

Comparative Study between Constructing Permanent End Colostomy with Prophylactic Mesh VS Constructing Colostomy without Prophylactic Mesh for the Incidence of Parastomal Hernia: A Systematic Review and Meta-Analysis

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Abstract

Background: Colostomy construction techniques have evolved over the last 2 centuries to improve function and reduce stoma complications. The relationship between the technique of colostomy construction and the risk of postoperative parastomal hernia formation is still unclear.

Aim of Study: Evaluation of the PSH rate in constructing colostomy with or without prophylactic surgical mesh.

Patients and Methods: This systematic review and meta-analysis study included thirteen studies with a total of 1287 cases; 601 cases in patient treated with mesh group and 686 cases in patient treated without mesh group to evaluate the PSH rate in constructing colostomy with or without prophylactic surgical mesh.

Results: There was no significant difference between both groups in the surgery duration, length of hospital stay. None of the studies reported death of any cases in both groups. Both groups performed equally with no statistically significant difference. There was no significant difference between both groups in the size of stoma orifice. Patient who underwent permanent end colostomy with prophylactic Mesh had significant reduction in rates parastomal hernia than those who underwent colostomy without prophylactic mesh.

Conclusion: The operative time and length of hospital stay were comparable between the studied groups. Both constructing permanent end colostomy with and without prophylactic mesh showed no risk of mortality. Both procedures showed comparable risk of postoperative morbidity.

Prophylactic placement of mesh at stoma formation reduced the incidence of PSH, without an increase in stomal complications.

Key Words: *Vertebroplasty – Treatment of spinal fracture – Spinal tumors.*

Introduction

PARASTOMAL herniation is the most common complication related to colostomies, with an inci-

dence of approximately 50%. Previously described risk factors include age, high body mass index (BMI), cancer, diabetes, and waist circumference of more than 100cm [1].

Parastomal hernia is defined as a protrusion in the abdominal wall in the proximity of the stoma. Clinical assessment may be a challenge and radiological methods, such as computed tomography (CT) with or without Valsalva maneuver or with the patient in prone position, have been used to increase sensitivity and obtain an accurate diagnosis. There are several different grading systems, but none have been adopted world-wide [2].

Parastomal hernias don't only adversely impact patient quality of life (QoL), but they are also associated with life-threatening complications such as bowel obstruction, incarceration, and strangulation. Moreover, repair of parastomal hernias is challenging, and recurrence rates generally range from 15 to 30% [3].

A number of strategies have been proposed to prevent the formation of PSH after primary surgery: Choice of stoma placement through versus lateral to the rectus sheath, transperitoneal versus extraperitoneal, and correct sizing of the trephine. None of these seems to reduce the incidence of PSH. Furthermore reported 30-day morbidity and mortality rates of planned repair procedures are 8% to 36% and 0% to 5%, respectively. Emergency PSH repair has a reported mortality rate of 1 1% to 25% [4].

The use of prophylactic surgical mesh at the time of end colostomy formation to act as a mechanical buttress has been extensively studied. Results of previous randomized controlled trials (RCTs) have varied, but most have demonstrated

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a decrease in parastomal hernia rate with the use of prophylactic surgical mesh [5].

However, RCTs published in the past 2 years, since the most recent meta-analysis, have failed to demonstrate significantly decreased rates of parastomal hernia formation with the use of prophylactic mesh [6].

Patients and Methods

We prepared this systematic review with a careful following of the Cochrane Handbook for Systematic Reviews of Interventions. We also adhered to The Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines during the design of our study.

Literature search:

We conducted a literature search using PubMed, Scopus, Web of Science, and Cochrane Library. We performed a search for studies published that evaluated constructing permanent end Colostomy with prophylactic mesh versus constructing colostomy without prophylactic mesh for the incidence of parastomal Hernia.

We searched article title, abstract, keywords and we used OR” and “AND” operators during Literature search as following:

(“colorectal resection” OR “end colostomy” OR “constructing colostomy”) AND (“surgical mesh” OR “prophylactic mesh” OR “prophylactic surgical mesh”) AND (“parastomal hernia”)

The "related articles" function was used to expand the search from each relevant study identified. Bibliographies of retrieved papers were further screened for any additional eligible studies. We searched for articles that were included in previous related systematic reviews. The identified citations were retrieved using Endnote X8 software package (Thompson Reuter, USA).

Eligibility criteria:

We included studies that met our following inclusion criteria:

- *Population:* Patients with permanent end Colostomy.
- *Intervention:* Permanent end Colostomy With prophylactic Mesh.
- *Comparator:* Constructing Colostomy Without prophylactic Mesh.
- *Study design:* Clinical trials whether randomized or nonrandomized prospective and retrospective comparative cohort studies.

- *Outcomes:* The rate of parastomal hernia, Operative time in minutes, incidence of early complications, postoperative length of hospital stay in days, rate of reoperation, incidence of surgical site infection.

We excluded animal studies, reviews, book chapters, thesis, editorial letters and papers with overlapped dataset. Eligibility screening was conducted in a two step-wise manner (title/abstract screening and full-text screening). Each step was done by two reviewers independently according to the predetermined criteria.

There were no restrictions on language, race, sex, or age. The duplicated articles were removed primarily using Endnote X8 program (Thompson Reuter, USA) and manually using titles and abstracts screening.

Data extraction:

Data were extracted by two independent authors and revised by another two independent authors. We extracted the characteristics of each study as following: Author, year of publication, baseline characteristics of study subjects such as age, gender besides incidence of parastomal Hernia and postoperative complications.

Statistical analysis:

Continuous data were pooled as mean difference (MD) and 95% confidence interval, while dichotomous outcomes were pooled as odds ratio (OR) and 95% confidence interval. Revman software was used to pool studies. We estimated the change from baseline in each outcome. We used I^2 square test to quantify the degree of heterogeneity across the studies.

Results

We obtained 75 articles from PubMed, 54 articles from Scopus, 3 articles from Cochrane library and 51 from web of science. 38 duplicated articles were removed using Endnote X8 program (Thompson Reuter, USA), 145 articles manually underwent titles and abstracts screening and 60 articles underwent full-text review. Thirteen studies finally met our inclusion criteria.

Characteristics of included studies:

In the current review, we included thirteen studies with a total of 1287 cases; 601 cases in patient treated with mesh group and 686 cases in patient treated without mesh group. The mean age of included cases ranged between 60 and 70 years old. All of the included studies are randomized clinical trials with high quality of evidence.

Table (1): Characteristics of included studies.

Study	Arm	N	Mean age, years (SD)	N Female (%)	Mean BMI, kg/m ² (SD)	Surgical approach (%)
Jänes et al. 2009 [1]	Mesh	27	70	12 (44.4)	26	Laparotomy
	No Mesh	27	71	11 (40.7)	27	Laparotomy
Serra-Aracil et al. 2009 [2]	Mesh	27	67.5 (8.8)	5 (18.5)	25.6 (2.9)	Laparotomy
	No Mesh	27	67.2 (9.7)	8 (29.6)	27.3 (3.5)	Laparotomy
Lopez-Cano et al. 2012 [3]	Mesh	19	72.2 (7.6)	8 (42.1)	26.3 (3.2)	Laparoscopy
	No Mesh	17	65.9 (13.9)	10 (58.8)	27.5 (4.7)	Laparoscopy
Tarcoveanu et al. 2014 [4]	Mesh	20	–	–	=	Laparotomy
	No Mesh	22	–	–	=	Laparotomy
Fleshman et al. 2014 [5]	Mesh	55	60.2 (13.6)	25 (45.5)	26.2 (4.6)	Laparotomy (63.6),
	No Mesh	58	59.1 (14.4)	29 (50.0)	34.7 (4.1)	Laparoscopy (36.4)
Lambrecht et al. 2015 [6]	Mesh	32	64 (4.0)	5 (15.6)	24.6 (0.6)	Laparotomy
	No Mesh	26	63 (4.1)	10 (38.5)	25.5 (0.8)	Laparotomy
Vierimaa et al. 2015 [7]	Mesh	35	67.1 (10.7)	17 (48.6)	26.2 (4.6)	Laparoscopy
	No Mesh	35	65.1 (11.7)	16 (45.7)	25.4 (4.3)	Laparoscopy
Lopez-Cano et al. 2016 [8]	Mesh	24	70.5 (9.5)	3 (12.5)	25.3 (2.8)	Laparoscopy
	No Mesh	28	67.3 (13.6)	8 (28.6)	26.9 (4.4)	Laparoscopy
Brandsma et al. 2017 [9]	Mesh	67	64.1	29 (37.2)	26.5	Laparotomy
	No Mesh	66	63.6	29 (40.3)	26.7	Laparotomy
Odensten et al. 2019 [10]	Mesh	114	69.7	40 (35.1)	26.1	Laparotomy
	No Mesh	118	69.9	56 (47.5)	26.3	Laparotomy
Prudhomme et al. 2021 [11]	Mesh	98	67.2 (12.4)	41 (41.8)	25.6 (4.6)	Laparotomy, Laparoscopy
	No Mesh	101	70.5 (11.1)	44 (43.6)	24.8 (4.7)	Laparotomy, Laparoscopy
Correa-Martinez et al. 2021 [12]	Mesh	63	65	21 (33.3)	27.6	Laparotomy (67.7),
	No Mesh	146	63.6	66 (45.8)	28.2	Laparoscopy (33.3), Laparotomy (53.4), Laparoscopy (41.8),
Makarainen-Uhlback et al. 2020 [13]	Mesh	20	70.1 (9.8)	9 (45.0)	27.5 (4.3)	Laparoscopy
	No Mesh	15	68.7 (8.6)	6 (40.0)	25.1 (3.2)	Laparoscopy

Outcomes:

Surgical outcomes:

A- Operative time:

There was no significant difference between both groups in the surgery duration (MD=−4.81 min, 95%CI=[−17.00, 7.39], I²=37%, *p*-value=0.18).

B- Length of hospital stay:

There was no significant difference between both groups in length of hospital stay (MD=−0.01 day, 95%CI=[−2.25, 2.54], I²=0%, *p*-value=0.58)

C- Postoperative mortality:

In terms of postoperative mortality; none of the studies reported death of any cases in both groups (RD=0.00, 95%CI=[−0.04, 0.04], I²=0%, *p*-value= 1 .0).

D- Overall postoperative morbidity:

Regarding overall postoperative morbidity; both groups performed equally with no statistically significant difference (OR=0.98, 95%CI=[0.74, 1.30], I²=46%, *p*-value=0.05) (Fig. 5).

E- Stoma orifice size:

There was no significant difference between both groups in the size of stoma orifice (MD=−0.13, 95%CI=[−5.98, 5.73], I²=0%, *p*-value=0.33).

Incidence of parastomal hernia:

Thirteen studies reported incidence of parastomal hernia; 601 cases in Mesh group versus 686 cases in No Mesh group. Results showed patient who underwent permanent end colostomy with prophylactic Mesh had significant reduction in rates parastomal hernia than those who underwent colostomy without prophylactic Mesh (OR=0.52, 95%CI=[0.28, 0.94], I²=73%, *p*-value=0.00001).

Stoma-related problems:

A- Colostomy necrosis:

There was no significant difference between both groups in incidence of colostomy necrosis (OR=0.93, 95%CI=[0.45, 1.94], I²=0%, p-value =0.60).

B- Colostomy stenosis:

There was no significant difference between both groups in incidence of colostomy stenosis (OR=1.30, 95%CI=[0.68, 2.49], I²=0%, p-value =0.62).

C- Peristomal infection:

There was no significant difference between both groups in incidence of peristomal infection (OR=0.48, 95%CI=[0.09, 2.71], I²=0%, p-value =0.54).

D- Stoma detachment:

There was no significant difference between both groups in incidence of stoma detachment (OR=1.01, 95%CI=[0.23, 4.40], I²=20%, p-value =0.29).

E- Stoma prolapse:

There was no significant difference between both groups in incidence of stoma prolapse (OR

=0.14, 95%CI=[0.02, 1.22], I²=0%, p-value =0.63).

F- Redo surgery:

We compared between both groups regarding the need for a second surgery due to stoma related complication: Result showed there was no significant difference between both groups (OR=1.09, 95%CI=[0.52, 2.31], I²=0%, p-value=0.84).

Complications:

A- Wound infection:

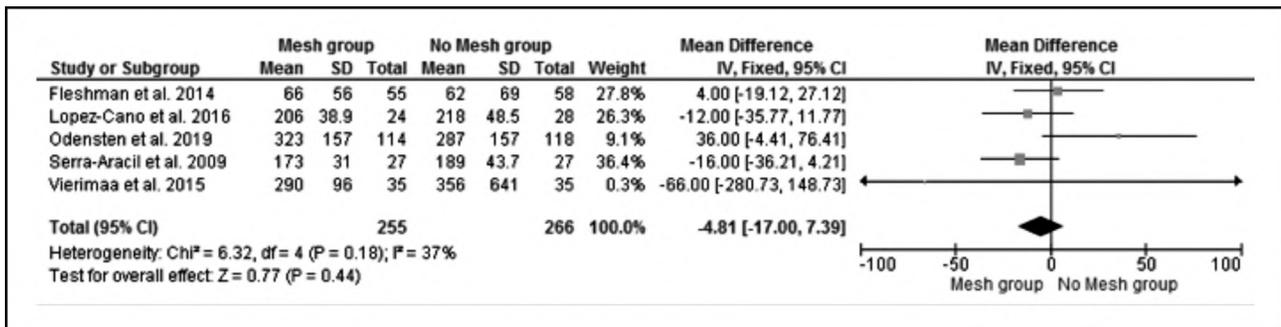
There was no significant difference between both groups in incidence of wound infection (OR= 1.13, 95%CI=[0.70, 1.81], I²=0%, p-value=0.72).

B- Wound dehiscence:

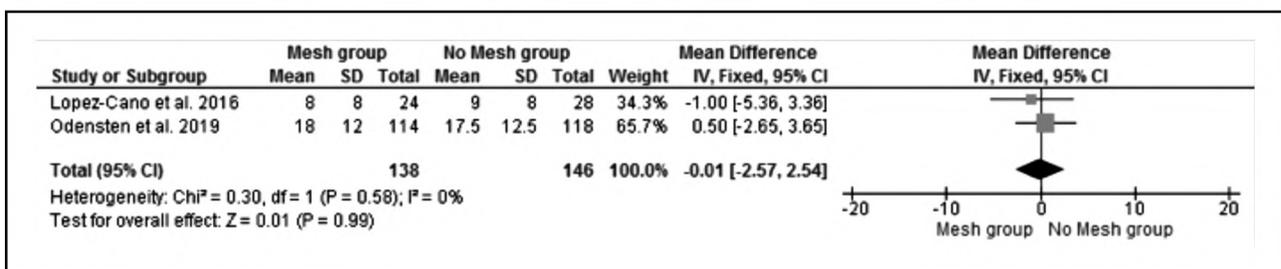
There was no significant difference between both groups in incidence of wound dehiscence (OR=0.93, 95%CI=[0.15, 5.71], I²=0%, p-value =0.40).

C- Intra-abdominal infection:

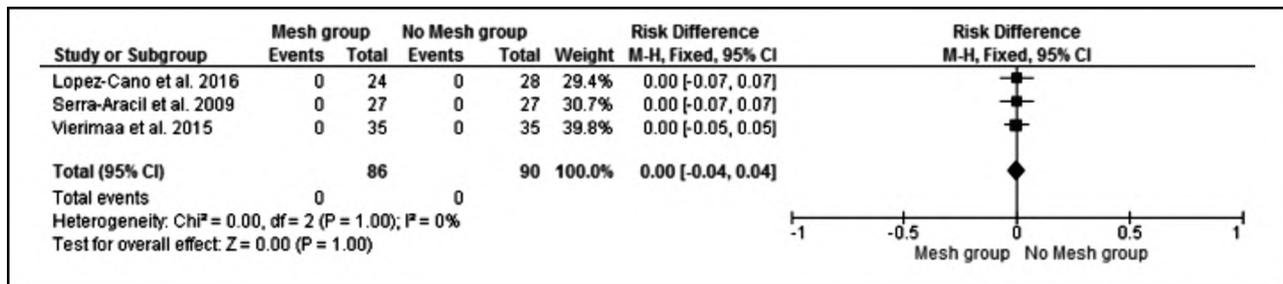
There was no significant difference between both groups in incidence of Intra-abdominal infection (OR=0.75, 95%CI=[0.26, 2.11], I²=0%, p-value=0.83).



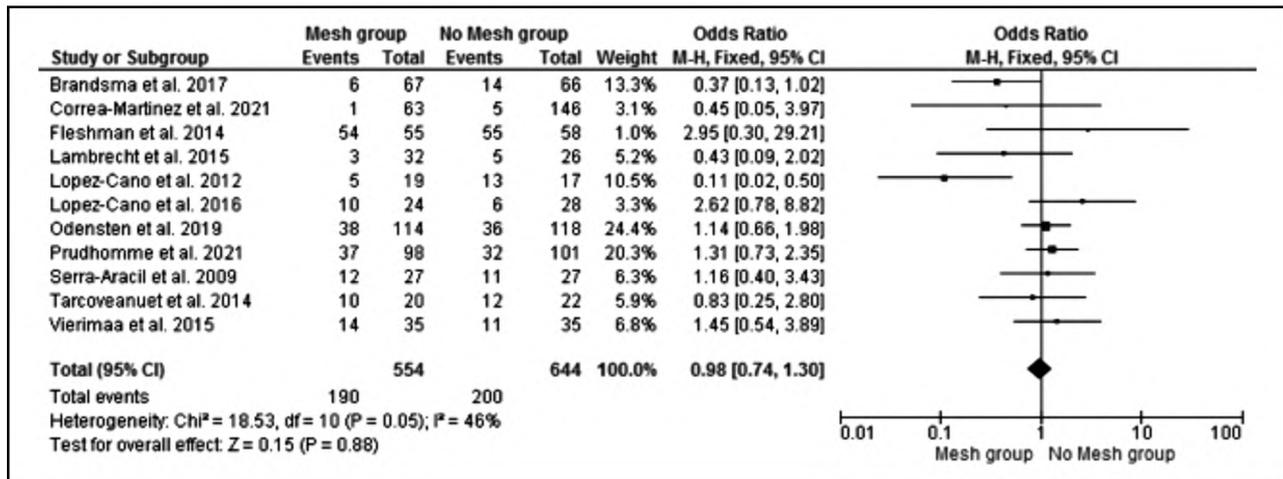
Forest plot showing mean operative time in both groups.



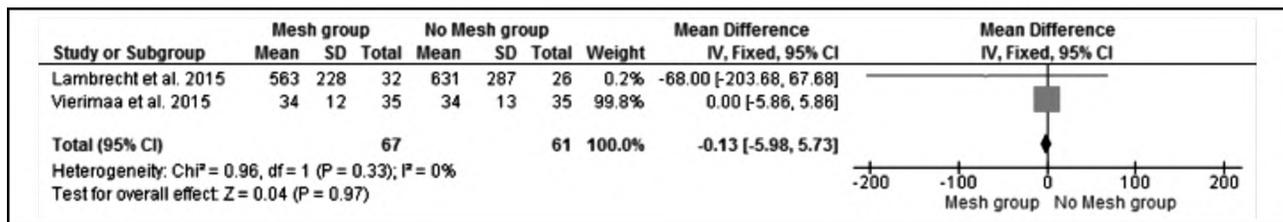
Forest plot showing mean length of hospital stay in both groups.



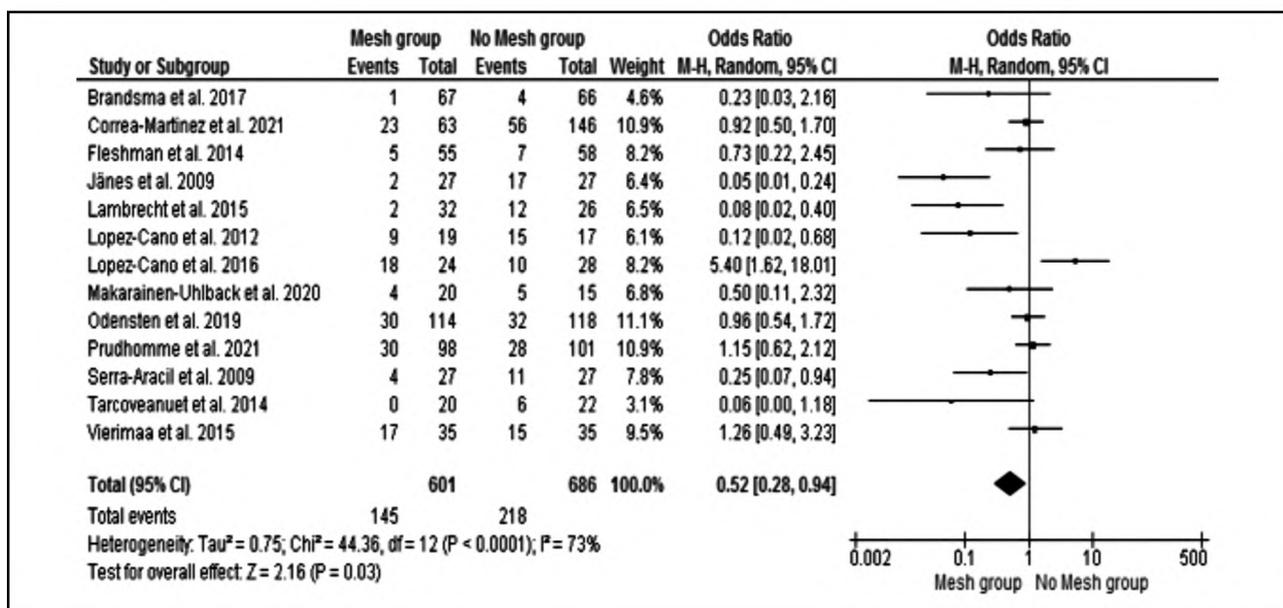
Forest plot showing postoperative mortality in both groups.



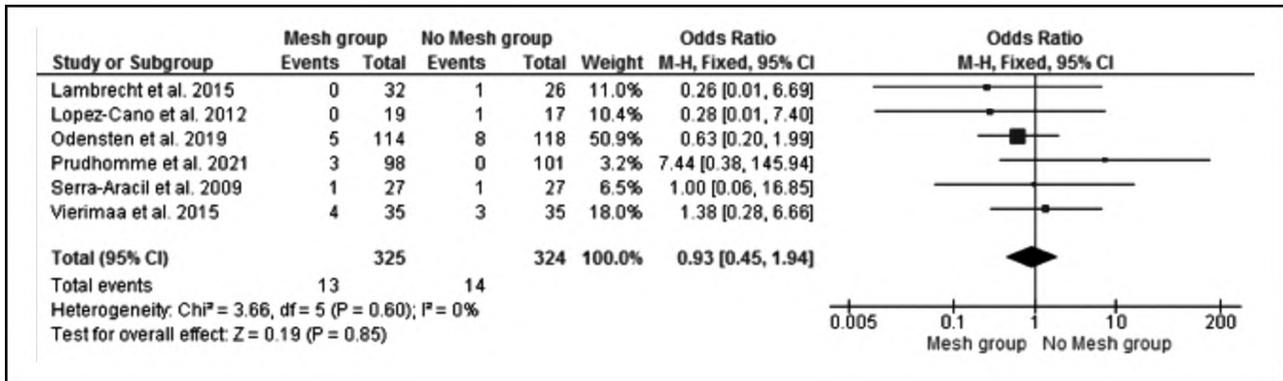
Forest plot showing postoperative morbidity in both groups.



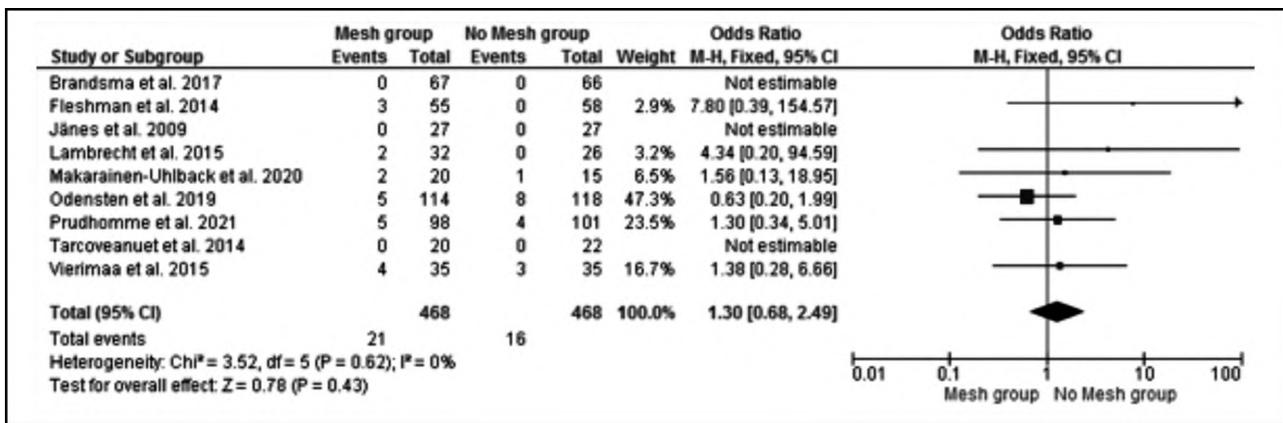
Forest plot showing stoma orifice size in both groups.



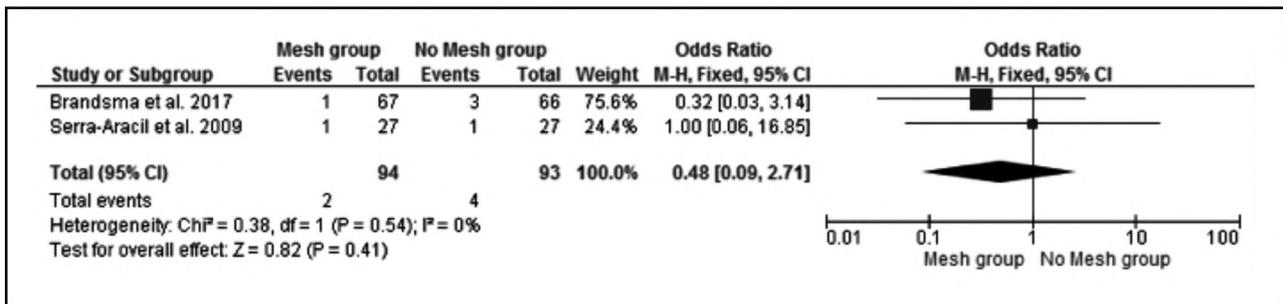
Forest plot showing incidence of parastomal hernia in both groups.



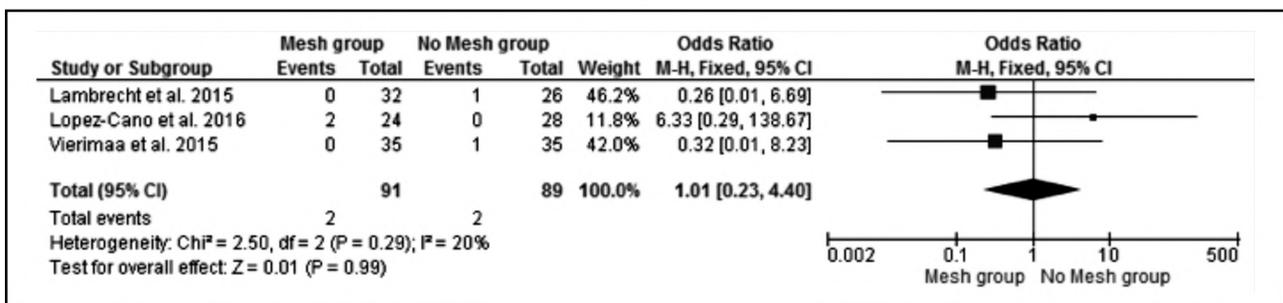
Forest plot showing incidence of colostomy necrosis in both groups.



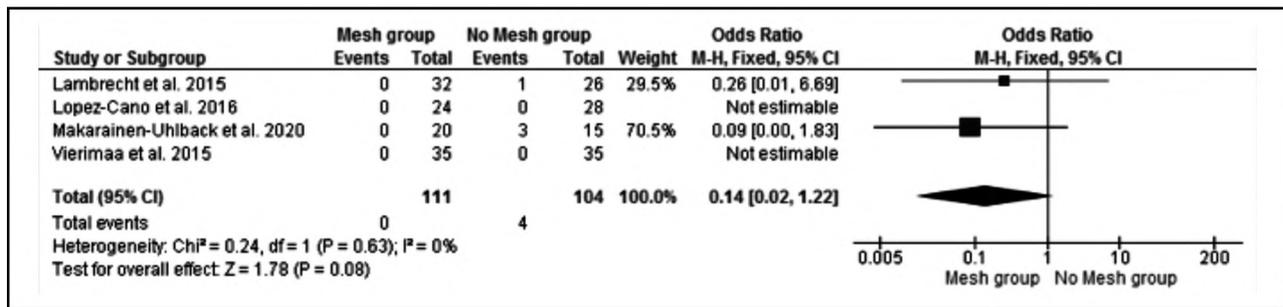
Forest plot showing incidence of colostomy stenosis in both groups.



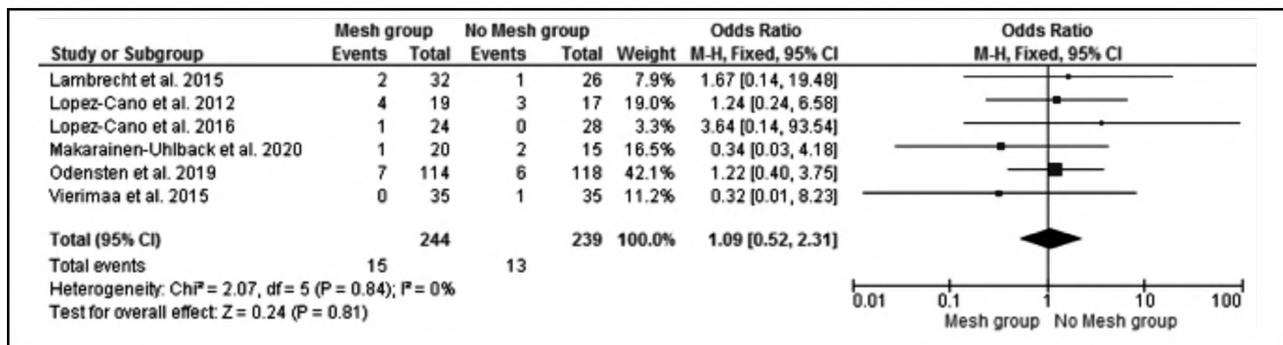
Forest plot showing incidence of peristomal infection in both groups.



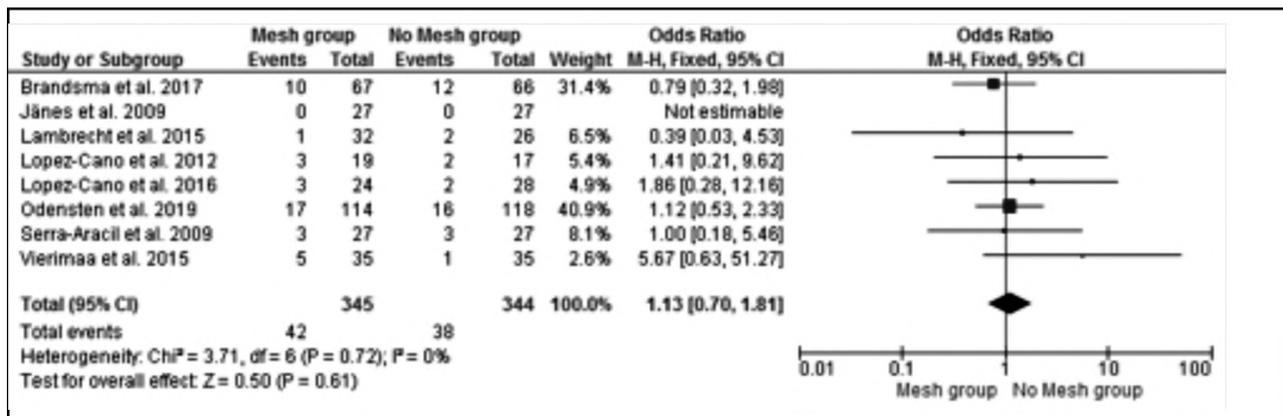
Forest plot showing incidence of stoma detachment in both groups.



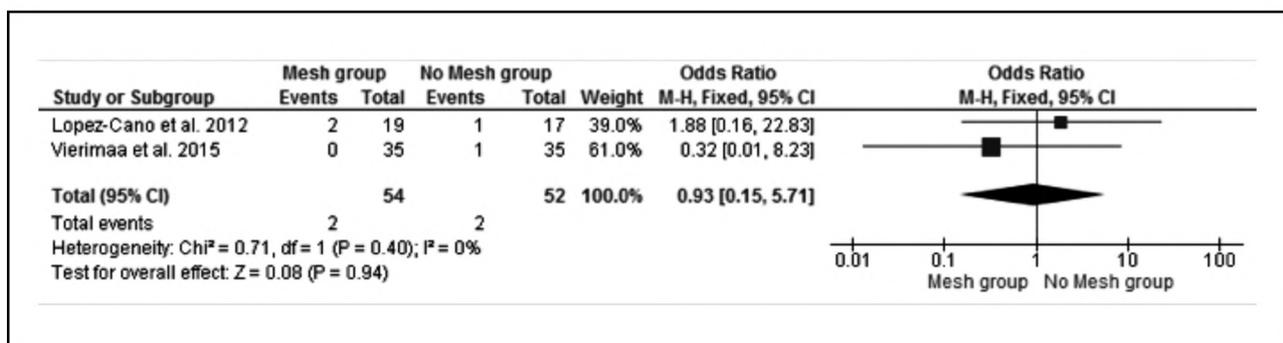
Forest plot showing incidence of stoma prolapse in both groups.



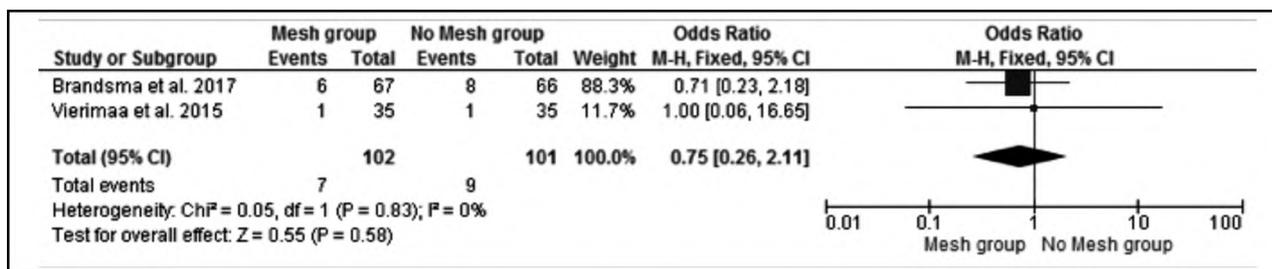
Forest plot showing incidence of redo surgery in both groups.



Forest plot showing incidence of wound infection in both groups.



Forest plot showing incidence of wound dehiscence in both groups.



Forest plot showing incidence of intra-abdominal infection in both groups.

Discussion

This systematic review and meta-analysis study included thirteen studies with a total of 1287 cases; 601 cases in patient treated with mesh group and 686 cases in patient treated without mesh group to evaluate the PSH rate in constructing colostomy with or without prophylactic surgical mesh.

Regarding operative time, there was no significant difference between both groups in the surgery duration (MD=-4.81min, 95% CI = [-17.00, 7.39], I²=37%, *p*-value=0.18).

Similarly, the meta-analysis done by Mc Kechnie et al., [7] that included 12 RCTs with total 581 patients underwent colostomy formation with prophylactic mesh, and 671 patients did not have prophylactic mesh placed. The authors reported that there was no significant difference in operative time between the two groups (SMD 0.39, 95% CI -0.37 to 1.16, *p*=0.31, I²=96%).

On contrast to the systematic review included six studies with a total 1683 patients were included, 669 (40%) had a reversal of stoma with mesh reinforcement, and 1014 (60%) had a reversal of stoma without mesh reinforcement. Regarding operative time, this study detected that The operative time was significantly longer in the mesh group when compared with that in the non-mesh group (135.3±86.1min vs 85.3±35.3min, MD 47.78, 95% CI 7.22-88.35, *p*=0.02) [8].

Also, a randomized controlled double-blinded multicenter trial. Patients underwent open colorectal surgery, including creation of a permanent end colostomy, were randomized into 2 groups, with and without mesh. This study reported that duration of surgery was significantly longer in the mesh group (*p*=0.019) [9].

It could be explained as the additional step of securing a mesh leads to increased procedure time.

Concerning length of hospital stay, there was no significant difference between both groups in length of hospital stay (MD=-0.01 day, 95% CI= [-2.25, 2.54], I²=0%, *p*-value=0.58).

Similar results reported by Mohamed Ahmed et al. [8] who found that was no statistically significant difference in the length of hospital stay between the mesh and non-mesh groups (5.3±0.39 days vs 5.8±0.56 days; MD -0.45; 95% CI -1.33, 0.42; *p*=0.31).

Also, a meta-analysis done by Peltrini et al. [10] that included 7 studies with total 1716 patients who underwent stoma closure (78.4% ileostomy and 21.6% colostomy) with (n=684) or without (n=1032). In this study, stoma closure with mesh was not associated with a significant longer hospital stay than no mesh group (SMD -0.579, 95% CI -1.261 to 0.102, *p*=0.096).

As regard postoperative mortality; none of the studies reported death of any cases in both groups (RD=0.00, 95% CI=[-0.04, 0.04], I²=0%, *p*-value=1.0). A nonrandomized interventional study in which data of 77 surgically resected patients with CRC were collected prospectively. They were consecutively assigned to two groups: Control (no preset mesh, n=32) and experimental (received preset mesh, n=24). This study demonstrated that although not statistically significant, the risk of death in the experimental group was higher (HR: 2.7; 95% CI: 0.31, 24; *p*=0.36) than that in the control group owing to the longer average follow-up in the experimental group compared with the control group [11].

Regarding overall postoperative morbidity; both groups performed equally with no statistically significant difference (OR=0.98, 95% CI=[0.74, 1.30], I²=46%, *p*-value=0.05). Similarly,

Gao et al. [11] showed that none of the patients in either the control or experimental group experienced any postoperative complication.

With reference to stoma orifice size, there was no significant difference between both groups in the size of stoma orifice (MD=-0.13, 95% CI =[-5.98, 5.73], $I^2=0\%$, p -value=0.33). A cohort study included 116 patients with rectal cancer treated surgically with abdominoperineal excision (APE) or Hartmann's procedure (HP) between 2002 and 2015 with a permanent stoma. The patient divided into No stoma mesh group (n=46) and stoma mesh group (n=70). In this study, the stoma aperture area showed no statistical difference between the studied groups (p -value=0.36) [12].

Concerning incidence of parastomal hernia, our results showed patient who underwent permanent end colostomy with prophylactic Mesh had significant reduction in rates parastomal hernia than those who underwent colostomy without prophylactic Mesh (OR=0.52, 95% CI, [0.28, 0.94], $I^2=73\%$, p -value=0.00001).

The use of prophylactic non-absorbable synthetic mesh when creating an end colostomy was strongly recommended in the 2018 European Hernia Society Parastomal Hernia Guidelines [13].

Recently, McKechnie et al. [14] found that a significant reduction in the risk of developing a parastomal hernia in patients receiving prophylactic mesh placement (OR 0.60, 95% CI 0.46 to 0.80, $p=0.0003$, $I^2=74\%$).

Also, Gao et al. [11] reported that the control group had numerically higher incidence of PSH when compared with the experimental group.

In 2019, Hill et al., meta-analysed the outcomes of three case-control studies and reported a lower rate of stoma site incisional hernia (SSIH) in favour of mesh reinforcement and comparable rate of SSI between mesh and non-mesh groups [15].

Polypropylene mesh is a synthetic mesh with rough edges, with increased risk of bowel erosion and perforation [16].

Newer composite meshes have been designed with a lower polypropylene content and a higher percentage of absorbable material, resulting in less pronounced inflammatory reaction in the tissues [17].

The current study failed to demonstrate any differences in rates of colostomy necrosis and stenosis between mesh and no mesh groups (OR=0.93, 95% CI, [0.45, 1.94], $I^2=0\%$, p -value=0.60) (OR=1.30, 95% CI, [0.68, 2.49], $I^2=0\%$, p -value=0.62), respectively.

Similar results reported by the systematic review and meta-analysis study done by Sahebally et al. (2021) that included 11 RCTs capturing 1097 patients (538 patients with mesh; 559 patients without mesh). This study reported that no difference in rates of stomal necrosis and stenosis between mesh and no mesh groups (OR=0.72, 95% CI=0.29 to 1.80, $p=0.48$; $\chi^2=2.95$, $df=4$, $p=0.57$, $I^2=0\%$) (OR=1.21, 95% CI=0.41 to 3.53, $p=0.73$; $\chi^2=1.37$, $df=3$, $p=0.71$, $I^2=0\%$), respectively [18].

With reference to peristomal infection, there was no significant difference between both groups in incidence of peristomal infection (OR=0.48, 95% CI, [0.09, 2.71], $I^2=0\%$, p -value=0.54).

This was in agreement with Sahebally et al. [18] who found that there was no difference between prophylactic mesh and no mesh in the incidence of peristomal infection (OR=0.70, 95% CI=0.24 to 2.04, $p=0.51$; $\chi^2=0.59$, $df=2$, $p=0.74$, $I^2=0\%$).

Concerning stoma detachment and prolapse, there was no significant difference between both groups (OR=1.01, 95% CI, [0.23, 4.40], $I^2=20\%$, p -value=0.29) (OR=0.14, 95% CI, [0.02, 1.22], $I^2=0\%$, p -value=0.63), respectively.

Sahebally et al. [18] reported similar results as the incidence of stoma dehiscence and stoma prolapse showed no difference between prophylactic mesh and no mesh (OR=1.10, 95% CI=0.45 to 2.68, $p=0.84$; $\chi^2=2.25$, $df=3$, $p=0.52$, $I^2=0\%$) (OR=0.38, 95% CI=0.14 to 1.07, $p=0.07$; $\chi^2=1.17$, $df=2$, $p=0.56$, $I^2=0\%$), respectively.

Likely, Cornille et al. [19] found that the meta-analysis of the eight studies comparing any prophylactic mesh placement at stoma formation with no mesh demonstrated that prophylactic mesh placement did not show a statistically significant higher incidence of peristomal complications related to the mesh (95% CI: 0.49-2.01, $p=0.990$).

As regard redo surgery, the result of the current study showed there was no significant difference between both groups (OR=1.09, 95% CI, [0.52, 2.31], $I^2=0\%$, p -value=0.84).

While, Mohamed Ahmed et al. [8] detected that a significantly increased risk of the need for surgical intervention to repair the hernia was observed in the non-mesh group (8% vs 12%, OR 0.32, 95% CI 0.11-0.93, $p=0.04$).

In the similar way, Wang et al. [20] found that as regard reoperation related to parastomal hernia. The pooled results from these studies showed the mesh group to be associated with a lower risk of

reoperation related to parastomal hernia (RR, 0.23; 95% CI 0.06-0.89, $p=0.96$, $I^2=0\%$).

The significant increases in aperture size were observed in the non-mesh group after CT scan [20], which can cause discomfort, may go some way toward explaining this regarding wound infection, dehiscence and intraabdominal infection, there was no significant difference between groups.

López-Cano et al. [21] reported similar results as they detected no statistical differences between groups were found regarding wound infection (RR 0.77, 95% CI 0.39-1.54), ($p=0.46$, $I^2=0\%$).

Also, Van den Hil et al., [22] found that regarding surgical site infections, no significant differences were found comparing preventive mesh placement with no mesh placement (OR 1.06, 95% CI 0.61-1.84, $p=0.84$, $I^2=0\%$).

Also Peltrini et al., [10] found that the included studies in their review did not report higher SSI or wound infection rates than no mesh control group.

Study strength:

To the best of our knowledge, the current systematic review and meta-analysis was done to conclude all available literature data comparing constructing permanent end colostomy with prophylactic mesh vs constructing colostomy without prophylactic mesh. Careful inclusion and exclusion criteria were done to obtain the best reliable data to be included in this study.

We compared different outcomes and sensitivity analysis was done to every outcome with minor heterogeneity and this added value to the present study.

Study Limitation:

The present review has some limitations. While it has been possible to pool data from large number of interventions which were followed prospectively and retrospectively: (1) The limited number of included studies; (2) Individual studies had variations in exclusion/inclusion criteria; (3) Surgical skills varied between studies; (4) The background diseases of patients were various between studies; (5) Some studies were not high-quality; (6) Pooled data were analyzed, as individual patient data was not available, precluding more in-depth analyses.

Furthermore, the existence of publication bias, which was common to all meta-analyses, might have been unavoidable in our study.

Conclusion:

The operative time and length of hospital stay were comparable between the studied groups. Both constructing permanent end colostomy with and without prophylactic mesh showed no risk of mortality. Both procedures showed comparable risk of postoperative morbidity. Prophylactic placement of mesh at stoma formation reduced the incidence of PSH, without an increase in stomal complications. There was no difference between the groups regarding Redo surgery. The risk wound infection, dehiscence and intraabdominal infection was similar in both groups.

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دراسة مقارنة بين بناء فغر القولون النهائي الدائم بشبكة وقائية مقابل بناء فغر القولون بدون شبكة وقائية لحدوث فتق ما حول الفقرة : مراجعة منهجية وتحليل تلوي

المقدمة : هناك العديد من الخيارات الجراحية لإصلاح الفتق المجاور، بما في ذلك نقل الفقرة إلى موقع جديد، وإصلاح موضعي وإصلاح الشبكة، ولكن جميعها لها نتائج مخيبة للآمال. لا ينبغي إجراء الإصلاح الأولي لعبع اللفافي لأنه يحتوي على معد فشل. يرتبط نقل الفقرة أيضاً بارتفاع معدل التكرار والمراضة (٢٣٪). يرتبط الإصلاح الشبكي للفتق بإنخفاض معدل التكرار والمراضة. يبدو أن الوضع الوقائي للشبكة في العملية الأولية هو طريقة منطقية لمنع تكوين فتق جانبي.

المنهجية : تضمنت هذه المراجعة المنهجية ودراسة التحليل التلوي ١٣ دراسة بإجمالي ١٢٨٧ حالة. ٦٠١ حالة في مريض عولج بمجموعة شبكية و ٦٨٦ حالة في مريض عولج بدون مجموعة شبكية لتقييم معدل الفتق البارستي في بناء فغر القولون مع أو بدون شبكة جراحية وقائية. لقد أجرينا مراجعة منهجية للأدبيات في قواعد بيانات مختلفة وبمعايير أهلية محددة مسبقاً ووفقاً لكتيب كوكرين لإرشادات المراجعة المنهجية في الفحص، انتهينا من ستة عشر دراسة مختلفة ليتم تضمينها في دراستنا.

الخلاصة : كانت مدة العملية وطول الإقامة في المستشفى قابلة للمقارنة بين المجموعات المدروسة. أظهر كل من بناء فغر القولون النهائي الدائم مع وبدون شبكة وقائية أيخطر للوفاة. أظهر كلا الإجرايين مخاطر مماثلة لمراضة بعد الجراحة. وضع وقائي للشبكة عند تكوين الفقرة قلل من حدوث الفتق، دون زيادة في مضاعفات الثغور. لم يكن هناك فرق بين المجموعات فيما يتعلق بجراحة الإعادة كانت الإصابة بخطر الإصابة بالجرح والتقرن والعدوى داخل البطن متشابهة في كلا المجموعتين.