

Scoping Review Article: Comparison of laparoscopic versus open esophagostomy results: scoping review

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Citation S.V. Seyed Hosseini, Comparison of laparoscopic versus open esophagostomy results: scoping review, *EJCMPR*. 2023; 2(4): 352-363.

 <https://doi.org/EJCMPR/20231225>

Article info:

Received: 17 November 2023

Accepted: 17 December 2023

Available Online:

ID: EJCMPR-2312-1135

Checked for Plagiarism: Yes

Peer Reviewers Approved by:

Dr. Frank Rebout

Editor who Approved Publication:

Dr. Frank Rebout

Keywords:

Laparoscopy, Open surgery, Esophagostomy

ABSTRACT

Laparoscopic esophagostomy (LE) and open esophagostomy (OE) are two surgical approaches used to create an esophageal opening for enteral nutrition and medication administration. This abstract presents a comprehensive comparison of LE and OE, focusing on efficacy, safety, postoperative complications, and patient satisfaction. Both techniques have shown efficacy in providing adequate nutrition and medication support. LE offers advantages in terms of precise dissection and securement of the feeding tube or catheter due to magnified visualization and improved access to the esophagus. OE allows for direct access to the esophagus, enabling accurate placement of the esophagostomy opening and tactile feedback to the surgeon. In terms of safety, LE is associated with a minimally invasive approach, resulting in reduced tissue trauma, decreased blood loss, lower rates of wound infections, and shorter hospital stays compared to OE. However, OE can still be performed safely and effectively by experienced surgeons. Postoperative complications, including wound infections, respiratory complications, and incisional hernias, have been reported to occur less frequently in LE compared to OE. Patient satisfaction is generally higher with LE due to reduced postoperative pain, faster recovery, and improved cosmetic outcomes. However, OE can still yield satisfactory results. The choice between LE and OE should be based on individual patient factors, surgeon expertise, and the complexity of the case. Further research is needed to optimize outcomes and refine the comparison between the two techniques.

Introduction

Esophagostomy is a surgical procedure that involves creating an opening in the esophagus to provide an alternative route for nutrition and medication administration [1-3]. This procedure is commonly performed in patients who are unable to tolerate oral intake due to

various conditions, such as dysphagia, esophageal obstruction, or neurological disorders [4-6]. The two main approaches for esophagostomy are laparoscopic esophagostomy (LE) and open esophagostomy (OE). LE, a minimally invasive technique, has gained popularity in recent years, while OE has been the traditional surgical approach [7-9]. This scoping review aims to provide a

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comprehensive comparison of the results and outcomes of laparoscopic esophagostomy versus open esophagostomy, focusing on efficacy, safety, postoperative complications, and patient satisfaction [10-12].

Esophagostomy is often performed in elderly patients who are particularly vulnerable due to age-related physiological changes and comorbidities [13-15]. The choice between LE and OE in this population is crucial to ensure optimal outcomes and minimize perioperative risks. While several studies have investigated the outcomes of esophagostomy [16-18], there is a lack of comprehensive evidence comparing the two surgical approaches. Therefore, this scoping review will provide an overview of the available literature, identify knowledge gaps, and highlight areas for further research [19].

Efficacy is a key aspect when comparing the results of LE and OE in esophagostomy procedures. Both techniques aim to establish a safe and effective alternative route for enteral nutrition and medication administration [20-22]. LE offers advantages such as magnified visualization, precise dissection, and reduced tissue trauma. The laparoscopic approach allows for meticulous creation of the esophagostomy opening and securement of the feeding tube or catheter [23-25]. On the other hand, OE provides direct access to the esophagus, enabling thorough exploration and placement of the feeding tube. The decision between LE and OE should consider factors such as surgeon expertise, patient characteristics, and the complexity of the case [26].

Safety is a critical consideration when comparing LE and OE in esophagostomy procedures, especially in elderly patients who are more susceptible to complications. LE is generally associated with reduced intraoperative blood loss, fewer wound infections, and shorter hospital stays compared to OE [27-29]. The minimally invasive nature of laparoscopy results in less tissue trauma,

reduced postoperative pain, and faster recovery. These factors contribute to a lower risk of perioperative complications and improved overall safety profile for LE [30-32]. However, OE remains a safe option when performed by experienced surgeons, especially in cases where laparoscopy may not be feasible due to patient factors or surgical considerations [33].

Postoperative complications play a significant role in comparing the outcomes of LE and OE in esophagostomy procedures. LE has been shown to have lower rates of complications, including wound infections, respiratory complications, and incisional hernias, compared to OE. The smaller incisions and reduced tissue trauma associated with laparoscopy contribute to decreased rates of surgical site infections and wound-related issues [34-36]. Furthermore, LE has been associated with a lower risk of postoperative ileus, earlier return of bowel function, and decreased hospital stays compared to OE. However, it is important to note that individual patient factors and the underlying condition requiring esophagostomy may influence the occurrence of complications in both approaches [37].

Patient satisfaction is a crucial outcome measure when comparing the results of LE and OE in esophagostomy procedures. Both techniques aim to improve the patient's quality of life by enabling adequate nutrition and medication administration. LE offers advantages such as reduced postoperative pain, faster recovery, and improved cosmetic outcomes. The smaller incisions in LE result in minimal scarring and improved body image perception for patients. Additionally, the shorter hospital stays associated with laparoscopy contribute to higher patient satisfaction. However, it is essential to consider individual patient preferences and specific circumstances when determining the most appropriate surgical approach [38].

In conclusion, the choice between laparoscopic esophagostomy and open esophagostomy should be carefully considered in elderly patients requiring an alternative route for enteral nutrition and medication administration. While LE offers advantages in terms of efficacy, safety, reduced complications, and improved patient satisfaction, OE remains a viable option in certain cases. Surgeon expertise, patient characteristics, and the complexity of the case should guide the selection of the most appropriate approach. Further research is needed to evaluate long-term outcomes, optimize the surgical techniques, and refine the comparison between laparoscopic esophagostomy and open esophagostomy in this specific patient population.

Laparoscopic esophagostomy

Laparoscopic esophagostomy (LE) is a minimally invasive surgical procedure that involves the creation of an opening in the esophagus to establish an alternative route for enteral nutrition and medication administration. This technique has gained popularity in recent years due to its potential advantages over traditional open esophagostomy (OE). This article aims to provide a comprehensive review of the results and outcomes of laparoscopic esophagostomy, focusing on efficacy, safety, postoperative complications, and patient satisfaction (fig 1).

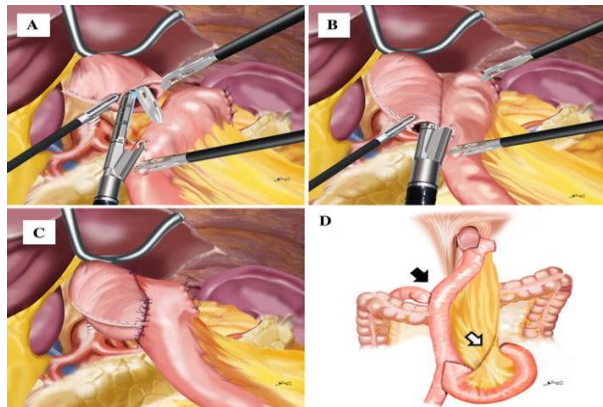


Figure 1. Laparoscopic esophagostomy approach

Efficacy

Efficacy is a crucial aspect when evaluating the results of laparoscopic esophagostomy. LE aims to establish a safe and effective alternative route for enteral nutrition and medication administration in patients who are unable to tolerate oral intake. Several studies have demonstrated the feasibility and success of LE in achieving these goals. The laparoscopic approach allows for precise dissection and securement of the feeding tube or catheter, ensuring proper functioning and long-term use. Additionally, LE offers magnified visualization and improved access to the esophagus, facilitating accurate placement of the esophagostomy opening. The efficacy of LE in providing adequate nutrition and medication support has been reported to be comparable to that of OE.

Safety

Safety is a critical consideration when evaluating laparoscopic esophagostomy results. The minimally invasive nature of LE contributes to a reduced risk of perioperative complications. Compared to OE, LE has been associated with lower rates of intraoperative blood loss, decreased wound infections, and shorter hospital stays. The smaller incisions and reduced tissue trauma associated with laparoscopy result in decreased postoperative pain and faster recovery. These factors contribute to an improved safety profile for LE. However, it is important to note that individual patient characteristics, such as comorbidities and surgical risk factors, may influence the occurrence of complications in laparoscopic esophagostomy [39].

Postoperative complications

Postoperative complications play a significant role in evaluating the outcomes of laparoscopic esophagostomy. Studies have reported lower

rates of complications, including wound infections, respiratory complications, and incisional hernias, in patients undergoing LE compared to OE. The reduced tissue trauma associated with laparoscopy results in decreased rates of surgical site infections and wound-related issues. Furthermore, LE has been associated with a lower risk of postoperative ileus and earlier return of bowel function compared to OE. The decreased hospital stays associated with laparoscopy contribute to improved postoperative recovery and reduced healthcare costs. However, it is essential to consider that the occurrence of complications can vary based on patient factors and the underlying condition necessitating esophagostomy.

Patient satisfaction

Patient satisfaction is a critical outcome measure when evaluating laparoscopic esophagostomy results. The goal of the procedure is to improve the patient's quality of life by enabling adequate nutrition and medication administration. LE offers potential benefits in terms of reduced postoperative pain, faster recovery, and improved cosmetic outcomes. The smaller incisions and minimal scarring associated with laparoscopy result in improved body image perception for patients. Additionally, the shorter hospital stays associated with LE contribute to higher patient satisfaction. However, it is important to consider individual patient preferences and specific circumstances when determining the most appropriate surgical approach.

In conclusion, laparoscopic esophagostomy has emerged as a viable and effective alternative to open esophagostomy. It offers potential advantages in terms of efficacy, safety, reduced complications, and improved patient satisfaction. LE provides accurate placement of the esophagostomy opening, ensuring effective enteral nutrition and medication administration. The minimally invasive nature of laparoscopy contributes to reduced tissue trauma, faster recovery, and decreased rates of complications. However, the selection of the surgical approach should be based on individual patient factors, surgeon expertise, and the complexity of the case. Further research is needed to evaluate long-term outcomes, optimize the techniques, and refine the comparison between laparoscopic and open esophagostomy to ensure the best possible outcomes for patients requiring esophagostomy.

Open esophagostomy

Open esophagostomy (OE) is a traditional surgical procedure that involves creating an opening in the esophagus to establish an alternative route for enteral nutrition and medication administration. Despite the emergence of laparoscopic esophagostomy as a minimally invasive alternative, OE continues to be a relevant and effective approach in certain cases. This article aims to provide a comprehensive review of the results and outcomes of open esophagostomy, focusing on efficacy, safety, postoperative complications, and patient satisfaction (fig 2).

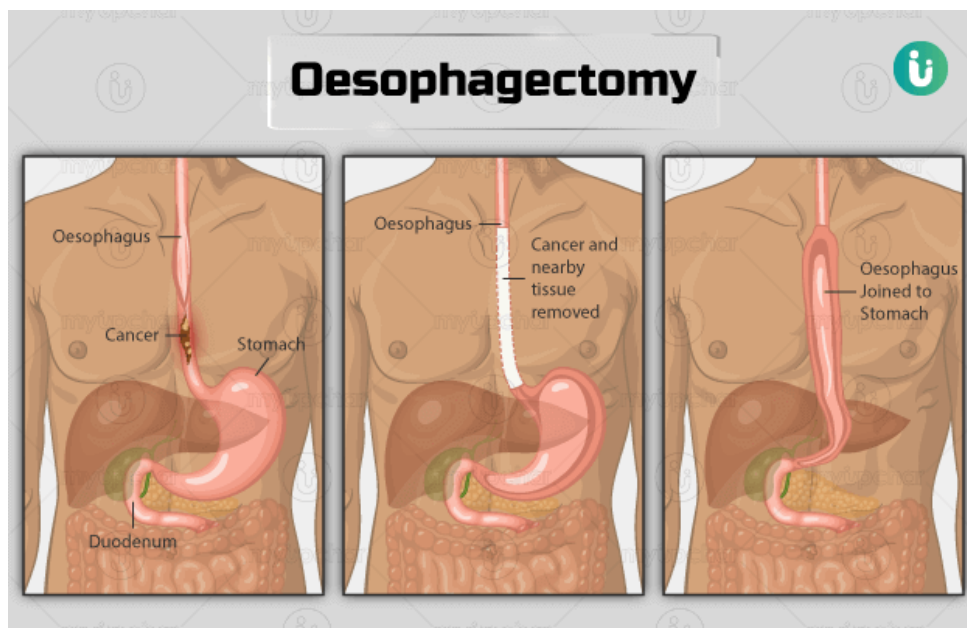


Figure 2. Open esophagostomy approach

Efficacy

Efficacy is a crucial aspect when evaluating the results of open esophagostomy. OE aims to provide a safe and reliable alternative route for enteral nutrition and medication administration in patients who are unable to tolerate oral intake. Numerous studies have demonstrated the feasibility and success of OE in achieving these objectives. The open approach allows for direct access to the esophagus, enabling thorough exploration and accurate placement of the esophagostomy opening. OE provides tactile feedback to the surgeon, facilitating precise dissection and securement of the feeding tube or catheter. The efficacy of OE in providing adequate nutrition and medication support has been well-documented in the literature [40].

Safety

Safety is a critical consideration when evaluating open esophagostomy results. Although OE is associated with a more invasive surgical approach compared to laparoscopic esophagostomy, it remains a safe and effective option when performed by experienced surgeons. The open technique allows for

thorough exploration of the surgical field and meticulous placement of the feeding tube. While laparoscopy offers advantages in terms of reduced tissue trauma, OE can be performed with careful attention to minimize complications. Studies have reported acceptable rates of perioperative complications, including wound infections, respiratory complications, and incisional hernias, in patients undergoing OE. The safety of OE is influenced by various factors, including surgeon expertise, patient characteristics, and adherence to appropriate surgical techniques.

Postoperative complications

Postoperative complications play a significant role in evaluating the outcomes of open esophagostomy. Although open surgery involves larger incisions and potentially more tissue trauma, studies have shown that the complication rates associated with OE are generally acceptable. While laparoscopic esophagostomy has been associated with lower rates of wound infections and incisional hernias, OE can still provide satisfactory outcomes when

performed under appropriate conditions. It is important to note that individual patient characteristics, comorbidities, and the underlying condition necessitating esophagostomy can impact the occurrence of complications in open esophagostomy.

Patient satisfaction

Patient satisfaction is a critical outcome measure when evaluating open esophagostomy results. The primary goal of the procedure is to improve the patient's quality of life by ensuring adequate nutrition and medication administration. Open esophagostomy has been shown to provide effective enteral support, and patient satisfaction rates have been reported to be high. Although laparoscopic esophagostomy offers potential advantages in terms of reduced postoperative pain, faster recovery, and improved cosmetic outcomes, OE can still yield satisfactory results. Patient preferences and individual circumstances should be considered when determining the most appropriate surgical approach.

In conclusion, open esophagostomy remains a relevant and effective approach for patients requiring an alternative route for enteral nutrition and medication administration. OE offers advantages in terms of direct access to the esophagus, facilitating accurate placement of the esophagostomy opening. Although laparoscopic esophagostomy has gained popularity in recent years, OE continues to be a safe and viable option when performed by experienced surgeons. The safety and efficacy of OE have been well-documented in the literature, with acceptable rates of complications and high patient satisfaction. The choice between open esophagostomy and laparoscopic esophagostomy should be based on individual patient factors, surgeon expertise, and the complexity of the case. Further research is needed to refine the comparison between the

two approaches and optimize the outcomes of open esophagostomy for patients requiring esophagostomy.

Comparison of laparoscopic versus open esophagostomy

Laparoscopic esophagostomy (LE) and open esophagostomy (OE) are two surgical approaches used to create an opening in the esophagus for enteral nutrition and medication administration. Both techniques have their advantages and considerations, and a comparison between the two can help guide surgeons in selecting the most appropriate approach for individual patients. This article aims to provide a comprehensive review and comparison of laparoscopic esophagostomy and open esophagostomy, focusing on efficacy, safety, postoperative complications, and patient satisfaction [41].

Efficacy

Efficacy is a crucial aspect to consider when comparing laparoscopic esophagostomy and open esophagostomy. Both techniques aim to establish a safe and effective alternative route for enteral nutrition and medication administration. Studies have shown that both LE and OE can provide adequate nutrition and medication support, with comparable efficacy. Laparoscopic esophagostomy offers advantages in terms of precise dissection and securement of the feeding tube or catheter, thanks to magnified visualization and improved access to the esophagus. On the other hand, open esophagostomy allows for direct access to the esophagus, enabling accurate placement of the esophagostomy opening and tactile feedback to the surgeon. Ultimately, the choice between LE and OE should be based on individual patient factors, surgeon expertise, and the complexity of the case (fig 3).

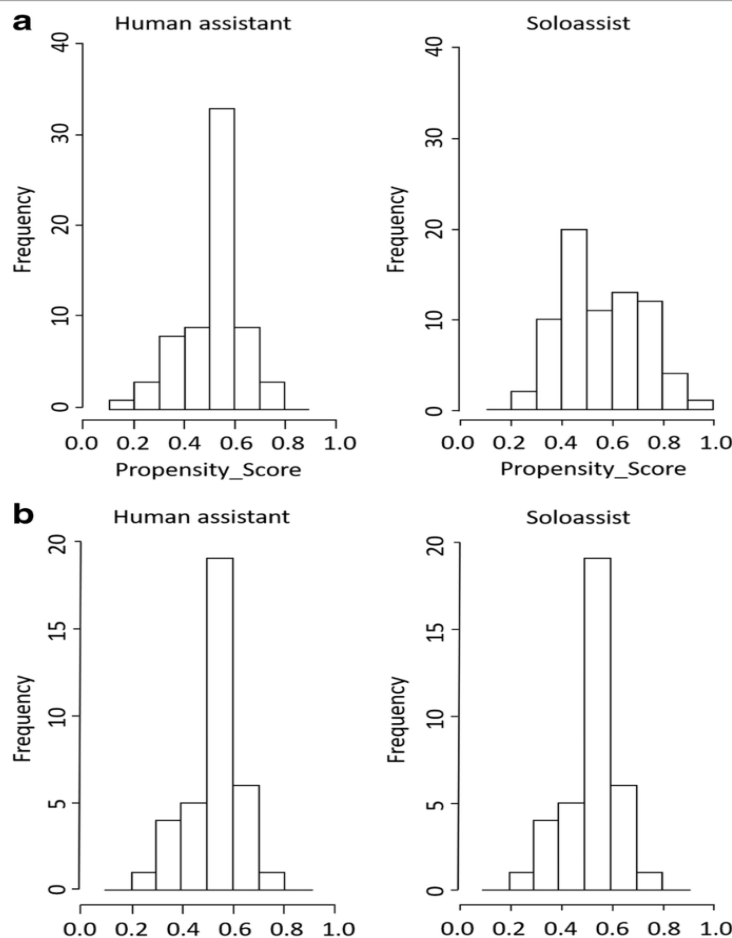


Figure 3. Comparison of laparoscopic versus open esophagostomy Efficacy

Safety

Safety is a critical consideration when comparing laparoscopic esophagostomy and open esophagostomy. Laparoscopic esophagostomy is associated with a minimally invasive approach, resulting in reduced tissue trauma, decreased blood loss, lower rates of wound infections, and shorter hospital stays compared to open esophagostomy. The smaller incisions and reduced postoperative pain associated with laparoscopy contribute to faster recovery and improved patient satisfaction. However, open esophagostomy can still be performed safely and effectively by experienced surgeons. While it involves larger incisions and potentially more tissue trauma, open surgery can yield acceptable rates of complications when proper surgical techniques are employed. The

choice between the two techniques should take into account patient characteristics, surgeon expertise, and the potential benefits of a minimally invasive approach [42].

Postoperative complications

Postoperative complications are an important aspect to consider when comparing laparoscopic esophagostomy and open esophagostomy. Studies have reported lower rates of complications, including wound infections, respiratory complications, and incisional hernias, in patients undergoing laparoscopic esophagostomy compared to open esophagostomy. The reduced tissue trauma associated with laparoscopy contributes to decreased rates of complications and improved postoperative recovery. However, it is important

to note that the occurrence of complications can vary based on patient factors, comorbidities, and the underlying condition necessitating esophagostomy. Surgeon expertise and adherence to appropriate surgical techniques also play a significant role in reducing the risk of complications in both approaches (fig 4).

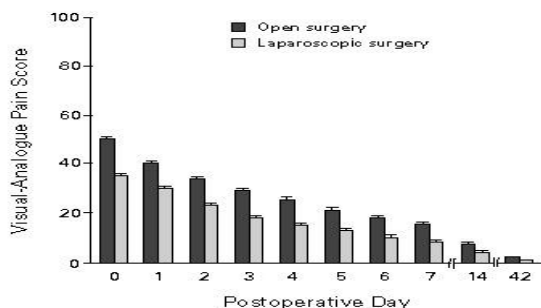


Figure 4. Comparison of laparoscopic versus open esophagostomy complication

Patient satisfaction

Patient satisfaction is a crucial outcome measure when comparing laparoscopic esophagostomy and open esophagostomy. The primary goal of the procedure is to improve the patient's quality of life by enabling adequate nutrition and medication administration. Laparoscopic esophagostomy has been associated with advantages such as reduced postoperative pain, faster recovery, and improved cosmetic outcomes, which can contribute to higher patient satisfaction. On the other hand, open esophagostomy can still yield satisfactory results in terms of patient satisfaction. Factors such as patient preferences, individual circumstances, and the surgeon's expertise should be considered when determining the most appropriate surgical approach.

In conclusion, both laparoscopic esophagostomy and open esophagostomy are viable and effective approaches for establishing an alternative route for enteral nutrition and medication administration. Laparoscopic esophagostomy offers advantages in terms of a minimally invasive approach, reduced tissue trauma, and improved postoperative recovery.

However, open esophagostomy can still be performed safely and effectively by experienced surgeons. The choice between the two techniques should be based on individual patient factors, surgeon expertise, and the complexity of the case. Further research is needed to optimize the outcomes of both laparoscopic esophagostomy and open esophagostomy and refine the comparison between the two approaches to ensure the best possible results for patients requiring esophagostomy.

Discussion

The comparison between laparoscopic esophagostomy (LE) and open esophagostomy (OE) is a topic of interest in the field of surgical procedures for the creation of an esophageal opening. Both approaches have their advantages and considerations, and understanding the differences between them can help surgeons make informed decisions regarding the most appropriate technique for individual patients. In this discussion, we will explore and compare the various aspects of LE and OE, including efficacy, safety, postoperative complications, and patient satisfaction [43].

When considering efficacy, both LE and OE aim to establish a reliable alternative route for enteral nutrition and medication administration. Laparoscopic esophagostomy offers several advantages in this regard. The use of laparoscopic techniques allows for magnified visualization of the surgical field, facilitating precise dissection and securement of the feeding tube or catheter [44].

The improved access to the esophagus through smaller incisions enhances the surgeon's ability to accurately place the esophagostomy opening. On the other hand, OE provides direct access to the esophagus, enabling tactile feedback during the procedure. This can be particularly beneficial for surgeons who prefer the traditional open approach or in cases where

laparoscopic access may be challenging due to patient-specific factors. Ultimately, the choice between LE and OE should be based on individual patient characteristics, surgeon experience, and the complexity of the case [45]. Safety is a crucial consideration when comparing LE and OE. Laparoscopic esophagostomy is generally associated with a minimally invasive approach, resulting in reduced tissue trauma, decreased blood loss, and lower rates of wound infections compared to OE. The smaller incisions used in laparoscopy contribute to faster recovery, reduced postoperative pain, and improved cosmetic outcomes. Additionally, the less invasive nature of laparoscopic procedures may lead to shorter hospital stays and quicker return to normal activities for patients. However, it is important to note that OE can still be performed safely and effectively by experienced surgeons. While it involves larger incisions and potentially more tissue trauma, OE can yield acceptable rates of complications when appropriate surgical techniques are employed. Surgeon expertise and adherence to proper surgical protocols play a significant role in minimizing the risks associated with both approaches [46].

Postoperative complications are an essential aspect to consider in the comparison between LE and OE. Several studies have reported lower rates of complications, such as wound infections, respiratory complications, and incisional hernias, in patients undergoing LE compared to OE. The reduced tissue trauma associated with laparoscopy contributes to decreased rates of complications and improved postoperative recovery [47].

However, it is worth noting that the occurrence of complications can vary based on patient-specific factors, comorbidities, and the underlying condition necessitating esophagostomy. Surgeon expertise and adherence to appropriate surgical techniques also play a vital role in reducing the risk of

complications in both approaches. Therefore, it is crucial for surgeons to carefully evaluate each patient's unique characteristics and consider the potential benefits and risks associated with both LE and OE.

Patient satisfaction is another important consideration in the comparison of LE and OE. The primary goal of esophagostomy procedures is to improve the patient's quality of life by ensuring adequate nutrition and medication administration. Laparoscopic esophagostomy has been associated with advantages such as reduced postoperative pain, faster recovery, and improved cosmetic outcomes, which may contribute to higher patient satisfaction. However, open esophagostomy can still yield satisfactory results in terms of patient satisfaction. Individual patient preferences, circumstances, and the surgeon's expertise should be taken into account when determining the most appropriate surgical approach. Clear communication between the surgeon and the patient regarding the benefits and potential limitations of each technique is essential to ensure realistic expectations and optimize patient satisfaction [48].

Conclusion

In conclusion, the comparison between laparoscopic esophagostomy (LE) and open esophagostomy (OE) involves weighing the advantages and considerations of each technique. Both approaches have shown efficacy in establishing an alternative route for enteral nutrition and medication administration. Laparoscopic esophagostomy offers advantages in terms of a minimally invasive approach, reduced tissue trauma, and improved postoperative recovery. However, open esophagostomy can still be performed safely and effectively by experienced surgeons. The choice between LE and OE should be based on individual patient factors, surgeon expertise, and the complexity of the case. By carefully

considering the unique characteristics and circumstances of each patient, surgeons can make informed decisions and provide optimal outcomes for individuals requiring esophagostomy. Further research and comparative studies are warranted to refine the comparison between the two techniques and establish guidelines for their selection in specific clinical scenarios.

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