Journal of Medical Research and Health Sciences
Received 25 Jan 2022 | Revised 10 Feb 2022 | Accepted 22 Mar 2022 | Published Online 15 Apr 2022

DOI: https://doi.org/10.52845/JMRHS/2022-5-4-3

JMRHS 5 (4), 1876–1880 (2022)

ISSN (O) 2589-9031 | (P) 2589-9023

Research Article **Open Access Journal**

Treatment of Ventral Hernia Laparoscopic or Open Approach?

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Abstract: There are many different techniques currently in use for ventral hernia repair. Laparoscopic techniques have become more frequent in recent years, however, it is a subject associated with intense debate despite the fact that it has been shown to be a safe procedure with multiple benefits over the open approach; the latter constitutes a frequent complication after laparotomy with a reported incidence of up to 30%. Despite advances in surgical technique and prosthetic materials used, it represents a higher rate of recurrence and morbidity of up to 25%, mainly associated with seroma formation and surgical site infection. Despite the remarkable success of minimally invasive surgery, its use remains controversial.

Key Words: Ventral Hernia, Laparoscopy, Open Pathway, Complications.

Introduction

Abdominal wall surgery is a great challenge for surgeons in their daily work, locating patients operated on for hernia pathology in a percentage that ranges from 10 to 30% (1). Ventral hernia is known as a defect in the abdominal wall causing exposure or protrusion of the viscera. In adults, incisional hernias represent 80% or more of ventral hernias. Ventral hernia repairs with primary suture carry a recurrence of 25 to 52% (2). With the implementation of minimally invasive techniques, open ventral hernioplasty has been questioned due to large abdominal incisions, extensive dissections, large flaps, muscle mobilization and the need to use drains that lead to increased postoperative morbidity and complications. of the wound (3).

However, the implementation of a minimally invasive procedure opened the possibility of laparoscopic repair of ventral hernias, being exposed by numerous publications as a superior technique compared to open surgery in relation to complications, postoperative pain, hospital stay (4) and recurrences, although the latter ideas are not fully clarified and it is still a subject of debate regarding the factors that define a greater hernia recurrence (5).

However, laparoscopic repair has also been judged for being classified as a hernial orifice bypass operation that entails drawbacks with a functionally demonstrated adynamic area, the so-called bulging phenomenon and the promotion of the appearance of seromas. The mainstay of open abdominal repair is not only the hernia reduction, but also the restoration of the integrity and restitution of the functionality of the wall, especially of the linea alba (6).

Taking into account that laparoscopic surgery began in the 1990s, becoming over time an alternative technique used for many surgical interventions due to the multiple factors responsible for the benefits it provides compared to the open approach, within these is less aggression in the abdominal wall of the patient, which leads to a decrease in intraoperative and postoperative pain, thus using less analgesia during the operative phase, less morbidity and a reduction in the rate of incisional hernias; Merits are granted in relation to the labor and social spheres, such as better postoperative recovery, early return to normal activity, even a reduction in lost working hours and, therefore, an economic benefit for health systems (7)(8)(9).

Methodology

The study design is adapted to a systematic review of the evidence present in the scientific literature on the treatment of Ventral Hernia, highlighting the advantages or disadvantages of performing the Laparoscopic or open approach.

The literature search took place between 2000-2021, delving into various bibliographic databases in order to obtain information and review previous studies on the exposed topic. The keywords used were "Ventral Hernia" "Laparoscopic" "Open Way" "Complications" described through DeCS (Descriptors in Health Sciences). In order to obtain a greater update on the subject, the articles published in the last 22 years were set as a temporary filter for the search.

Results

Ventral hernia is defined as the protrusion of the viscera through the surgically or traumatically weakened abdominal wall; sometimes, it is usually of congenital etiology, that is to say that the abdominal wall may not form correctly during the gestation period of the fetus. This condition has been considered a frequent complication of abdominal surgery, establishing an incidence that ranges between 10-15% with an increase of up to 80% in patients who develop wound infection. There are different types which are classified as primary (epigastric, umbilical, Spigelian and lumbar) and secondary or incisional; except for the inguino-femoral region.(10)(11)(12).

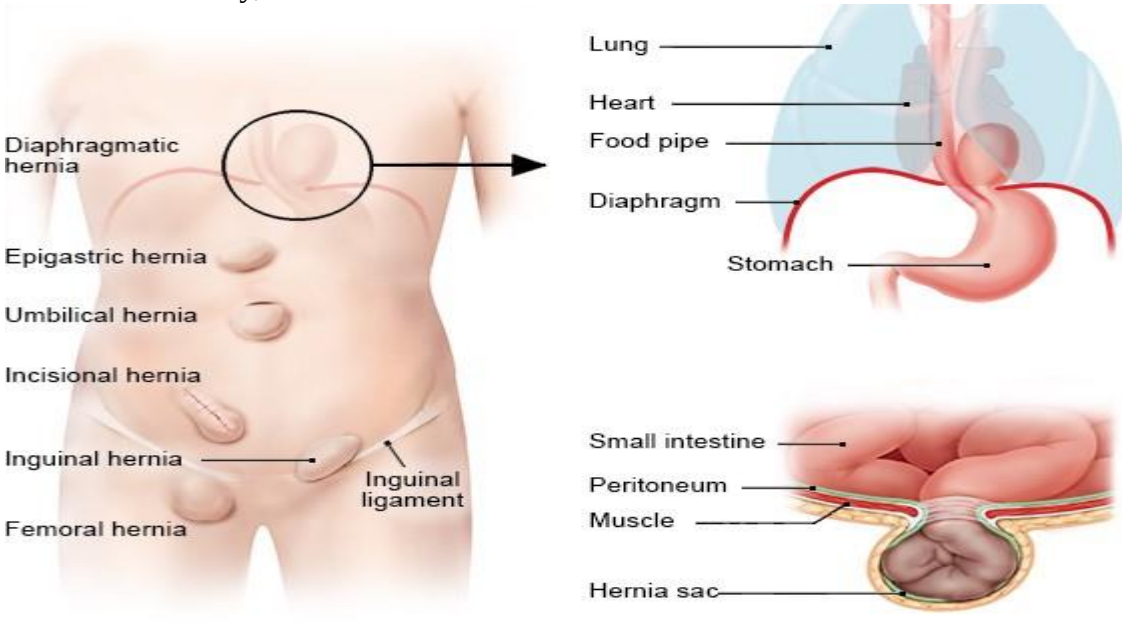

Figure 1. Location of hernias

Other times, ventral hernias are asymptomatic despite weakening of the abdominal wall. In these cases, the hernia can manifest itself when we make some effort in the abdomen such as vigorous physical exercise, lifting heavy objects, patients with chronic constipation or chronic cough, efforts to urinate due to an enlarged prostate, obesity, pregnancy, the Aging or a previous incision made in the area can cause the tissue to weaken. (12)

Suggestive signs are usually discreet, such as the appearance of swelling, pain with exertion, or pain when walking. Uncomplicated hernias cause little or no pain, are easily reduced and bulge (increase in volume with coughing), and are best detected with the patient standing. Its location, relatively superficial and in an area of easy access to physical examination, means that most ventral hernias are diagnosed through a thorough physical examination (clinical). However, for medical confirmation, although its use is not recommended except in cases of complex hernias, ultrasound is performed when the hernia cannot be palpated or computed tomography (CT) is indicated mainly in obese patients or to plan the surgical strategy for hernias with large defects (13) (14). The only definitive treatment is surgery. The repair of this abdominal wall defect can be carried out using a conventional (open) technique where the abdominal wall defect is closed with suture or a synthetic material that reinforces the tissue or trench of the defect called prosthetic mesh. On the other hand, the minimally invasive hernia technique repairs the abdominal wall defect using a mesh, through small incisions and laparoscopic trocars, in this case, the mesh is always placed inside the abdominal cavity (15).

Laparoscopic plasty is currently a validated technique for the management of abdominal wall hernias, with advantages in terms of reducing surgical infections, eviscerations, long-term recurrences and hospital stays, but at the price of a longer average duration of surgery. intervention, benefits mainly observed for small hernias. (16).

Thus, for the year 2014, a cohort study was carried out by the Mexican Association of General Surgery where the results of two approaches to repair ventral hernia were compared: laparoscopic technique (A) and Rives-Stoppa type open approach. (B) carried out over a period of 5 years in the Francisco G. Chávez hospitals of the ISSSTE and the Spanish Charity of La Laguna. Said study integrated a total of 102 patients divided into two random groups, the first of 48 patients operated on for ventral hernia with the laparoscopic technique and the second of 54 patients operated on with the open technique; where they evaluated different items such as surgical time, type of hernia (recurrent or not), size of the defect, complications and conversion to laparoscopy, and recurrence. The results obtained were by average surgical time: 60 vs 80 minutes, laparoscopic or open, respectively. Hernial defect size was 6-10 cm, 10-15 cm and greater than 15 cm in 79% and 74%, in 18% and 24% and 2% and 1% for groups A and B. The stay The average hospital stay was 24 hours in 60% of group A and 5 to 7 days in 60% of patients in group B. During the development of this research, routine analgesics were used for 48 hours and 7 days for groups A. and B. seroma was present in (8.3%) and persistent pain (4.1%) in group A. There was seroma (9.2%), hematoma (3.7%), wound infection (1.8%) and persistent pain (1.8%).) in group B. There were two recurrences in each group. These data highlight that laparoscopic ventral hernia repair is a safe and effective approach and can be carried out with a morbidity and recurrence rate similar to open surgery with the advantages of minimally invasive surgery (5).

Discussion

Surgical treatment of ventral hernias has evolved exponentially in recent years, directing new therapeutic alternatives towards reducing the rate of recurrence and postoperative morbidity. However, the greatest revolution has been the use of synthetic prostheses for hernia repair and subsequently the development of laparoscopic surgery, considered highly complex given the various factors that must be managed to estimate the possible determinants of surgical success and the appearance of complications. According to the world scientific literature, the incidence of ventral hernia is estimated between 10 and 15%, and the average rate of complications of this surgery varies between 10 and 37% (17). Some of the main factors involved in relation to the appearance of post-surgical complications; are the type of surgical technique used, the patient's own conditions (diabetes, obesity, smoking, etc.), the use of meshes and the operative time, among others (18) (19). The complications of the surgical correction of the ventral hernia, which were found the most, are the infection of the operative site, which varies from 4 to 5%, and the disorders of

the operative site (seroma, hematoma and granuloma, among others), of 5, 5% with the open technique and 1.2% with the laparoscopic technique.

The presence of complications at the operative site increases up to three times the probability of recurrence of the hernia and, therefore, the rates of consultation and hospital readmissions.

The costs of the laparoscopic group in the operating room are significantly higher, which could represent a relative disadvantage for this approach; even though this could be partially offset by the shorter hospital stay.

The laparoscopic and open repair of the ventral incisional hernia share some principles: access to the abdominal cavity, adhesiolysis, reduction of the hernial content when required (loops or omentum) and the application of a mesh. The fact of using a minimally invasive approach has positioned laparoscopic treatment in a well-established place in the treatment of ventral hernia (19).

Conclusion

Hernias, regardless of their type, are very frequent and benign pathologies in the vast majority of cases, and their only curative treatment is surgery. Laparoscopic ventral hernia repair is a reproducible technique that has reported results that are both equivalent or even superior to the open approach with respect to postoperative pain, hospital stay, recurrence, general and wound complications. The results obtained in this work as in the majority of those reviewed show a significant advantage of the laparoscopic approach, however it has a disadvantage regarding its cost compared to the open approach and the difficult access of these techniques in low-resource countries.

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How to cite this article: Espinosa, M. F. M. ., Erazo, E. W. V. ., Villada, N. Z. ., Sánchez, D. A. G. ., García, J. S. R. ., Peña, C. A. E. ., Mejía, A. O. ., Rey, J. V. ., & Pertuz, J. G. V. . (2022). Treatment of Ventral Hernia Laparoscopic or Open Approach?. Journal of Medical Research and Health Sciences, 5(4), 1876–1880. https://doi.org/10.52845/JMRHS/2022-5-4-3