Treatment of a congenital esophageal fistula by injection of autologous fat

Fig. 1 Initial esophagogram before treatment, clearly showing a leak of contrast towards the tracheobronchial tree.

Fig. 2 Endoscopic image of the esophageal fistula.

The injection of autologous free fat obtained by suction-assisted lipectomy for the correction of soft tissue defects is a common procedure in plastic surgery. This procedure has also been used to prevent aspiration after vocal fold paralysis [1], and to treat vesicoureteral reflux [2]. Tracheo-esophageal fistula may present as an isolated defect or it may be associated with esophageal atresia. The treatment of congenital tracheo-esophageal fistulas is usually based on surgical procedures [3]. We present a preliminary report of a new endoscopic mode of therapy.

A 55-year-old man suffered from pneumonia and had frequent coughing episodes, especially after swallowing liquids. An orifice was identified by esophagogram (**Fig. 1**) and by endoscopy (**Fig. 2**). Fatty tissue was obtained from the abdominal subcutaneous tissue by a suction-assisted procedure. A total of 60 mL of fatty tissue was obtained. After centrifugation at 3000 rpm for 3 minutes, three layers were clearly visible (**Fig. 3**): at the bottom, a component containing mainly blood residues and serum; in the middle, presumably viable fatty tissue; and, finally, at the top, an oily component that was discarded.

Several passes of a biopsy probe were carried out in order to traumatize the fistulous surface and thus gain adhesiveness. Next, some 15 – 20 mL of the infranatant solution, the presumably viable fatty tissue, was injected using a pressurized injection device and a 17 – to 18-G cannula, to close the fistula.

Ten months later, endoscopic ultrasonography revealed a hyperechoic collection (**Fig. 4**), although a smaller esophageal mucosal orifice still persisted. An additional therapeutic session was decided on. Two years later (**Fig. 5**), an esophagogram did not reveal a fistula (**Fig. 6**), and the patient remains asymptomatic 11 years later.

Fig. 3 Fat obtained by liposuction and managed by centrifugation. The three layers are apparent.

This preliminary report confirms that injection of autologous fatty tissue can persist as a long-lasting graft, suggesting several endoscopic applications.

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Competing interests: None

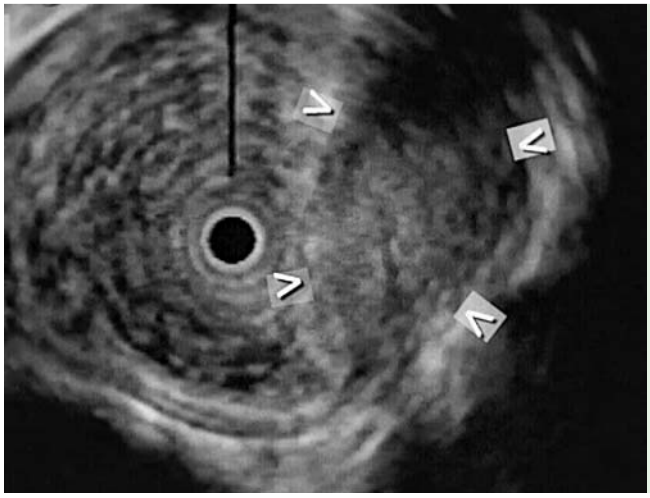

Fig. 4 Endoscopic ultrasonogram of the fatty deposit (arrowheads).

Fig. 5 Endoscopic image of protruding esophageal treated area 2 years after injection.

Fig. 6 Later esophagogram showing no fistulous leak.

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