Polyglycolic acid sheets for closure of refractory esophago-pulmonary fistula after esophagectomy

Anastomotic leakage, which is one of the complications of esophagectomy, sometimes causes a refractory fistula despite conservative therapy [1]. Polyglycolic acid (PGA) sheets (Neoveil; Gunze, Kyoto, Japan), a suture reinforcement material that is absorbed within 4–15 weeks, have been used in many fields of open and endoscopic surgery [2, 3] to prevent delayed perforation [4, 5]. Here we report successful closure of a refractory esophago-pulmonary fistula using PGA sheets. An Ivor–Lewis esophagectomy was performed with gastric tube reconstruction via right thoracotomy on a man in his 70s for advanced esophageal cancer. A mechanical intrathoracic anastomosis was created using a circular stapler (Proximate ILS CDH25; Ethicon Endo-Surgery, LLC., Cincinnati, Ohio, USA).

On Day 27 after surgery, the patient developed a high fever. Contrast computed tomography (CT) with diluted Gastrografin (Bayer Pharma AG, Berlin, Germany) injected into the nasogastric tube showed anastomotic leakage, which was confirmed endoscopically (Fig. 1 a, b). Conservative management of the esophago-pulmonary fistula was ineffective (Fig. 2).

Because the fistula was large, PGA sheeting was used rather than endoscopic closure with endoclips. PGA sheets were cut into 5 × 4-mm pieces, and the fistula was filled with two or three pieces (Fig. 3) before being fixed to the fistula by spraying fibrin glue (Beriplast P Combi-Set; CSL Behring Pharma, Tokyo, Japan) using a spray tube. This procedure was repeated three times at 1- or 2-week intervals. The fistula had closed completely by 5 weeks after the initial procedure (Fig. 4). No fistula was detected on follow-up CT 1 month later.

To our knowledge, there are no published reports describing the use of this technique to close refractory post-esophagectomy esophago-pulmonary fistulas. Because PGA sheets promote construction of fibroblasts, they may help to close fistulas. This case suggests that PGA sheeting is a possible treatment option for refractory fistula.

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