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. 1a, 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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