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Review Article

**REVIEW STUDY: SURGICAL TREATMENT IN
GASTROESOPHAGEAL REFLUX DISEASE, 2020.**

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Internal medicine specialist, Security forces hospital – Makkah, Drma90@yahoo.com**Article Received:** December 2022 **Accepted:** December 2022 **Published:** January 2023**Abstract:****Background:** GERD is a very common disorder with increasing prevalence.**Objective:** This study aimed at studying the surgical management procedures for Gastroesophageal reflux disease (GERD).**Methods:** The online medical database was searched then the English articles from 2010 – 2020 were included in the review.**Results:** There were 37 studies included that answered the question about the surgical management procedures for Gastroesophageal reflux disease (GERD).**Conclusion:** Various kinds of anti-reflux surgeries are available but the gold standard surgery is laparoscopic fundoplication for surgical treatment of GERD. Another advantageous procedure is Robotic Nissen fundoplication associated with favorable outcomes and improving the quality of life and patients' satisfaction.**Keywords:** Management, Gastroesophageal reflux disease (GERD), surgical, anti-reflux surgery.**Corresponding author:****Mohammed Ali Alzubaidi,**

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BACKGROUND:

Gastroesophageal reflux disease (GERD) is characterized by the reflux of the stomach substance into the throat and causing painful manifestations and problems and it can be associated with or without break in the esophageal mucosa[1-3]. The complications incorporate reflux associated asthma, pneumonia, inflammation of the larynx and esophagus[4]. Surgically, GERD is caused by anti-reflux boundaries failure, for example, an imperfect lower throat sphincter, or a gastric exhausting issue[5].

GERD is a common ailment around the world, and its commonness is the most noteworthy in North America reaching about 27.8% which is higher than East Asia (7.8%)[6]however other studies showed that it is expanding in this region [7, 8]. Different treatment choices are accessible but proton pump inhibitors (PPIs) are as yet a pillar in the administration of patients with GERD with around 70% improving rate and 60–90% complete side effect alleviation rate after a month of PPI[9]. This review is intended to study the surgical management procedures for GERD.

Method:

The data base was searched online for information related to the surgical management of GERD then all the eligible English articles from 2010-2020 were collected, evaluated and included in this study.

RESULTS:

The study included 37 articles were included in this review that were published between 2010-2020 including RCTs, reviews, case-controlled studies and clinical trials.

- Diagnosis of GERD:

The diagnosis of GERD is essential before surgery to select the benefit of the surgery and the most proper type of surgery for elected patients [10, 11]. Esophagogastroduodenoscopy (EGD) is the first line diagnostic tool for GERD including detection of break or inflammation of esophagus, hernia and malignancy [12, 13]. Also, pH monitoring for 24 hours is important to monitor pH to differentiate between acid and non-acid reflux before and after surgery[14, 15].

Other diagnostic test can be conducted including Esophageal manometry, Barium swallow test, high-resolution manometry, and scintigraphy [16-18].

- Surgical management options:

GERD is considered as a key factor to the development of many diseases of the lungs[19, 20] thus among patients with asthma and other complicated lung diseases, surgical anti-reflux therapy is preferred than medical management or after failure of PPI medications. In patients with GERD and asthma to manage pulmonary symptoms[21].

- Indications for anti-reflux surgery:

Anti-reflux surgery can be indicated among patients who has complications and persistent symptoms after failure of medical treatments. Also, it can be used among elective patients with successive medical treatment to avoid other complications or improve the quality of life. Among patients with GERD complications as Barrett's esophagus, or suffer from extra-esophageal manifestations, surgery should be considered[22-24].

• Laparoscopic vs open technique for GERD:

Among most of GERD patients who are supposed to undergo anti-reflux operation, laparoscopic transabdominal method is typically favored than other types as open abdominal and transthoracic techniques which are rarely used except among patients undergoing review of their previous anti-reflux surgeries [25][26] though revision can be done laparoscopically. The laparoscopic type has favorable outcomes to decrease the morbidity to 65% in comparison with open fundoplication[27]. In spite of the long operative time when compared to open type, Laparoscopic fundoplication is associated with short hospital stay and low conversion rates to open operation [28]. Thus, irrespective of the fundoplication type, this surgery can restore the normal functions and repair the hiatus and hiatal hernia if present.

• Partial and total fundoplication:

The total and partial fundoplication are both operations for management of symptoms of GERD thus increasing the quality of life and patient's satisfaction. During the last decade, many trials have shown that partial fundoplication is better for GERD involvement with low rates of and other complications as dysphagia, and gas bloat [29].

There are many procedures for partial fundoplication that were proposed to be an alternative to a total fundoplication and were associated with less manifestations of gas bloat and dysphagia[30]. During partial type, the risk of esophageal perforation is lessened due to less utilization of the esophageal bougie. The 180-degree anterior Dor and the 270-

degree posterior Toupet fundoplication are the mostly common partial types. However, a 360-degree fundoplication is mostly preferred in USA, in UK they are in favor of partial fundoplication surgery [31].

- **Nissen fundoplication:**

This type of surgery is commonly used and very effective in controlling reflux over long periods of time but it's unfortunately associated with high flatulence rates, inflating and dysphagia [32]. Many trials have investigated the efficiency of Nissen versus Toupet fundoplication and indicated that Toupet was associated with lesser post-operative dysphagia rates than Nissen fundoplication [33, 34].

- **Robotic surgery**

Recently, viable and safe option for management of EGRD is robotic surgery with vaporable and comparable outcomes after one year of follow up in comparison with laparoscopy [35, 36]. The Robotic Nissen fundoplication has many advantages including better ergonomics, visualization, comfort, and functions of the body system. However, it is associated with longer operational times and generally higher costs [37].

CONCLUSION:

In this literature review, Surgical interference is a must among patients unresponsive to medical therapy, elective patients who want to abort the long-term administration of medical therapy, GERD associated complications and/or extra-esophageal manifestations. Various kinds of anti-reflux surgeries are available but the gold standard surgery is laparoscopic fundoplication for surgical treatment of GERD. Another advantageous procedure is Robotic Nissen fundoplication associated with favorable outcomes and improving the quality of life and patients' satisfaction.

REFERENCES:

1. Chandrasoma P. How the pathologist can aid in the assessment of gastroesophageal reflux disease. *Current opinion in gastroenterology*. 2018;34(4):233-42. doi:10.1097/mog.0000000000000446.
2. Kim A, Shin N, Lee HJ, Jo HJ, Kim JY, Kim YK, et al. Histopathological features of the gastroesophageal junction: an Eastern view. *Histology and histopathology*. 2015;30(6):689-95. doi:10.14670/hh-30.689.
3. Chandrasoma PT. Histologic definition of gastroesophageal reflux disease. *Current opinion in gastroenterology*. 2013;29(4):460-7. doi:10.1097/MOG.0b013e32836228fa.
4. Lv HJ, Qiu ZM. Refractory chronic cough due to gastroesophageal reflux: Definition, mechanism and management. *World journal of methodology*. 2015;5(3):149-56. doi:10.5662/wjm.v5.i3.149.
5. Rengarajan A, Bolckhir A, Gor P, Wang D, Munigala S, Gyawali CP. Esophagogastric junction and esophageal body contraction metrics on high-resolution manometry predict esophageal acid burden. *Neurogastroenterology and motility : the official journal of the European Gastrointestinal Motility Society*. 2018;30(5):e13267. doi:10.1111/nmo.13267.
6. El-Serag HB, Sweet S, Winchester CC, Dent J. Update on the epidemiology of gastroesophageal reflux disease: a systematic review. *Gut*. 2014;63(6):871-80. doi:10.1136/gutjnl-2012-304269.
7. Chang FY. Variations in the reported prevalence of gastroesophageal reflux disease in Taiwan. *Journal of the Chinese Medical Association : JCMA*. 2012;75(3):91-2. doi:10.1016/j.jcma.2012.02.003.
8. Hung LJ, Hsu PI, Yang CY, Wang EM, Lai KH. Prevalence of gastroesophageal reflux disease in a general population in Taiwan. *Journal of gastroenterology and hepatology*. 2011;26(7):1164-8. doi:10.1111/j.1440-1746.2011.06750.x.
9. Katz PO, Gerson LB, Vela MF. Guidelines for the diagnosis and management of gastroesophageal reflux disease. *The American journal of gastroenterology*. 2013;108(3):308-28; quiz 29. doi:10.1038/ajg.2012.444.
10. Świdnicka-Siergiejko AK, Wróblewski E, Hady HR, Łuba M, Dadan J, Dąbrowski A. Esophageal pH and impedance reflux parameters in relation to body mass index, obesity-related hormones, and bariatric procedures. *Polish archives of internal medicine*. 2018;128(10):594-603. doi:10.20452/pamw.4334.
11. Gharib A, Forootan M, Sharifzadeh M, Abdi S, Darvishi M, Eghbali A. Diagnostic Efficacy of 24-hr Esophageal pH Monitoring in Patients with Refractory Gastroesophageal Reflux Disease. *Open access Macedonian journal of medical sciences*. 2018;6(7):1235-8. doi:10.3889/oamjms.2018.268.
12. Mochizuki N, Fujita T, Kobayashi M, Yamazaki Y, Terao S, Sanuki T, et al. Factors associated with the presentation of erosive esophagitis symptoms in health checkup subjects: A prospective, multicenter cohort study. *PloS one*. 2018;13(5):e0196848. doi:10.1371/journal.pone.0196848.

13. Schlottmann F, Andolfi C, Herbella FA, Rebecchi F, Allaix ME, Patti MG. GERD: Presence and Size of Hiatal Hernia Influence Clinical Presentation, Esophageal Function, Reflux Profile, and Degree of Mucosal Injury. *The American surgeon*. 2018;84(6):978-82.
14. Liu S, Xu M, Yang J, Qi H, He F, Zhao X, et al. Research on Gastroesophageal Reflux Disease Based on Dynamic Features of Ambulatory 24-Hour Esophageal pH Monitoring. *Computational and mathematical methods in medicine*. 2017;2017:9239074. doi:10.1155/2017/9239074.
15. Frazzoni L, Frazzoni M, de Bortoli N, Tolone S, Martinucci I, Fuccio L, et al. Critical appraisal of Rome IV criteria: hypersensitive esophagus does belong to gastroesophageal reflux disease spectrum. *Annals of gastroenterology*. 2018;31(1):1-7. doi:10.20524/aog.2017.0199.
16. Vela MF. Diagnostic work-up of GERD. *Gastrointestinal endoscopy clinics of North America*. 2014;24(4):655-66. doi:10.1016/j.giec.2014.07.002.
17. Sharma BG, Khanna K, Kumar N, Nishad DK, Basu M, Bhatnagar A. Development and gamma scintigraphy evaluation of gastro retentive calcium ion-based oral formulation: an innovative approach for the management of gastro-esophageal reflux disease (GERD). *Drug development and industrial pharmacy*. 2017;43(11):1759-69. doi:10.1080/03639045.2017.1339080.
18. Rey JW, Deris N, Marquardt JU, Thomaidis T, Moehler M, Kittner JM, et al. High-definition endoscopy with iScan and Lugol's solution for the detection of inflammation in patients with nonerosive reflux disease: histologic evaluation in comparison with a control group. *Diseases of the esophagus : official journal of the International Society for Diseases of the Esophagus*. 2016;29(2):185-91. doi:10.1111/dote.12308.
19. Rickenbacher N, Kötter T, Kochen MM, Scherer M, Blozik E. Fundoplication versus medical management of gastroesophageal reflux disease: systematic review and meta-analysis. *Surgical endoscopy*. 2014;28(1):143-55. doi:10.1007/s00464-013-3140-z.
20. Yadlapati R, Hungness ES, Pandolfino JE. Complications of Antireflux Surgery. *The American journal of gastroenterology*. 2018;113(8):1137-47. doi:10.1038/s41395-018-0115-7.
21. Wileman SM, McCann S, Grant AM, Krukowski ZH, Bruce J. Medical versus surgical management for gastro-oesophageal reflux disease (GORD) in adults. *The Cochrane database of systematic reviews*. 2010(3):Cd003243. doi:10.1002/14651858.CD003243.pub2.
22. Aujeský R, Neoral C, Vrba R, Stašek M, Vomáčková K. The effect of laparoscopic fundoplication in therapy of Barrett's esophagus. *Wideochirurgia i inne techniki maloinwazyjne = Videosurgery and other miniinvasive techniques*. 2014;9(2):213-8. doi:10.5114/wiitm.2014.41634.
23. Morrow E, Bushyhead D, Wassenaar E, Hinojosa M, Loviscek M, Pellegrini C, et al. The impact of laparoscopic anti-reflux surgery in patients with Barrett's esophagus. *Surgical endoscopy*. 2014;28(12):3279-84. doi:10.1007/s00464-014-3601-z.
24. Rayner CJ, Gatenby P. Effect of antireflux surgery for Barrett's esophagus: long-term results. *Minerva chirurgica*. 2016;71(3):180-91.
25. Dallemagne B, Perretta S. Twenty years of laparoscopic fundoplication for GERD. *World journal of surgery*. 2011;35(7):1428-35. doi:10.1007/s00268-011-1050-6.
26. Mardani J, Lundell L, Engström C. Total or posterior partial fundoplication in the treatment of GERD: results of a randomized trial after 2 decades of follow-up. *Annals of surgery*. 2011;253(5):875-8. doi:10.1097/SLA.0b013e3182171c48.
27. Memon MA, Subramanya MS, Hossain MB, Yunus RM, Khan S, Memon B. Laparoscopic anterior versus posterior fundoplication for gastro-esophageal reflux disease: a meta-analysis and systematic review. *World journal of surgery*. 2015;39(4):981-96. doi:10.1007/s00268-014-2889-0.
28. Qu H, Liu Y, He QS. Short- and long-term results of laparoscopic versus open anti-reflux surgery: a systematic review and meta-analysis of randomized controlled trials. *Journal of gastrointestinal surgery : official journal of the Society for Surgery of the Alimentary Tract*. 2014;18(6):1077-86. doi:10.1007/s11605-014-2492-6.
29. Higgins RM, Gould JC. The Pros and Cons of Partial Versus Total Fundoplication for Gastroesophageal Reflux Disease. *Journal of laparoendoscopic & advanced surgical techniques Part A*. 2020;30(2):117-20. doi:10.1089/lap.2019.0297.
30. Håkanson BS, Lundell L, Bylund A, Thorell A. Comparison of Laparoscopic 270° Posterior Partial Fundoplication vs Total Fundoplication for the Treatment of Gastroesophageal Reflux Disease: A Randomized Clinical Trial. *JAMA Surgery*. 2019;154(6):479-86.

- doi:10.1001/jamasurg.2019.0047 %J JAMA Surgery.
31. Moore M, Afaneh C, Benhuri D, Antonacci C, Abelson J, Zarnegar R. Gastroesophageal reflux disease: A review of surgical decision making. *World journal of gastrointestinal surgery*. 2016;8(1):77-83. doi:10.4240/wjgs.v8.i1.77.
 32. Moore M, Afaneh C, Benhuri D, Antonacci C, Abelson J, Zarnegar R. Gastroesophageal reflux disease: A review of surgical decision making. *World journal of gastrointestinal surgery*. 2016;8(1):77-83. doi:10.4240/wjgs.v8.i1.77.
 33. Broeders JA, Mauritz FA, Ahmed Ali U, Draaisma WA, Ruurda JP, Gooszen HG, et al. Systematic review and meta-analysis of laparoscopic Nissen (posterior total) versus Toupet (posterior partial) fundoplication for gastro-oesophageal reflux disease. *The British journal of surgery*. 2010;97(9):1318-30. doi:10.1002/bjs.7174.
 34. Mickevičius A, Endzinas Ž, Kiudelis M, Jonaitis L, Kupčinskas L, Pundzius J, et al. Influence of wrap length on the effectiveness of Nissen and Toupet funduplications: 5-year results of prospective, randomized study. *Surgical endoscopy*. 2013;27(3):986-91. doi:10.1007/s00464-012-2550-7.
 35. Falkenback D, Lehane CW, Lord RV. Robot-assisted oesophageal and gastric surgery for benign disease: antireflux operations and Heller's myotomy. *ANZ journal of surgery*. 2015;85(3):113-20. doi:10.1111/ans.12731.
 36. Tolboom RC, Broeders IA, Draaisma WA. Robot-assisted laparoscopic hiatal hernia and antireflux surgery. *Journal of surgical oncology*. 2015;112(3):266-70. doi:10.1002/jso.23912.
 37. Rebecchi F, Allaix ME, Morino M. Robotic technological aids in esophageal surgery. *J Vis Surg*. 2017;3:7-. doi:10.21037/jovs.2017.01.09.