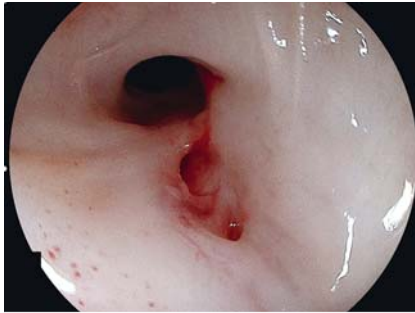


A pediatric case of endoscopic fistula closure using a polyglycolic acid sheet

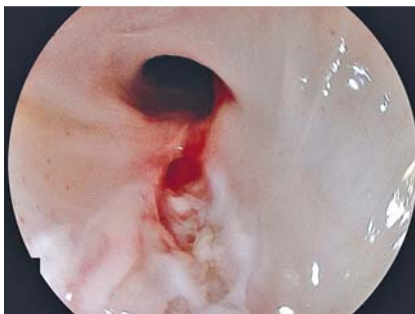
OPEN
ACCESS



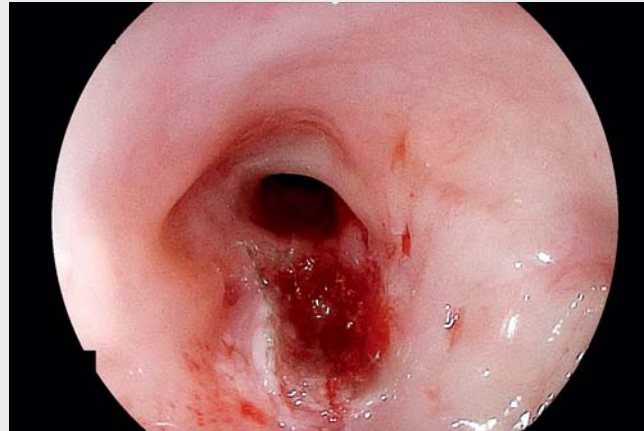
► **Fig. 1** A fistula on the posterior wall of the oral side of the esophageal anastomosis.



► **Fig. 2** Esophagography revealed the trachea (yellow arrow).



► **Fig. 3** Image after cauterization of the area around the fistula with hot biopsy forceps, soft mode 80W of electro-surgical generator (VIO300D; ERBE Elektromedizin GmbH, Tübingen, Germany).



► **Video 1** Use of polyglycolic acid sheets and fibrin glue as an effective alternative to standard procedures during pediatric endoscopic fistula closure.

Recurrent tracheoesophageal fistula is a common postoperative complication of esophageal atresia [1]. The surgical treatments utilize muscle and pleural flaps [2]. Furthermore, endoscopic fistula closure with fibrin glue, a biomaterial, can be achieved by epithelializing, promoting circulation, and inhibiting leukocyte infiltration [1]. In adults, endoscopic fistula closure using a polyglycolic acid (PGA) sheet is useful for treating postoperative esophageal anastomotic fistulas [3]. However, no such pediatric reports are available.

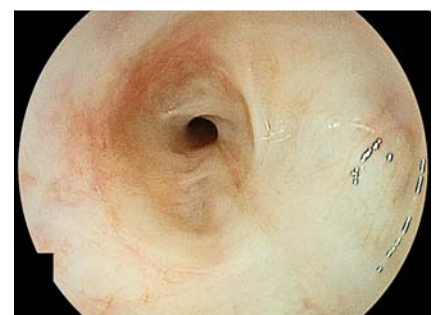
Herein, we report the first pediatric case of endoscopic fistula closure with PGA sheet (► **Video 1**).

A 3-year-old girl was admitted with the chief complaint of persistent fever and cough after eating. She underwent postnatal thoracoscopic radical esophagectomy for type C esophageal atresia. Owing to postoperative complication, she underwent multiple endoscopic balloon dilations.

Esophagogastroduodenoscopy revealed an esophageal fistula on the oral posterior wall of the esophageal anastomosis



► **Fig. 4** Fibrinogen and thrombin solutions of fibrin glue were applied to the polyglycolic acid sheets.



► **Fig. 5** Endoscopy after 3 weeks revealed closure of the fistula.

(► **Fig. 1**). Tracheal esophagography (► **Fig. 2**) revealed tracheoesophageal fistula.

First, mucosa around the fistula was cauterized using hot biopsy through a single-channel upper gastrointestinal endoscope (► **Fig. 3**). Subsequently, small pieces of PGA sheet (Neoveil; Gunze Co., Osaka, Japan) were grasped with biopsy forceps, immersed in fibrinogen solution, and used to fill the fistula through the scope (► **Video 1**). Finally, fibrinogen and thrombin solutions of fibrin glue (Beriplast P Combi-Set; CSL Behring Pharma, Tokyo, Japan) were applied to the PGA sheets (► **Fig. 4**).

Endoscopy 3 weeks later confirmed fistula closure (► **Fig. 5**), and oral intake by the patient was possible without symptoms.

Fibrin glue is generally used in the treatment of pediatric tracheoesophageal fistula. PGA sheets acting as tissue-regenerative scaffolds may effectively help in the healing process, as granulation tissue can fill and cover the fistula [3].

Endoscopy_UCTN_Code_TTT_1AO_2AI

Competing interests

The authors declare that they have no conflict of interest.

The authors

Mitsuhiro Kono¹, **Yasuaki Nagami**¹, **Tatsuo Nakaoka**², **Akifumi Matsuki**¹, **Masaki Ominami**¹, **Shusei Fukunaga**¹, **Yasuhiro Fujiwara**¹

- 1 Department of Gastroenterology, Osaka Metropolitan University Graduate School of Medicine, Osaka, Japan
- 2 Department of Surgical Medicine, Osaka Metropolitan University Graduate School of Medicine, Osaka, Japan

Corresponding author

Yasuaki Nagami, MD

Department of Gastroenterology, Osaka Metropolitan University Graduate School of Medicine, 1-4-3 Asahimachi, Abeno-ku, Osaka 545-8585, Japan
yasuaki1975@hotmail.com

References

- [1] Gutiérrez San Román C, Barrios JE, Lluna J et al. Long-term assessment of the treatment of recurrent tracheoesophageal fistula with fibrin glue associated with diathermy. *J Pediatr Surg* 2006; 41: 1870–1873
- [2] Smithers CJ, Hamilton TE, Manfredi MA et al. Categorization and repair of recurrent and acquired tracheoesophageal fistulae occurring after esophageal repair. *J Pediatr Surg* 2017; 52: 424–430
- [3] Nagami Y, Ominami M, Sakai T et al. Endoscopic closure of refractory esophageal fistula after esophagectomy using polyglycolic acid sheets: a pilot study. *Endosc Int Open* 2020; 8: E591–E595

Bibliography

Endoscopy 2023; 55: E825–E826

DOI 10.1055/a-2095-2165

ISSN 0013-726X

© 2023. The Author(s).

This is an open access article published by Thieme under the terms of the Creative Commons Attribution License, permitting unrestricted use, distribution, and reproduction so long as the original work is properly cited.

(<https://creativecommons.org/licenses/by/4.0/>)

Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany



ENDOSCOPY E-VIDEOS

<https://eref.thieme.de/e-videos>



E-Videos is an open access online section of the journal *Endoscopy*, reporting on interesting cases

and new techniques in gastroenterological endoscopy. All papers include a high-quality video and are published with a Creative Commons CC-BY license. *Endoscopy E-Videos* qualify for HINARI discounts and waivers and eligibility is automatically checked during the submission process. We grant 100% waivers to articles whose corresponding authors are based in Group A countries and 50% waivers to those who are based in Group B countries as classified by Research4Life (see: <https://www.research4life.org/access/eligibility/>).

This section has its own submission website at <https://mc.manuscriptcentral.com/e-videos>