**Supplementary Table 1: Clinical characteristics and perioperative outcomes of 22 patients undergoing POEM-SSMD.**

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| --- | --- |
| **Baseline characteristics** | **Values** |
| Age, mean (range) (years) | 49.82 (19–76) |
| Sex, male/female (*n*) | 15/7 |
| Symptom duration, median (range) (months) | 120 (3–480) |
| **Ling classification, *n* (%)** |
| Ling IIa type | 3 (13.6) |
| Ling IIb type | 2 (9.1) |
| Ling IIc type | 16 (72.7) |
| Ling IIIr type | 1 (4.5) |
| **Prior treatment, *n* (%)** |
| Balloon dilatation | 4 (18.2) |
| POEM | 3 (13.6) |
| Laparoscopic Heller myotomy | 3 (13.6) |
| Botox injection | 1 (4.5) |
| Balloon dilatation and POEM | 1 (4.5) |
|  Balloon dilatation and Laparoscopic Heller myotomy | 1 (4.5) |
| Overall  | 13 (59.1) |
| **Procedure-related parameters** |
| Operation time, mean (range) (min) | 62.32 (23–130) |
| Tunnel length, median (range) (cm) | 7 (2–12) |
| Myotomy length, mean (range) (cm) | 5.45 (3–8) |
| Hospitalization, median (range) (day) | 7 (5–12) |
| **Adverse events** |
|  Minor adverse events |  |
|  Substernal pain, *n* (%) | 6(27.3) |
|  Pleural effusion, *n* (%) | 1 (4.5) |
|  Neck subcutaneous emphysema, *n* (%) | 2 (9.1) |
|  Mucosal perforation, *n* (%) | 3 (13.6) |
| Postoperative fever, *n* (%) | 4 (18.2) |
| Follow-up, mean (range), (months) | 28.67 (10–63) |

POEM-SSMD: Peroral endoscopic myotomy with simultaneous submucosal and muscle dissection