval. In cases of oper-
ative difficulties, a conversion to open retrieval
remains feasible.

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Accepted 17 December 2007
Available online 6 February 2008

Fig. 1. Anterior X-ray showing migration of the septal
occluder device in the lower abdomen (arrow).

Fig. 2. Intraoperative pictures showing laparoscopic
retrieval of the septal occluder device, (A) retrieval with
a grasping forceps and (B) completely removed without
tears in the aortic wall.