

## 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.

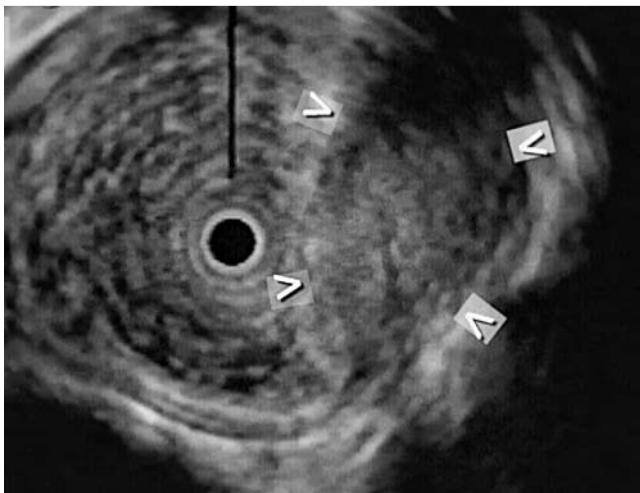


**Fig. 3** Fat obtained by liposuction and managed by centrifugation. The three layers are apparent.

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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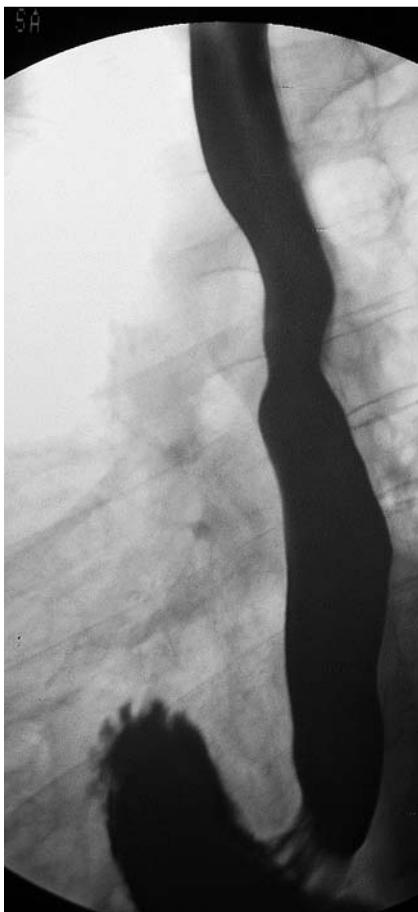
**Competing interests:** None



**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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