

Supplementary Material 1 Search strategy

Search strategy for Medline

- 1: (endoscop* mucosal resection or emr).tw.
- 2: (endoscop* submucosal dissection or esd).tw.
- 3: (colo* or rect* or colorect*).tw.
- 4: 1 and 2 and 3
- 5: limit 4 to English

Search strategy for Embase

- 1: 'endoscop* mucosal resection':ti,ab OR emr:ti,ab
- 2: 'endoscop* submucosal dissection':ti,ab OR esd:ti,ab
- 3: colo*:ti,ab OR rect*:ti,ab OR colorect*:ti,ab
- 4: 1 and 2 and 3
- 5: 4 and [English]/lim

Supplementary Table 1 Summary of included studies

| Ref. | Country | Study design | Period | Resection type | n (%) | Mean age (yr) | Gender, female (%) | Tumor size | Quality |
|--|----------------|----------------------------|-----------|----------------|-------|---------------|--------------------|------------|---------|
| Acquistapace <i>et al</i> ^[10] , 2015 | Italy | Retrospective | 2010-2014 | ESD | 9 | - | - | - | 6 |
| | | | | CSI-EMR | 14 | - | - | - | |
| Benites <i>et al</i> ^[16] , 2020 | Peru | Prospective | 2016-2019 | ESD | 42 | - | - | - | 6 |
| | | | | EMR | 342 | - | - | - | |
| Emmanuel <i>et al</i> ^[11] , 2018 | United Kingdom | Retrospective | 2010-2016 | ESD | 52 | - | - | - | 7 |
| | | | | EMR | 356 | - | - | - | |
| Iizuka <i>et al</i> ^[28] , 2009 | Japan | Retrospective | 2000-2004 | ESD | 38 | - | - | 39 | 7 |
| | | | | EMR | 83 | - | - | 31 | |
| Jung <i>et al</i> ^[14] , 2019 | Korea | Retrospective | 2012-2013 | ESD | 119 | 65.7 | 42.9 | 34.3 | 7 |
| | | | | EMR | 88 | 68.3 | 35.2 | 22.3 | |
| Kim <i>et al</i> ^[9] , 2013 | Korea | Retrospective | 2007-2011 | ESD | 58 | 63.8 | 36.2 | 30.6 | 7 |
| | | | | EMR-P | 91 | 60.1 | 40.7 | 20.9 | |
| Kobayashi <i>et al</i> ^[33] , 2012 | Japan | Retrospective case control | 2005-2009 | ESD | 28 | 65.1 | 32.1 | 27.1 | 7 |
| | | | | EMR | 56 | 65.9 | 32.1 | 25.0 | |
| Lee <i>et al</i> ^[8] , 2012 | Korea | Retrospective | 2004-2009 | ESD | 314 | 60.7 | 44.4 | 28.9 | 7 |
| | | | | EMR | 140 | 62.4 | 36.3 | 21.7 | |
| Liu <i>et al</i> ^[15] , 2019 | China | Retrospective | 2015 | ESD | 23 | - | - | - | 7 |
| | | | | EMR | 824 | | | | |

| | | | | | | | | | |
|--|--------|---------------|------------|-------------|--------|------|------|------|---|
| Niikura <i>et al</i> ^[36] , 2016 | Japan | Retrospective | 2013-2014 | ESD | 16812 | - | - | - | 8 |
| | | | | EMR | 219848 | | | | |
| Oka <i>et al</i> ^[30] , 2010 | Japan | Retrospective | 2004-2005 | ESD | 688 | - | - | - | 7 |
| | | | | EMR | 36803 | | | | |
| Sagawa <i>et al</i> ^[34] , 2012 | Japan | Retrospective | 2006-2010 | ESD | 131 | - | - | - | 7 |
| | | | | EMR | 885 | | | | |
| Saito <i>et al</i> ^[31] , 2010 | Japan | Retrospective | 2003-2006 | ESD | 145 | 64.0 | - | 37.0 | 7 |
| | | case control | | EMR/EPMR | 228 | 64.0 | | 28.0 | |
| Sato <i>et al</i> ^[37] , 2016 | Japan | Retrospective | 2007-2012 | ESD | 202 | 69.3 | - | 30.5 | 7 |
| | | | | EMR | 350 | 68.1 | | 25.4 | |
| Soliman <i>et al</i> ^[12] , 2018 | France | Retrospective | 2012-2016 | ESD | 157 | - | - | 50.0 | 7 |
| | | | | EMR | 217 | | | 34.3 | |
| Tajika <i>et al</i> ^[32] , 2011 | Japan | Retrospective | 1995-2004; | ESD | 85 | 64.3 | 43.4 | 31.6 | 7 |
| | | | 2005-2009 | EMR | 104 | 59.9 | 37.5 | 25.5 | |
| Taku <i>et al</i> ^[26] , 2007 | Japan | Retrospective | 1999-2003 | ESD | 43 | - | - | - | 7 |
| | | | | EMR | 1906 | | | | |
| Tamegai <i>et al</i> ^[27] , 2007 | Japan | Retrospective | 2003-2005 | ESD | 71 | - | - | 32.7 | 7 |
| | | | | EPMR | 32 | | | 28.7 | |
| Terasaki <i>et al</i> ^[35] , 2012 | Japan | Retrospective | 2006-2009 | ESD | 61 | 65.0 | 37.7 | 42.1 | 7 |
| | | | | EMR | 70 | 65.5 | 42.9 | 24.2 | |
| Toyonaga <i>et al</i> ^[29] , 2009 | Japan | Retrospective | 2002-2007; | ESD | 468 | - | - | 32.0 | 7 |
| | | | 2007-2008 | EMR with SI | 24 | | | 20.9 | |

| | | | | | | | | | |
|--|-------------------|-------------|-------------------------|------------|----------|--------------|--------------|--------|---|
| Urban <i>et al</i> ^[13] , 2018 | Czech Republic | Prospective | 2013-2014; 2010-2011 | ESD EMR | 27 30 | 68.2 66.4 | 25.9 43.3 | - - | 6 |
|--|-------------------|-------------|-------------------------|------------|----------|--------------|--------------|--------|---|

ESD: Endoscopic submucosal dissection; CSI-EMR: Circumference submucosal incision-endoscopic mucosal resection; EMR-P: Endoscopic mucosal resection with precutting; EPMR: Endoscopic piecemeal mucosal resection; EMR with SI: Endoscopic mucosal resection with small incision.

Supplementary Table 2 Sensitivity for articles ≥ 20 mm

| | Total papers | Sample size (ESD) | Pooled proportions | Sample size (EMR) | Pooled proportions | RR (CI) | P value | Publication bias |
|--|-----------------|-------------------------|------------------------|-------------------------|-----------------------|---------------------------------------|------------|---------------------|
| Sensitivity analysis (≥ 20 mm only) | | | | | | | | |
| En bloc resection | 6 | 941 | 86% (0.79- 0.91) | 1122 | 45% (0.59) | (0.31- 1.932 (1.389- 2.688) | < 0.001 | - |
| Positive lateral margin | 2 | 123 | 3% (0.00- 0.06) | 187 | 14% (0.19) | (0.09- 0.292 (0.089- 0.955) | 0.042 | - |
| Positive vertical margin | 1 | 38 | 5% (0.00- 0.15) | 83 | 1% (0.05) | (0.00- 4.368 (0.409- 46.710) | 0.223 | - |
| Complete resection | 4 | 771 | 83% (0.73- 0.92) | 790 | 59% (0.88) | (0.26- 1.548 (0.808- 2.964) | 0.188 | - |
| Lymphovascular invasion | 1 | 54 | 6% (0.02- 0.12) | 23 | 0% (0.02) | (0.00- 4.800 (0.276- 83.404) | 0.282 | - |
| Mean procedural time | 3 | 387 | - | 549 | - | 73.247 (59.249- 87.245) | < 0.001 | - |
| Additional surgery | 2 | 99 | 13% (0.07- 0.21) | 153 | 5% (0.09) | (0.02- 3.139 (1.360- 7.243) | 0.007 | - |
| Perforation | 8 | 1054 | 5% (0.03- 0.08) | 1548 | 1% (0.02) | (0.00- 4.513 (2.531- 8.046) | < 0.001 | - |
| Bleeding | 7 | 1016 | 3% (0.01- 0.05) | 1465 | 2% (0.04) | (0.01- 1.247 (0.618- | 0.538 | - |

| | | | | | | | | | |
|-------------|---|------|-------|-------------|-------|--------------|--------|---|--|
| | | | | | | | 2.516) | | |
| Recurrences | 8 | 1025 | 2% | (0.00- 1496 | 11% | (0.06- 0.191 | < | - | |
| | | | 0.03) | | 0.16) | (0.085- | 0.001 | | |
| | | | | | | 0.431) | | | |

ESD: Endoscopic submucosal dissection; EMR: Endoscopic mucosal resection; RR: Relative risk; CI: Confidence interval.