

META ANALYSIS OF THE INCIDENCE OF LEAKAGE AND STRICTURE FORMATION AFTER HAND-SEWN VERSUS STAPLED ESOPHAGO-GASTRIC ANASTOMOSIS

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ABSTRACT:

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Background: Esophagectomy is a major operation indicated for many reasons mainly in esophageal cancer and loss of esophageal function, this operation due to many considerations we can say it is a true challenge to the upper GI surgeon.

Aim of the work: The main purpose of the present study is to review the difference between hand-sewn and stapler esophagogastric anastomosis as regards post-operative leakage and stricture formation.

Patients and Methods: In the present study, we searched Medline via Pub Med, SCOPUS, Web of Science, Cochrane Central Register of Controlled Trials (CENTRAL), and Google Scholar. In the present systematic review and meta-analysis, A 746 cases were included in hand sewn group and 691 cases in stapled anastomosis.

Results: In the present systematic review and meta-analysis, 9 studies including a total of 1437 patients reported the leak incidence. There was a statistically insignificant heterogeneity in the studies. Using the random effects model, the outcome results revealed that hand sewn was significantly more than stapled anastomosis regarding leak incidence. In the present systematic review and meta-analysis, 9 studies including a total of 1437 patients (746 in hand sewn and 691 stapled anastomosis)—reported the Stricture incidence. There was a statistically insignificant heterogeneity in the studies. Using the random effects model, the outcome results revealed that hand sewn was significantly less than stapled anastomosis regarding stricture incidence.

Conclusion: This meta-analysis, comparing stapled and hand sewn esophagogastric anastomosis, showed that stapled anastomosis decreased the rate of anastomotic leak, increased the rate of anastomotic stricture, shortened the operating time, decreased the rate of post-operative complications but the cost of using staplers is high compared to the hand sewn technique.

Keywords: Leakage, Stricture, Hand-sewn, Stapled Esophago-gastric Anastomosis.

INTRODUCTION:

Esophagectomy is a major operation that may have many post-operative complications that could lead to severe

morbidity and mortality; the most common and most serious are Anastomotic Leakage (AL) and Anastomotic Stricture (AS)⁽¹⁾.

Hand-sewn was the standard technique in the anastomosis after esophagogastric resection. However, with the introduction and advantage of use of staplers in resection anastomosis, Staplers started to replace the traditional Hand-sewn dependent technique. It has the benefits of saving time, decreasing blood loss, saving effort, technical ease, accessibility to difficult spaces and eligibility⁽²⁾.

In general, two different types of staplers are widely used; the circular staplers (CS) and linear staplers (LS). Some studies have observed that the use of a circular stapler contributes to reduced leakage but is associated with an increased risk of anastomotic stricture⁽³⁾.

Among hand-sewn technique, single layer interrupted anastomosis is the most commonly used technique with post-operative leakage and stricture risk⁽⁴⁾.

Early reports using staplers showed no much difference in leakage rate but higher rate of the incidence of stricture formation⁽⁵⁾.

The reasons why stricture rate was more common with the stapled method included (i) lack of accurate mucosa-to-mucosa opposition when performing anastomosis; (ii) tissue necrosis beyond the stapled line, inflammation, and delayed epithelialization may predispose to excessive fibrosis and stricture formation; (iii) circumferentially placed unabsorbable metal staples do not allow the lumen to dilate beyond the size obtained originally⁽⁶⁾.

Leakage rate was reported to be below 3% in side to side stapled technique along with lower rate of anastomotic stricture and improved satisfaction of swallowing compared to hand-sewn technique⁽⁷⁾

AIM OF THE WORK:

This meta-analysis was done to evaluate the difference between hand-sewn and stapled esophago-gastric anastomosis as

regards post-operative leakage and stricture formation.

PATIENTS AND METHODS:

Type of study: Meta-analysis study.

- **Study source:** Published research studies including esophagogastric resection anastomosis after esophageal resection during the years from 2015 to 2020.
- **Study population:** Patients with esophago-gastric surgical diseases who underwent gastroesophageal anastomosis either hand sewn or by staplers.

Study Selection and Eligibility Criteria:

The present review included studies that fulfilled the following criteria:

1. Studies that included gastroesophageal resection anastomosis for any causes.
2. Studies that compare between the use of hand sewn technique against staplers either circular or linear in anastomosis of esophagus or gastro esophageal part.
3. Studies that reported any of the following outcomes as a post operative complications to the gastro esophageal resection anastomosis: leakage, stricture
4. Studies that were randomized controlled trials (RCTs), comparative studies, or prospective cohort studies.

Exclusion criteria:

We excluded review articles, non-English studies, and trials with unreliable date for extraction.

Sampling method:

All papers fulfilling the inclusion criteria according to the search key words.

- **Sample size:** All articles (9 studies) fulfilling the inclusion criteria within the years from 2015 to 2020.
- **Ethical considerations:** As approved by committee of Ain-Shams University.

Search Strategy and Screening:

An electronic search is conducted from 2015 to 2020 in the following bibliographic databases: Medline via PubMed, SCOPUS, Cochrane Central Register of Controlled Trials (CENTRAL), and Web of Science to identify relevant articles.

Direct Meta-analysis:

Continuous outcomes are pooled as mean difference (MD) or standardized mean difference (SMD) using inverse variance method, and dichotomous outcomes will be pooled as relative risk (RR) using Mantel-Haenszel method. The random-effects method is used under the assumption of existing significant clinical and methodological heterogeneity. We performed all statistical analyses using Review Manager (RevMan) 5.3 or Open Meta-analyst for windows.

Assessment of Heterogeneity:

We assessed heterogeneity by visual inspection of the forest plots, chi-square, and I-square tests. According to the recommendations of Cochrane Handbook of

Systematic Reviews and meta-analysis, chi-square p-value less than 0.1 denote significant heterogeneity while I-square values show no important heterogeneity between 0% and 30%, moderate heterogeneity from 30% to 50%, substantial heterogeneity from 50% to 100%.

Evidence of publication bias:

Has been sought using the funnel plot test. PRISMA flowchart has been produced based on the search results and the inclusion/exclusion criteria.

RESULTS:

This Meta-analysis conducted to review the difference between hand-sewn and stapler esophago-gastric anastomosis as regards post-operative leakage and stricture formation.

Study characteristics:

9 studies are included from 2015 to 2020, 6 of them are retrospective studies, 2 prospective studies and 1 randomized clinical trials (RCTs) (table 1).

Table (1): Study characteristics

| Author | Year | Type of the study |
|-------------------|------|-------------------|
| Rasihashemi et al | 2020 | Retrospective |
| Purkayastha et al | 2019 | Prospective |
| Sharif et al | 2019 | RCT |
| Kania et al | 2019 | Retrospective |
| Rostas et al | 2018 | Prospective |
| Duraisamy et al | 2018 | Retrospective |
| Kumar et al | 2018 | Retrospective |
| Mishra et al | 2016 | Retrospective |
| Harustiak et al | 2015 | Retrospective |

Patient's characteristics:

A 746 cases were included in hand sew in group and 691 cases in stapled anastomosis, mean age in hand sew in group

and in stapled anastomosis were 55.7, 56.3 years respectively, females were 188 in hand sew in group, 212 in stapled anastomosis.

Table (2): Patient's characteristics

| Author | Number | | Age | | Female | |
|-------------------|--------|-----|-------|-------|--------|-----|
| | HS | S | HS | S | HS | S |
| Rasihashemi et al | 271 | 162 | 65.44 | 62.62 | 85 | 100 |
| Purkayastha et al | 45 | 15 | 52.8 | 53.4 | 11 | 4 |
| Sharif et al | 30 | 30 | 40.6 | 41.13 | 17, | 19 |
| Kania et al | 45 | 15 | ND | | ND | |
| Rostas et al | 82 | 60 | 59, | 60 | 17 | 8 |
| Duraisamy et al | 25 | 25 | 57.12 | 60.44 | ND | |
| Kumar et al | 48 | 29 | 58.08 | 58.9 | 14 | 9 |
| Mishra et al | 66 | 74 | 52.6 | 53.4 | 28 | 33 |
| Harustiak et al | 134 | 281 | 60.2 | 60.5 | 16 | 39 |

*HS: Hand sew in *S: Stapled

Indications for operation:

Most cases indicated due to malignancy and in one study showed indication due to Barrett's esophagus with a high-grade

dysplasia, giant leiomyoma, and another study was due to esophageal stricture. (table 3).

Table (3): Indications

| Author | Indication for oesophagectomy |
|----------------------------|---|
| Rasihashemi SZ et al(2020) | Malignancy |
| Purkayastha J et al(2019) | Malignancy |
| Sharif N et al(2019) | Malignancy, post corrosive stricture |
| Kania H et al(2019) | Malignancy |
| Rostas JW et al(2018) | Malignancy |
| Duraisamy B et al(2018) | Malignancy |
| Kumar T et al(2018) | Malignancy |
| Mishra PM et al (2016) | Malignancy |
| Harustiak T et al(2015) | Malignancy Barrett's oesophagus with a high-grade dysplasia Giant leiomyoma |

Anastomotic site:

Most anastomotic sites mentioned were in upper, Middle, Mid lower, Lower, Lower

+ GE junction and above the level of the azygos vein arch (table 4).

Table (4): Anastomotic site:

| Author | Anastomotic site |
|----------------------------|---|
| Rasihashemi SZ et al(2020) | Upper |
| Purkayastha J et al(2019) | Middle, Mid lower, Lower, Lower + GE junction |
| Sharif N et al(2019) | ND |
| Kania H et al(2019) | Upper |
| Rostas JW et al(2018) | Upper, Middle, Lower |
| Duraisamy B et al(2018) | ND |
| Kumar T et al(2018) | ND |
| Mishra PM et al (2016) | upper, Middle, Lower, GE junction |
| Harustiak T et al(2015) | above the level of the azygos vein arch |

Leak

9 studies including a total of 1437 patients (746 in hand sewn and 691 in stapled anastomosis) 9 reported the leak incidence. There is a statistically insigni-

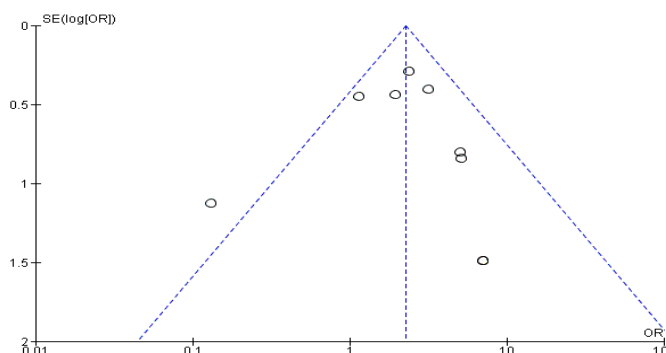
ficant heterogeneity in the studies (I2 36%, P 0.13). Using the random effects model, the outcome results revealed that hand sewn is significantly more than stapled anastomosis regarding leak incidence (mean, 95% CI: 1.62, 3.12) Z=4.85, (p0.00001)

| Study or subgroup | Hand-sewn | | Stapled esophago-gastric anastomosis | | Weight | Odds Ratio | Odds Ratio M-H, Fixed, 95% CI |
|------------------------------|-----------|-------|--------------------------------------|-------|--------|--------------------|----------------------------------|
| | Events | Total | Events | Total | | M-H, Fixed, 95% CI | |
| Rasihashemi SZ et al. (2020) | 38 | 271 | 8 | 162 | 17.2% | 3.14[1.43,6.91] | |
| Purkayastha J et al. 2019) | 8 | 45 | 0 | 15 | 1.2% | 7.03[0.38, 129.36] | |
| Sharif N et al. (2019) | 8 | 30 | 2 | 30 | 2.9% | 5.09[0.98,26.43] | |
| Kania H et al. (2019) | 8 | 45 | 0 | 15 | 1.2% | 7.03[0.38,129.36] | |
| Rostas JW et al. (2019) | 21 | 82 | 9 | 60 | 15.4% | 1.95[0.82,4.63] | |
| Duraisamy B et al. (2018) | 1 | 25 | 6 | 25 | 11.5% | 0.13[0.01,1.19] | |
| Kumar T et al. (2018) | 13 | 48 | 2 | 29 | 3.6% | 5.01[1.04,24.13] | |
| Mishra PM et al. (2016) | 12 | 66 | 12 | 74 | 18.5% | 1.15[0.48,2.77] | |
| Harustaik T et al. (2015) | 28 | 134 | 28 | 281 | 28.5% | 2.39[1.35,4.22] | |
| Total (95% CI) | | 746 | | 691 | 100.0% | 2.25[1.62,3.12] | |
| Total events | 137 | | 67 | | | | |

Heterogeneity: Chi2= 12.58, df=8(P=0.13); I²=36%

Test for overall effect Z=(P<0.00001)

Diagram (1): Forest plot for Leak



Stricture:

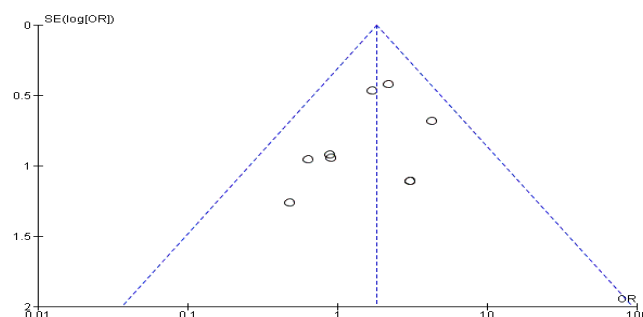
9 studies including a total of 1437 patients (746 in hand sewn and 691 in stapled anastomosis) - reported the Stricture incidence. There is a statistically insignificant heterogeneity in the studies (I²

0%, P 0.69). Using the random effects model, the outcome results revealed that stapled anastomosis is significantly more than hand sewn regarding Stricture incidence (mean, 95% CI: 1.17,2.87) Z=2.62, (p0.009)

| Study or subgroup | Hand-sewn | | Stapled esophago-gastric anastomosis | | Weight | Odds Ratio | Odds Ratio |
|------------------------------|-----------|-------|--------------------------------------|-------|--------|--------------------|--------------------|
| | Events | Total | Events | Total | | M-H, Fixed, 95% CI | M-H, Fixed, 95% CI |
| Rasihashemi SZ et al. (2020) | 3 | 271 | 2 | 162 | 8.6% | 0.90[1.15,5.42] | |
| Purkayastha J et al. 2019) | 8 | 45 | 1 | 15 | 4.3% | 3.03[0.35,26.46] | |
| Sharif N et al. (2019) | 2 | 30 | 3 | 30 | 9.7% | 0.64[1.10,4.15] | |
| Kania H et al. (2019) | 8 | 45 | 1 | 15 | 4.3% | 3.03[0.35,26.46] | |
| Rostas JW et al. (2019) | 17 | 82 | 8 | 60 | 25.4% | 1.70[0.68,4.25] | |
| Duraisamy B et al. (2018) | 1 | 25 | 2 | 25 | 6.7% | 0.48[0.04,5.65] | |
| Kumar T et al. (2018) | 3 | 48 | 2 | 29 | 8.1% | 0.90[0.14,5.73] | |
| Mishra PM et al. (2016) | 10 | 66 | 3 | 74 | 8.3% | 4.23[1.11, 16.09] | |
| Harustaik T et al. (2015) | 12 | 134 | 12 | 281 | 24.5% | 2.20[0.96, 5.05] | |
| Total (95% CI) | | 746 | | 691 | 100.0% | 1.83[1.17, 2.87] | |
| Total events | 64 | | 34 | | | | |

Heterogeneity: Chi²= 5.65, df=8(P=0.69); I²=0% Test for overall effect: Z=2.62(P=0.009)

Diagram (3): Forest plot for Stricture



Postoperative complications

5 studies including a total of 1125 patients (564 in hand sewn and 561 in stapled anastomosis) - reported the Postoperative complications incidence. There is a statistically significant heterogeneity in the

studies (I² 60%, P 0.04). Using the random effects model, the outcome results revealed that hand sewn is significantly more than stapled anastomosis regarding Postoperative complications incidence (mean, 95% CI: 1.04,2.77) Z=2.14, (p0.03)

| Study or subgroup | Hand-sewn | | Stapled esophago-gastric anastomosis | | Weight | Odds Ratio | Odds Ratio |
|------------------------------|-----------|-------|--------------------------------------|-------|--------|--------------------|--------------------|
| | Events | Total | Events | Total | | M-H, Fixed, 95% CI | M-H, Fixed, 95% CI |
| Rasihashemi SZ et al. (2020) | 131 | 271 | 72 | 162 | 30.9% | 1.17[0.79,173] | |
| Purkayastha J et al. 2019) | 29 | 45 | 6 | 15 | 11.5% | 2.72[0.82, 9.03] | |
| Kumar T et al. (2018) | 23 | 48 | 2 | 29 | 7.9% | 12.42[2.65, 58.16] | |
| Mishra PM et al. (2016) | 19 | 66 | 15 | 74 | 19.5% | 1.59[0.73, 3.46] | |
| Harustaik T et al. (2015) | 79 | 134 | 148 | 281 | 30.1% | 1.29[0.85, 1.96] | |
| Total (95% CI) | | 564 | | 561 | 100.0% | 1.70[1.04,2.77] | |
| Total events | 281 | | 243 | | | | |

Heterogeneity: Tau²= 0.16, Chi²=10.02, df=4 (P=0.04); I²=60% Test for overall effect: Z=2.14(P=0.003)

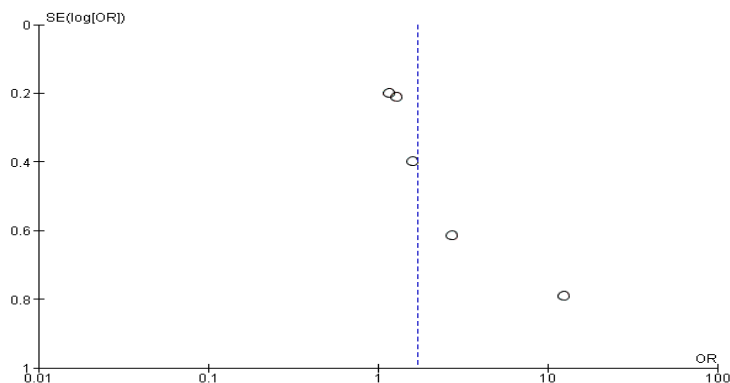


Diagram (5): Forest plot for postoperative complications

DISCUSSION:

Following esophagogastric resection, restoration of alimentary tract is usually performed by gastric transposition and esophagogastric anastomosis. However, it is associated with both early and late complications. Among the early complications, the anastomotic leak and stricture are the leading causes of perioperative morbidity and mortality after an esophagectomy⁽¹⁾.

Causes of the anastomotic leak and stricture are multifactorial and include both patient and surgery-related factors. Proper preoperative preparations and perioperative care also help in reducing the risk related to these factors and achieving a good outcome. Preparation of gastric conduit and anastomotic technique are two major surgery-related factors to be modified⁽⁹⁾.

The main purpose of the present study is to review the difference between hand-sewn and stapler esophago-gastric anastomosis as regards post-operative leakage and stricture formation.

This is a meta-analysis study which is conducted on 9 studies from 2015 to 2020; 6 of them were retrospective studies, 2 prospective studies and 1 RCTs.

In the present study, 746 cases were collected in hand sewn group and 691 cases in stapled anastomosis, mean age in hand sewn group and in stapled anastomosis were

55.7, 56.3 years respectively, females were 188 in hand sewn group, 212 in stapled anastomosis.

In agreement with our findings, the study of *Purkayastha et al.*⁽¹⁰⁾ in which 60 patients underwent cervical esophagogastric anastomosis (CEGA); 45 patients of these 60 underwent HS anastomosis (Group A) and 15 underwent linear stapled (LS) type of anastomosis (Group B), the mean age in HS group was 52.8 years, and 53.4 years in group B, 75.5% were male and 24.4% were female in HS group, while 73.3% were male, 26.6% were female in stapled group.

In a meta-analysis of *Price et al.*⁽¹¹⁾, surgical indications were invasive esophageal cancer in 401 (93%) patients, Barrett's esophagus with high-grade dysplasia in 10 (2.3%) patients, and other benign conditions in 21 (5%) patients.

Furthermore, a recent study by *Rasihashemi et al.*⁽¹²⁾ among the 433 consecutive patients with esophageal cancer, 271 (62.5%) belonged to the hand-sewn anastomosis group, and 162 (37.4%) were assigned to the stapled anastomosis group.

In the study done by *Mishra et al.*⁽¹³⁾ reported that the mean age of patients was 53 (range 23–77) years. There were 79 males and 61 females.

In the current meta-analysis, it was found that most cases indicated due to

malignancy, another causes mentioned in some studies were Barrett's esophagus with a high-grade dysplasia, esophageal stricture post corrosive and giant leiomyoma.

A retrospective study of *Cooke et al.*⁽¹⁴⁾ indicated that 1133 patients undergoing esophagectomy followed by esophagogastric anastomosis showed a significant reduction in postoperative complications and the prevalence of problems in anastomotic construction using mechanical anastomosis.

In the review on our hands, the mean follow up period mentioned in 2 studies of *Rasihashemi et al.*⁽¹²⁾ and *Mishra et al.*⁽¹³⁾ was 27 months.

A well-healed anastomosis is the mainstay of the successful outcome of esophageal surgery. HS anastomosis was the standard of care since the inception of esophageal surgery. Problems of anastomotic leaks and strictures were the main complications of esophageal surgery. As anastomosis technology progressed, the success rate increased, and when LS was developed, the success rates were even higher. LS anastomosis was first described by *Collard et al. in*⁽⁸⁾ and modified by *Orringer et al.*⁽⁴⁾ who performed side-to-side esophagogastric anastomosis with a small linear stapler LS anastomosis or with a side-to-side orientation, which improved the postoperative outcomes after esophagogastric anastomosis.

In a review of *Price et al.*⁽¹¹⁾ Ivor Lewis esophagectomy was performed in 254 (59%) patients, transhiatal esophagectomy was performed in 115 (27%) patients, extended esophagectomy was performed in 49 (11%) patients, esophagectomy through a left thoraco abdominal incision was performed in 6 (1.4%) patients, and minimally invasive esophagectomy was performed in 9 (2.1%) patients, meanwhile, the same review reported that Overall, 260 patients had LS anastomosis, 67 patients had MC anastomosis, 57 patients had HS

anastomosis, and 48 patients had CS anastomosis.

Recent meta-analysis of *Biere et al.*⁽¹⁵⁾ suggested higher leak with CEGA but showed similar complication rate compared to thoracic anastomosis. Studies of *Orringer et al.*⁽⁴⁾; *Dewar et al.*⁽¹⁷⁾ on factors associated with anastomotic leaks suggest that both local and systemic factors are responsible. Patient related risk factors include pre-existing diabetes mellitus, cardiovascular disease, smoking history and neoadjuvant chemoradiotherapy that may result in reduced tissue micro perfusion⁽¹⁸⁾.

In our meta-analysis; 9 studies including a total of 1437 patients (746 in hand sewn and 691 stapled anastomosis) - reported the leak incidence. There was a statistically insignificant heterogeneity in the studies (I² 36%, P 0.13). Using the random effects model, the outcome results revealed that hand sewn was significantly more than stapled anastomosis regarding leak incidence (mean, 95% CI: 1.62,3.12) Z=4.85, (p0.00001).

Another meta-analysis of *Vilela et al.*⁽¹⁸⁾ reported that twelve primary studies analyzed the anastomotic leak outcome. The incidence of anastomotic leak was 7, 13% in the group of stapled (60 of 842 patients) and 7, 77% in the group of hand-sewn (65 of 837 patients). There was no statistically significant difference between the two groups (RD -0.00; CI 95% -0,03 a 0,02; p=0.77 e I² =48%).

Purkayastha et al.⁽¹⁰⁾ demonstrated that there were eight cases of anastomotic leak in HS group, both patients with major leak had serobilliary discharge from ITCD and developed mediastinitis for which they were treated but patients succumbed on post-operative day (POD)7 and POD9, respectively. No cases of leak in LS group were observed. P value was 0.042, which was statistically significant.

Laterza et al.⁽¹⁹⁾ compared manual and mechanical anastomoses and found that patients treated using the latter exhibited a high prevalence of anastomotic leakage and benign stricture.

Other randomized controlled trials of *Behzadi et al.*⁽²⁰⁾; *Price et al.*⁽¹¹⁾ revealed a higher prevalence of anastomotic leakage and anastomotic stricture in manually operated individuals, suggesting the superiority of mechanical anastomosis as a technique for esophagogastric anastomotic construction⁽²⁵⁾.

In addition to above findings, in our meta-analysis; 9 studies including a total of 1437 patients (746 in hand sewn and 691 stapled anastomosis) - reported the Stricture incidence. There was a statistically insignificant heterogeneity in the studies (I² 0%, P 0.69). Using the random effects model, the outcome results revealed that stapled anastomosis was significantly less than hand sewn regarding Stricture incidence (mean, 95% CI: 1.17, 2.87) Z=2.62, (p0.009).

In the meta-analysis of *Zhang et al.*⁽¹⁷⁾, there existed significant heterogeneity among trials (I² = 63%, P = 0.001). Subgroup analysis of anastomotic stricture was performed according to site of anastomosis. Compared to hand-sewn anastomotic, anastomotic stricture was significantly reduced in the neck in the stapled anastomotic group [OR = 0.53, 95% CI (0.30, 0.95), P = 0.03]. A fixed-effects model was used in the subgroup analysis of cervical/intrathoracic anastomosis group, as there was no statistically significant heterogeneity between trials (I² = 0%, P = 0.39).

Our results are supported by the study of *Purkayastha et al.*⁽¹⁰⁾ which reported that one of 14 patients in LS group and 8 of 42 patients in HS group developed stricture. P value was 0.043, which was statistically significant.

Some reviews indicated no significant difference between hand-sewn and stapled

anastomosis techniques in terms of the prevalence of anastomotic stricture. However, *Rasihashemi et al.*⁽¹²⁾ results showed a decreasing pattern in the rate of anastomotic stricture during the follow-up period in the stapled anastomosis group compared with the rate observed in the manual anastomosis patients.

Comparably, *Cooke et al.*⁽¹⁴⁾ discovered a significant reduction in the prevalence of postoperative complications and morbidity in patients for whom mechanical anastomosis was carried out.

Moreover, in our analysis; there were 5 studies including a total of 1125 patients (564 in hand sewn and 561 stapled anastomosis) - reported the Postoperative complication incidence. There was a statistically significant heterogeneity in the studies (I² 60%, P 0.04). Using the random effects model, the outcome results revealed that hand sewn was significantly more than stapled anastomosis regarding Postoperative complications incidence (mean, 95% CI: 1.04,2.77) Z=2.14, (p0.03).

Conclusion:

This meta-analysis, comparing stapled and hand sewn esophagogastric anastomoses, showed that stapled anastomosis decreased the rate of anastomotic leaks, increased the rate of anastomotic stricture, shortened the operating time, decrease the rate of post-operative complications (blood loss and recurrent laryngeal nerve injury, mediastinitis in the cervical subgroup) but the cost of using staplers is high compared to the hand sewn technique.

Furthermore, the stapled technique is easy to use and is standardized, while the hand-sewn method requires expertise. Therefore, this study concludes that stapled anastomosis should be recommended over the hand-sewn anastomosis method. Although existing evidence confirms the present results, large-sample, multicenter,

and randomized controlled trial outcomes are still needed.

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التحليل البعدي للمقارنة بين الدباسات والغرز الجراحية اليدوية من حيث التسريب والضيقة في حالات توصيل المعدة بالمرئ

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قسم الجراحة العامة، كلية الطب، جامعة عين شمس **لمقدمة:** يعتبر سرطان المريء مع ارتفاع معدل حدوثه بسرعة، مرضاً متعدد الأوجه ومعقدًا. العلاج القياسي لسرطان المريء هو استئصال المريء. يتم إجراؤه بثلاثة أهداف رئيسية، وهي علاج السرطان، وعسر البلع، وتجنب المضاعفات بعد العملية.

الهدف من الدراسة: إن الغرض الرئيسي من هذه الدراسة هو مراجعة الفرق بين مفاغرة الاتصال المعدي المريئي المخيط باليد والدباسة فيما يتعلق بالتسرب بعد الجراحة وتشكيل التضيق. **المرضي وطرق العلاج** أجريت دراسة التحليل البعدي الحالية على 9 دراسات من 2020 إلى 2015؛ كانت 6 منها دراسات بأثر رجعي، ودرستان مستقبليتان وتجربة واحدة أكاديمية ذات شواهد.

النتائج: تم تضمين 746 حالة في مجموعة الخياطة اليدوية و 691 حالة في مجموعة مفاغرة التديبب، متوسط العمر في مجموعة خياطة اليد وفي مفاغرة التديبب كان 55.7 ، 56.3 سنة على التوالي، الإناث كانت 188 في مجموعة مخيط اليد، 212 في مفاغرة تديبب. تم الإشارة إلى معظم الحالات بسبب الورم الخبيث وفي إحدى الدراسات أظهرت إشارة إلى أن مريء باريت يعاني من خلل التنسج العالي الدرجة، ورمعصلياً لمسعملق. كان متوسط فترة المتابعة المذكورة في دراستين 27 شهرًا. كانت معظم المواقع المفاغرة المذكورة في التقاطع العلوي والوسطي والمتوسط السفلي والسفلي وفوق مستوى قوس الوريد الازيجوس. أبلغت 9 دراسات شملت 1437 مريضاً (746) مخيطاً يدوياً و 691 مفاغرة تديبب – (عن حدوث تسرب. كان هناك تغايرية غير ذات دلالة إحصائية في الدراسات، باستخدام نموذج التأثيرات العشوائية، أوضحت النتائج أن المخيط اليدوي كان معنوي امن المفاغرة بالتديبب فيما يتعلق بحدوث التسرب 9 دراسات بما في ذلك 1437 مريضاً (746) مخيط يدوي او 691 مفاغرة تديبب – (أبلغت عن حدوث اختناقات. كان هناك تغايرية غير ذات دلالة إحصائية في الدراسات، باستخدام نموذج التأثيرات العشوائية، أوضحت النتائج أن مفاغرة التديبب كانت معنوية أكثر من المخيط اليدوي فيما يتعلق بحدوث اختناقات. أبلغت 5 دراسات بما في ذلك 1125 مريضاً (564) في مخيط يدوي و 561 مفاغرة تديبب – (عن حدوث مضاعفات ما بعد الجراحة. كان هناك تغايرية ذات دلالة إحصائية في الدراسات، باستخدام نموذج التأثيرات العشوائية، أوضحت النتائج أن المخيط اليدوي كان معنوياً من المفاغرة بالتديبب فيما يتعلق بحدوث مضاعفات ما بعد الجراحة.

الخلاصة: بناءً على النتائج التي توصلنا إليها، نوصي بإجراء مزيد من الدراسات على نطاق جغرافي كبير وعلى حجم عينة أكبر للتأكيد على استنتاجنا.