Endoscopic fenestration of a symptomatic esophageal duplication cyst

A 52-year-old woman with a medical history of GERD and hypertension presented to her primary care doctor with several years of substernal chest pressure, which had gradually worsened over the preceding 2 to 3 months. Initial workup for a cardiac cause of her symptoms was negative. She underwent contrast-enhanced CT scan of the chest, which demonstrated a 6.8 × 3.2 cm mass in the posterior mediastinum, which was compliant with the distal esophagus (Fig. 1A). Upper endoscopy with EUS was used to better characterize the mass and demonstrated an anechoic cyst between the left atrium and the esophagus; the cyst was clearly associated with the esophageal wall. Doppler US demonstrated a lack of blood flow through the cyst. The use of Doppler US allowed for visualization of interposing vessels, which were absent in this case, and would have increased the risk of bleeding associated with endoscopic intervention.

After discussion of the case at thoracic tumor board and in consideration of the unequivocally benign appearance of the cyst, it was decided that the preferred management was for the least-invasive therapy possible. The patient was referred for endoscopic management and, before the procedure, received

Figure 1. A, CT scan of the chest demonstrating 6.8 × 3.2 cm esophageal mass. B, Upper endoscopic view showing mass effect in the distal esophagus just above the lower-esophageal sphincter. C, EUS view of electrocautery knife incision into the distal esophagus. D, Endoscopic view following cyst puncture. E, View from within the cyst cavity following lavage. F, Follow-up endoscopy showing simple diverticulum. G, Follow-up EUS showing resolution of cyst.

Written transcript of the video audio is available online at www.VideoGIE.org.
intravenous antibiotics to decrease the risk of peripro-
dural infection.

On upper-endoscopic view, an obvious mass effect from
the cyst was seen in the distal esophagus, just above the
lower-esophageal sphincter (Fig. 1B). An electrocautery
knife was used to make an incision into the distal
esophagus, with EUS serving to guide instrument
placement (Fig. 1C). A hook knife was selected to create
a larger opening into the cyst and decrease the risk of
abscess formation. After incision into the cyst, copious
mucinous fluid drained into the esophageal lumen
(Fig. 1D). The upper endoscope was then reinserted and
was used to view the inside of the cystic cavity (Fig. 1E).
The cavity was lavaged with saline solution and N-
acetylcysteine to clear the cavity. Biopsy specimens were
taken from the lining of the cyst cavity with standard
biopsy forceps. The use of endoclips at the base of
the incision was critical to prevent further dissection of the
esophageal lumen, which could have led to perforation.

Histopathologic staining of the biopsy tissue demon-
strated pseudostratified, ciliated, columnar epithelium,
which was consistent with an esophageal duplication cyst.
Upper endoscopy with EUS was repeated 4 weeks after
the initial procedure, and the site of the former cyst was
now demonstrated to be a simple diverticula (Fig. 1F).
Repeated EUS demonstrated complete resolution of the
fluid-filled cyst (Fig. 1G). The entire procedure was
completed on an outpatient basis, and there were no
adverse events.

Esophageal duplication cysts are the embryologic
remnant of the primitive diverticula, which normally forms
the dorsal esophagus and ventral respiratory tract. They are
benign mediastinal masses that usually present in infancy
or in childhood and involve the distal third of the
esophagus.

Endoscopic fenestration by a skilled therapeutic endo-
scopist is safe and efficacious in the management of these
cysts. The approach allows for an outpatient procedure
with decreased postoperative recovery time. The endo-
scopic cavity should be completely debrided to decrease
the risk of infection after the procedure, and the base of
the cyst should be clipped to prevent spontaneous dissec-
tion and perforation of the esophagus. Previous case
reports have described resection or banding of esophageal
duplication cysts; however, this is the first video case
report (Video 1, available online at www.VideoGIE.org)
to describe endoscopic fenestration in the management
of these cysts.

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