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**Supplementary Table 2.** Sensitivity analysis of treatment success in patients with Zenker’s diverticula. Sensitivity analysis was restricted to a) moderate/high quality studies, b) prospective studies, c) study location (East versus West). A further sensitivity analysis was performed restricted only to studies with standard Z-POEM. Numbers in parentheses indicate 95% confidence intervals.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **Subgroup** | **No. of Cohorts** | **No. of patients** | **Summary Estimate (95% CI)** | **Within-group heterogeneity (I2)** |
| **Sample Adequacy** | | | | | |
| **Study quality** | **High quality** | 6 | 149 | 92.9% (89%-96.9%) | 0% |
| **Study design** | **Prospective studies** | 1 | 20 | 92.3% (84.4%-100%) | Not applicable |
| **Location** | **East** | 3 | 39 | 91.3% (83.6%-100%) | 23.3% |
| **West** | 7 | 257 | 90.8% (87.3%-94.4%) | 0% |
| **Technique** | **Z-POEM** | 6 | 221 | 89.8% (85.9%-93.8%) | 0% |
| Abbreviation: CI, Confidence Interval. | | | | | |

**Supplementary Table 3. Meta-regression analysis of clinical success rate conducted separately according to diverticulum location**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **All studies (p heterogeneity= 0.62)** | | | | | | | | | | |  | |
| **Studies evaluating POEM in Zenker’s diverticulum (p heterogeneity=0.43)** | | | | | | | | | | | | |
| **Timing of response assessment** | | -0.94 (-0.88 to 1.11) | 0.12 | 0% | 0.55 |  |  | | |  | |  |
| **Diverticular size** | | -0.97 (-0.88 to 1.14) | 0.14 | 0% | 0.63 |  |  | | |  | |  |
| **Prior treatment** | | -0.95 (-0.89 to 1.21) | 0.17 | 0% | 0.48 |  |  | | |  | |  |
|  | |  |  |  |  |  |  | | |  | |  |
| **Studies evaluating POEM in epiphrenic diverticulum (p heterogeneity=0.85)** | | | | | | | | | | | | |
| **Timing of response assessment** | -0.88 (-0.81 to 1.19) | | 0.24 | 0% | 0.58 |  | |  |  | |  | |
| **Diverticular size** | -0.95 (-0.86 to 1.18) | | 0.21 | 0% | 0.53 |  | |  |  | |  | |
| **Prior treatment** | -0.94 (-0.88 to 1.12) | | 0.17 | 0% | 0.26 |  | |  |  | |  | |
| CI, Confidence Interval; POEM, Per-Oral Endoscopic Myotomy; SE, Standard Error  R2 represents the amount of heterogeneity accounted for the variable | | | | | | | | | | | | |

**Supplementary Table 4.** **Adverse events reported in the included studies**

|  |  |
| --- | --- |
| **Study, Year** | **Adverse events** |
| Al Ghamdi, 2020 | Mild/moderate in 6 pts (6.6%) |
| Aslan 2019 | Subcutaneous emphysema in 5 pts (55.5%) |
| Basile 2020 | Mild fever (1 patient: 14.2%) |
| Demeter 2020 | Mucosal leak (1 patient: 14.2%) |
| Desai 2019 | Not specified in 14% of patients |
| Kinoshita 2020 | Pneumoperitoneum in 1 pt (7.1%) |
| Klingler 2020 | Perforation in 1 pt (5.2%)  Abscess in 1 pt (5.2%) |
| Yang 2020 | 5 pts (6.7%) : 1 bleeding and 4 perforations |
| Repici 2020 | 4 asymptomatic subcutaneous emphysema (20%) |
| Sanaei 2020 | Inadvertent mucosotomy in 2 pts (6.25%)  Mucosal leak in 2 pts (6.25%) |

**Supplementary Figure 1. Temporal kinetics of a) Dakkak and Bennett score in patients with Zenker’s diverticula, and b) Eckardt score in patients with epiphrenic diverficula after POEM**

**a)**

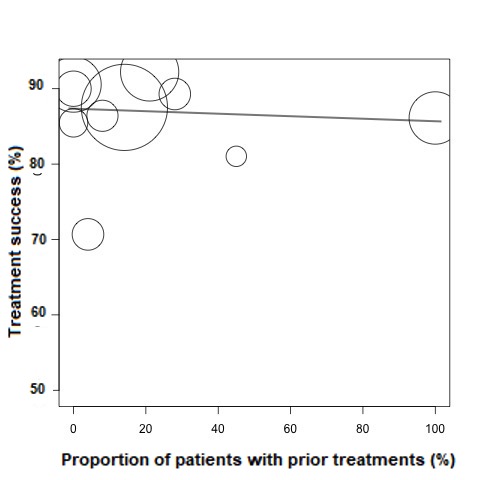
**C:\Users\Asus\Desktop\POEM diverticula\Analysis\Score\DB.tiff**

**b)**

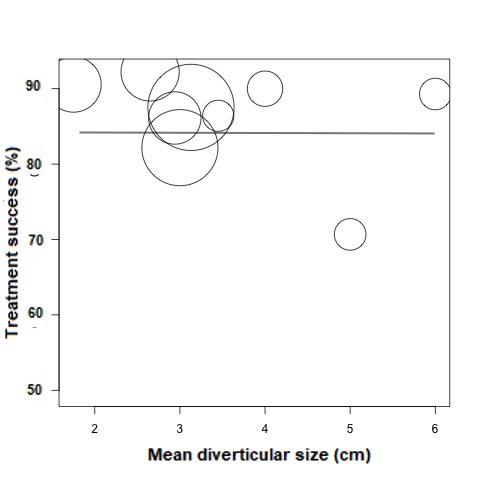
**C:\Users\Asus\Desktop\POEM diverticula\Analysis\Score\Eckardt.tiff**

**Supplementary Figure 2. Meta-regression plot of a) prior treatments and b) diverticular size on treatment success in patients with Zenker’s diverticula**

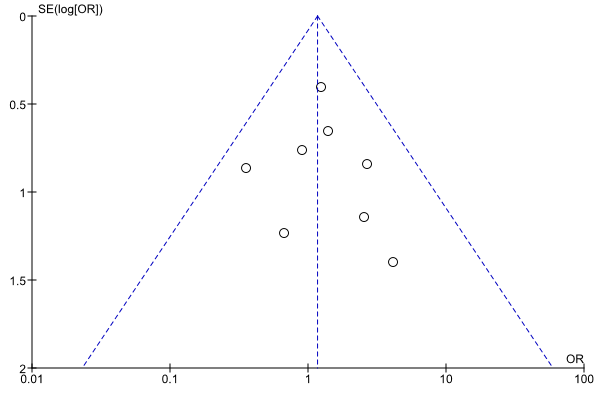
**a)**

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**b)**

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**Supplementary Figure 3. Funnel plot concerning the risk of publication bias for treatment success analysis in a) patients with Zenker’s diverticula and b) epiphrenic diverticula**

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**b)**

