



C-reactive Protein as an early marker of postoperative leakage in patients after endoscopic laser assisted Zenker's diverticulotomy

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BACKGROUND AND OBJECTIVES

Minimally invasive endoscopic techniques are the treatment of choice for Zenker's diverticulum (ZD). C-reactive protein (CRP) is widely used as a marker of postoperative infectious complications. Its high sensitivity to detect anastomotic leakage in gastrointestinal surgery has been described. Objectives of this study were to evaluate the results and efficacy of endoscopic and open approaches, to determine whether postoperative CRP serum levels can be used as a marker to exclude the presence of esophageal leakage, and to identify risk factors for development of postoperative leakage and complications.

MATERIALS AND METHODS

Patients who underwent transcervical myotomy and diverticulotomy (TMD, n = 18) or endoscopic cricopharyngeal myotomy (ECM, n = 83) with CO₂ laser for ZD in years 2008-2021 at our department were included in this retrospective study. A multivariate analysis was employed to determine predictors of development of postoperative leakage and complications. A p value < 0.05 was considered statistically significant.

RESULTS

Fig. 1. Median (± interquartile range) of length of the diverticulum, duration of the procedure, time to oral diet, and total length of hospital stay in patients after ECM and or TMD.

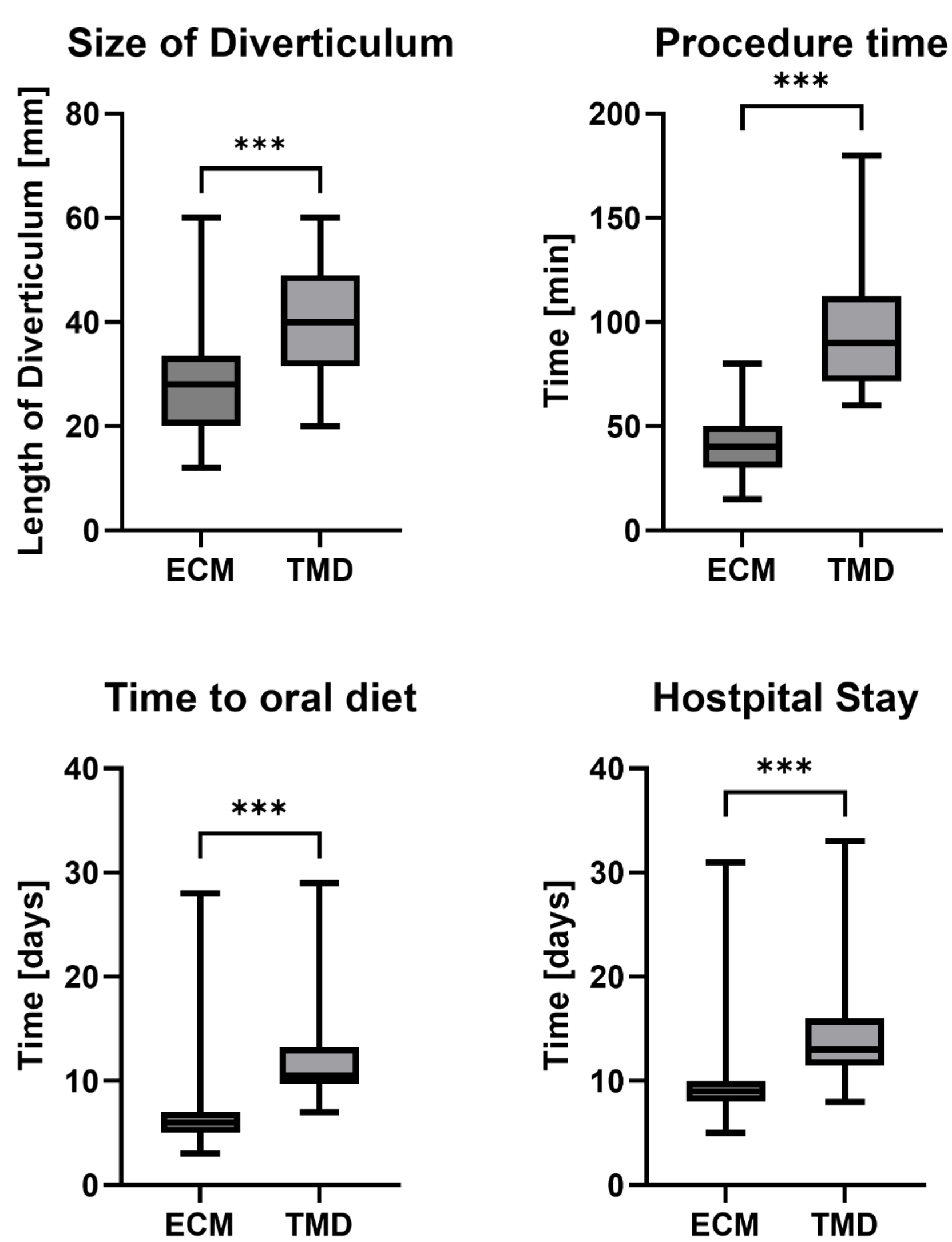


Fig. 2. CRP levels on postoperative day (POD) 1 to 3 in patients after ZD surgery with respect to the type of procedure (A), presence of contrast leak (CL) (B) and comparison of the CL group (ECM only) with patients without CL according to the type of the procedure (C). Receiver operating characteristic curve analysis of CRP levels in patients with CL (D).

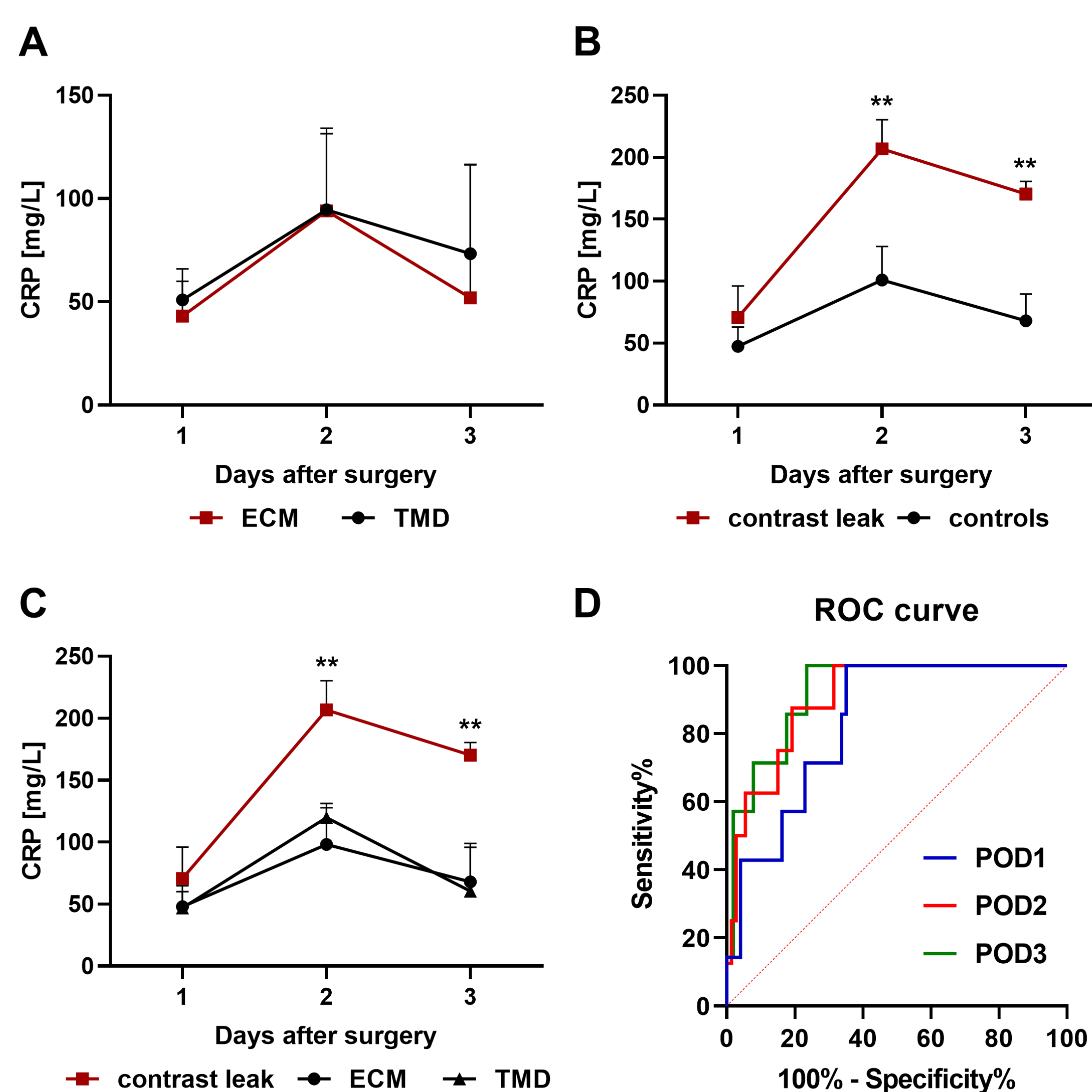


Table 1. Association of clinical variables with contrast leak expressed as adjusted OR.

Characteristics	adjusted OR	95 % CI	p value
size	0.9063	0.7911 to 1.002	0.090
difficult insertion of the diverticuloscope	0.4817	0.04482 to 3.915	0.506
endosuture	0.8256	0.02756 to 16.23	0.898
POD2 CRP < 123.8 mg/L	-	-	-
POD2 CRP > 123.8 mg/L	46.35	6.521 to 1001	0.001

OR, odds ratio

Table 2. Association of clinical variables with development of complications expressed as adjusted OR.

Characteristics	adjusted OR	95 % CI	p value
TMD?	68.58	1.774 to 9705	0.042
difficult insertion of the diverticuloscope	1.331	0.1469 to 9.642	0.7785
endosuture	8.13	0.2215 to 338.6	0.2153
contrast leak	22.75	1.243 to 1015	0.0488
POD2 CRP < 123.8 mg/L	-	-	-
POD2 CRP > 123.8 mg/L	3.095	0.4039 to 30.08	0.2801

CONCLUSION

- Endoscopic diverticulotomy with CO₂ laser represents a safe and efficient treatment of ZD.
- Postoperative CRP levels could represent a useful marker for early detection of esophageal leakage in patients after the ZD surgery.
- A CRP cut-off of 123.8 mg/L on POD2 and 98.8 mg/L on POD3 can be used to reliably rule out postoperative leak and allow safe hospital discharge.
- The presence of postoperative leakage and the type of procedure could serve as predictors of the development of complications after ZD surgery.