Supplementary materials

**Vacuum therapy and internal drainage as a first-line endoscopic treatment for the post-bariatric leaks: A systematic review and meta-analysis**

Supplementary Table: 1 Search terms

|  |  |
| --- | --- |
| Database | Search term |
| Medline  (PubMed) | (((((bariatric) OR (bariatric surgery[MeSH Terms])) OR ((sleeve) AND (gastrectom\*))) OR ((("roux-en-y") AND (gastric)) AND (bypass))) AND ((leak\*) OR (fistula\*))) AND ((((((endoluminal) OR (endoscopic)) AND ((vacuum) OR ("negative pressure"))) OR ("E-vac")) OR ("Eso-sponge")) OR (((internal) AND (drain\*)) OR (septotom\*))) |
| Scopus | (((TITLE-ABS-KEY(bariatric)) OR ((TITLE-ABS-KEY(sleeve)) AND (TITLE-ABS-KEY(gastrectom\*))) OR ((TITLE-ABS-KEY(“roux-en-y”)) AND (TITLE-ABS-KEY(gastric)) AND (TITLE-ABS-KEY(bypass)))) AND ((TITLE-ABS-KEY(leak\*)) OR (TITLE-ABS-KEY(fistula\*)))) AND (((((ALL(endoluminal)) OR (ALL(endoscopic))) AND ((ALL(vacuum)) OR (ALL(“negative pressure”)))) OR (ALL(“E-vac”)) OR (ALL(“Eso-sponge”))) OR (((ALL(internal)) AND (ALL(drain\*))) OR (ALL(septotom\*)))) |
| Embase | (('bariatric surgery'/exp OR 'bariatric surgery') OR ('sleeve gastrectomy'/exp OR 'sleeve gastrectomy') OR ('roux-en-y gastric bypass'/exp OR 'roux-en-y gastric bypass')) AND (leak\* OR fistula\*) AND ((((endoscopic OR endoluminal) AND (vacuum OR 'negative pressure')) OR 'e-vac' OR 'eso-sponge') OR (internal AND drain\*) OR septotom\*) |

Supplementary Table 2: Quality assessment of the included studies

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Components** | Mencio  2018 | Archid  2020 | Donatelli  2015 | Nedelcu  2015 | Rebibo  2016 | Bouchard  2016 | Donatelli  2017 | Talbot  2017 | Dammaro  2019 | Sportes  2019 | Lazzarin  2020 | Fuentes-Valenzuela  2020 |
| 1. Was the study question or objective clearly stated? | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| 2. Was the study population clearly and fully described, including a case definition? | Y | Y | Y | Y | Y | N | Y | N | Y | Y | Y | Y |
| 3.Were the cases consecutive? | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| 4. Were the subjects comparable? | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| 5. Was the intervention clearly described? | Y | Y | Y | Y | Y | Y | Y | N | Y | Y | Y | Y |
| 6. Were the outcome measures clearly defined, valid, reliable, and implemented consistently across all study participants? | Y | CD | Y | Y | Y | Y | CD | N | Y | Y | Y | Y |
| 7. Was the length of follow-up adequate | CD | CD | Y | CD | CD | Y | Y | CD | Y | CD | CD | CD |
| 8. Were the statistical methods well-described? | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| 9. Were the results well-described? | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| **Quality rating** | Fair | Fair | Good | Fair | Fair | Fair | Fair | Poor | Good | Fair | Fair | Fair |

CD cannot determine, N no, NA not available, Y yes

Supplementary Table 3: Summary data for pooling

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Study | N | Clinical success (n) | Treatment duration | | Endoscopy session | | Length of hospital stay  (day) |
| Mean | SD | Mean | SD |
| Christogianni2018 | 21 | 18 | 22 | 10.8 |  |  |  |
| Mencio2018 | 18 | 15 | 55.3 | 33.3 | 10.5 | 6.5 |  |
| Archid2020 | 8 | 7 | 9.8 | 8.6 | 3.3 | 2.2 | Mean 19±15.1 |
| Donatelli2015 | 64 | 50 | 57.5 | 49 | 3.1 | 3.5 |  |
| Nedelcu2015 | 9 | 8 |  |  | 2.8 | 0.8 |  |
| Rebibo2016 | 47 | 43 | 109 | 99.3 |  |  | Mean 21 (range 7-78) |
| Bouchard2016 | 14 | 12 |  |  | 2 | 1.3 | Median 8 (range 1-27) |
| Donatelli2017 | 33 | 32 | 61 | 17.8 | 3 | 0.5 |  |
| Talbot2017 | 7 | 7 |  |  |  |  |  |
| Sportes2019\* | 33 | 25 |  |  |  |  |  |
| Dammaro2019 | 14 | 13 | 119 | 57.4 | 4.3 | 2.1 |  |
| Lazzarin2020 | 5 | 5 | 32 | 4 |  |  |  |
| Fuentes-Valenzuela2020 | 6 | 6 | 106.7 | 31 | 2.5 | 0.8 | Median 12 (IQR 6.5-17.5) |

Reviewer decided not to pool the endoscopy session data of EVT studies (indicated in light gray boxes) because only 2 studies were available. In addition, pooling results of both studies would yield imprecise estimate.

\* Treatment duration and endoscopy session were reported separately for each leak type (not overall).



Supplementary Fig. 1: Forest plot of mean treatment duration from endoluminal vacuum therapy studies



Supplementary Fig. 2: Forest plot of mean treatment duration from endoscopic internal drainage studies



Supplementary Fig. 3: Forest plot of mean endoscopy session from endoscopic internal drainage studies