Emergency endoscopic negative pressure therapy of a long oesophageal perforation in eosinophilic esophagitis with a single-lumen nasogastric tube-like open-pore film drain

After a bolus event with recurrent hema
temesis, a 46-year-old patient com-
plained of severe thoracic pain. Compu-
ted tomography revealed extensive parae-
sophageal mediastinal emphysema over
the entire length of the esophagus (▶Fig. 1, ▶Video 1).
During endoscopy with C02-inflation, an
8-cm transmural distal perforation (from
31–39 cm) was found with gaping wound
dges. An extraluminal wound cavity
could not be passed. Within 6 hours after
the perforation event, immediately after
the endoscopic diagnosis, intraluminal
endoscopic negative pressure therapy
was established with continuous negative
pressure of −125 mmHg (ACTIV.A.C., KCI
USA Inc., San Antonio, Texas, USA) [1, 2].
For the initial emergency treatment, we
used a single-lumen open-pore film drain
with a 25-cm drainage element (Supra-
sorb CNP drainage film; Lohmann & Ra-
scher, Rengsdorf, Germany) (▶Fig. 2).
The long drainage element covered the
perforation defect completely [3].
The single-lumen open-pore film drain is
like a nasogastric tube (NGT), but with
the additional benefit that suction can
be applied. The thin diameter of 6 mm
allows transnasal insertion.

After 36 hours, the drain was replaced
with a single-lumen open-pore polyure-
thane foam drain with a 15-cm drainage
element (▶Fig. 2) [1, 2, 4]. The perfora-
tion defect had already been taped and
was still present as a broad ulceration
(▶Fig. 3).
After a total of 4 days, intraluminal endo-
scopic negative pressure therapy ended
with stable wound conditions (▶Fig. 4,
▶Video 1). The patient was discharged

▶Fig. 1 Initial computed tomography
shows the mediastinal emphysema
(arrows) 3 hours after the sponta-
eneous perforation event. Source: Department of Diagnosti
c and Interventional Radiology of Marienkrankenhaus Hamburg.

▶Video 1 Emergency intraluminal endoscopic negative pressure therapy with a nasogas-
tric tube-like single-lumen open-pore film drain for spontaneous esophagus perforation in
eosinophilic esophagitis. Source for radiological images: Department of Diagnostic and Interventional Radiology of Marienkrankenhaus Hamburg.

▶Fig. 2 Two types of open-pore drains
with long drainage elements were used to
cover the long perforation defect for in-
traluminal endoscopic negative pressure
therapy with 125 mmHg of negative pres-
sure. A single-lumen open-pore film drain
and a polyurethane foam drain were used.
Initial emergency endoscopic negative
pressure therapy was started with the
nasogastric tube (NGT)-like single-lumen
open-pore film drain. The drain had a di-
ameter of only 6 mm. It was easily inserted
like an NGT through the nose. sOFD, sin-
gle-lumen open-pore film drain; sOPD,
single-lumen open-pore polyurethane
foam drain; DE, drainage element; L, loop.
9 days after the perforation. The defect healed completely with a small scar without stenosis (▶ Fig. 5). Endoscopically, an esophageal trachealization was noticeable. The biopsy verified eosinophilic esophagitis. Therapy was initiated according to the guidelines.

For the initial emergency therapy of an esophageal perforation, the very easy-to-use single-lumen open-pore film drain nasogastric tube was suitable. Intraluminal negative pressure application resulted in an immediate stop of extraluminal contamination. The esophagus was decompressed, the lumen collapsed, and secretions were drained. It is essential to check the inner wound and change the drain at regular intervals [1, 4, 5].

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Endoscopy

DOI 10.1055/a-1493-1805
ISSN 0013-726X
published online 2021
© 2021. Thieme. All rights reserved.
Georg Thieme Verlag KG, Rüdigerstraße 14, 70469 Stuttgart, Germany

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