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Complications of video laparoscopic appendectomy at the Central Hospital of the Social Security Institute in the period from January to December 2021

Complicaciones de la apendicectomía video laparoscópica en el Hospital Central del Instituto de Previsión Social en el periodo de enero a diciembre del año 2021

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ABSTRACT

Introduction: Videolaparoscopic appendectomy is a safe option for the etiological diagnosis and treatment of acute appendicitis. The objective of the research is to determine the frequency of complications of videolaparoscopic appendectomy in patients undergoing surgery at the Central Hospital of the Social Security Institute in the period from January to December 2021. **Materials and methods:** It is an observational, descriptive, retrospective, cross-sectional, non-probabilistic study of consecutive cases. Reviews of operative records of patients undergoing videolaparoscopic appendectomy, older than 16 years, including both sexes, were carried out at the Central Hospital of the Social Security Institute from January to December 2021. **Results:** 62 patients were studied, 54.8% female and 45.2% male, with an average age of 34 years, a range of 16 to 90 years. A 4.8% rate of complications was reported: surgical site infection (3.2%) and hemoperitoneum (1.6%). The average hospital stay was 2.2 days.

Conclusion: Videolaparoscopic appendectomy is a minimal access surgical technique that has shown a low rate of complications: low rate of surgical site infection, and short hospital stay.

Keywords: acute appendicitis, videolaparoscopy, complications.

RESUMEN

Introducción: La apendicectomía videolaparoscópica es una opción segura para el diagnóstico etiológico y el tratamiento de la apendicitis aguda. El objetivo de la investigación es determinar la frecuencia de complicaciones de la apendicetomía videolaparoscópica en pacientes sometidos a cirugía en el Hospital Central del Instituto de Previsión Social en el periodo de enero a diciembre del año 2021. **Materiales y métodos**: Es un estudio observacional, descriptivo, retrospectivo, de corte transversal, no probabilístico de casos consecutivos. Se realizó revisiones de fichas operatorias de pacientes sometidos a apendicetomía videolaparoscópica, mayores a 16 años, incluyéndose ambos sexos, en el Hospital Central del Instituto de Previsión Social de enero a diciembre del 2021. **Resultados:** Se estudiaron 62 pacientes, 54,8% de sexo femenino y 45.2% de sexo masculino, con una edad promedio de 34 años, un rango de 16 a 90 años. Se informó una tasa de 4,8% de complicaciones: infección del sitio quirúrgico (3,2%) y el hemoperitoneo (1,6%). El promedio de estancia hospitalaria fue 2,2 días. **Conclusión**: La apendicetomía videolaparoscópica es una técnica quirúrgica de acceso mínimo que demostró una baja tasa de complicaciones: baja tasa de infección del sitio quirúrgico, y baja estancia hospitalaria.

Palabras clave: apendicitis aguda, videolaparoscopía, complicaciones

INTRODUCTION

Acute appendicitis is the inflammation of the vermiform appendix and the leading cause of acute surgical abdomen. Between 5% and 15% of the overall population will develop acute appendicitis at some point in their lives being more common during the second and third decades of life.[1]

The types of acute appendicitis that exist based on the stage of the disease when they are treated can be congestive or inflamed, phlegmonous or suppurative, gangrenous or necrotic, and perforated appendicitis.[2]

Surgical access can be via video laparoscopy or conventional surgery. Nonetheless, there is controversy on which of the two methods achieves best results.[3] Surgery is believed to be associated with shorter surgical times and less risk of intra-abdominal abscesses. However, the advantage of the laparoscopic approach is that both the length of stay (LoS) and the downtime are shorter, the rate of wound infections is lower, there is less postopera-

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tive pain, and early digestive tolerance.[4]

Other advantages have been described associated with the laparoscopic approach like the low rate of crossover to open surgery (need for laparotomy). Also, its role is important as diagnostic method in cases of suspected acute abdomen since it provides us with a full image of the abdominal cavity.[1]

Video laparoscopy can reduce the number of white laparoscopies in patients with suspected acute appendicitis to the point of reducing unnecessary appendectomies from 10% down to 1%.[5,6]

The objective of this study is to determine the rate of complications of video laparoscopic appendectomy in patients treated with surgery at *Hospital Central del Instituto de Previsión Social*, Asunción, Paraguay from January 2021 through December 2021. Also, to determine sex-based distribution, the different types of complications found, the mean length of stay (LoS), and the patients' comorbidities.

MATERIAL AND METHODS

This is a descriptive, observational, retrospective, and cross-sectional study with non-probability sampling of consecutive cases. This was a review of the medical records of patients over 16 treated with video laparoscopy with clinically confirmed or suspected acute appendicitis collected at our center from January 1, 2021 through December 31, 2021.

Inclusion criteria were age > 16 years (no upper limit was established), both sexes, and patients appendectomized due to early suspicion or after intraoperative diagnosis of acute appendicitis. Exclusion criteria were age < 16 years, indication for appendectomy for other causes or incomplete medical records.

The variables used in the study were: age, sex, comorbidities, length of stay (LoS), type of appendicitis, and the complications described. To study variables, data were registered in an electronic Microsoft Office Excel 2016 spreadsheet and submitted for statistical analyses.

On the ethical considerations: both the privacy and confidentiality of the patients' identity on the medical records studied were observed at all times.

RESULTS

The sample included 62 patients treated with acute appendicitis through video laparoscopy at the aforementioned health center from January 2021 through December 2021. A total of 45.2% of the patients were men while 54.8% were women. The median age of trial participants was 34 years old (range, 16 to 90 years). The mean length of stay (LofS) was 2.2 days (range, 1 to 3 days).

Regarding the comorbidities of the study patients, arterial hypertension, diabetes mellitus, and asthma were predominant in 22.5%, 8%, and 8%. Other baseline conditions associated with these patients were hypothyroidism, atrial fibrillation, and obesity amounting to 3% of the study population.

The following were the rates of occurrence of the types of acute appendicitis ranked from highest to lowest: acute phlegmonous (50%), gangrenous (38.8%), and congestive appendicitis (11.2%) ***(table 1 and figure 1)***.

One of the key findings of the study was a 4.8% rate of postoperative complications associated with video laparoscopy appendectomy that corresponded to surgical site infections (3.2%), and hemoperitoneum due to metal clip displacement (1.6%).

Table 1: Classification of acute appendicitis based on intraoperative findings

Acute appendicitis	N	%
Congestive	7	11.2%
Phlegmonous	31	50%
Gangrenous	24	38.8%
Total	**100**	**100%**

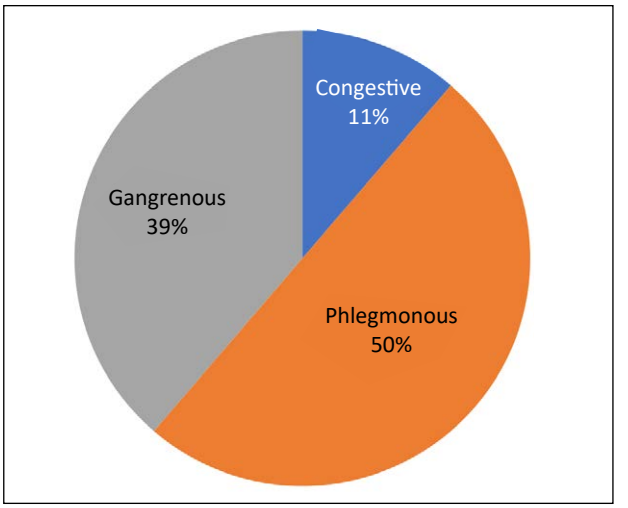

Figure 1. Types of appendicitis based on the rate of appearance found in the study. (N = 62)

DISCUSSION

In most studies conducted over the past 10 years like the series conducted by Rivera Díaz, both retrospective and prospective, results favorable to video laparoscopic appendicitis were seen since it reduces postoperative pain, trauma, and length of stay (LoS). Also, it provides full images of the abdominal cavity and better management of the tissues, reduces the rate of postoperative infections, and provides better cosmetic results.[7,8]

Regarding the studies conducted by Mosquera et al. and published in *Revista Colombiana de Cirugía* the rate of postoperative complications was 12% in cases treated with video laparoscopic appendectomies. In our study, a lower rate of complications of 4.8% was seen.[8]

In the study conducted by Mosquera et al. the rates of surgical site infections, hematomas, bowel obstructions, and residual abscesses were 1.1%, 4%, 2.2%, and 1.1%, respectively. However, these rates can be even higher. However, in our study, a 3.2% rate of surgical site infections was found plus a 1.6% rate of hemoperitoneum, although no other complications were found.[8]

We found publications like the ones conducted by Mosquera, Ortega, and Hellberg that attribute a low rate of infectious complication to video laparoscopic appendectomy compared to open surgery since the appendix is extracted inside the trocars and often does not have direct contact with the edges of the wound.[8,9,10]

Length of stay (LoS) in all groups was short with 6-hour stays in the study conducted by Mosquera due to the implementation of outpatient appendectomies in non-complicated cases. This study reported 1-, 2- or 3-day hospital stays based on the opera-

tive finding with mean lengths of stay (LoS) of 2.2 days.[8]

In several studies like in the Cochrane review there is a clear tendency that favors laparoscopic over conventional appendectomy, especially in young women in their reproductive years, in cases when diagnosis is not clear, and in obese patients.[11,12,13]

A controversial issue here has to do with the formation of intra-abdominal abscesses after laparoscopic approach, which has been described in some investigations. Some series report more complications associated with video laparoscopic appendectomies, above all, perforated appendicitis, reported in up to 24% of the cases compared to 4.2% of open appendectomies.[11,14,15] Mechanisms involved in its formation are described like the spread of the infectious process when performing pneumoperitoneum, the entire intraperitoneal procedure unlike what happens with open surgery.[16] However, in our series, these complications were not seen.

One of the study limitations is that pathology findings were not associated with the results. However, this was due to the fact that an attempt was made to find the rate of complications associated with the surgical procedure (video laparoscopy) not diagnosis (acute appendicitis or not).

CONCLUSION

A total of 54.8% of the 62 patients treated with video laparoscopy were women with a mean age of 34 years. The mean length of stay (LoS) was 2.2 days.

The most common comorbidities reported were arterial hypertension, and diabetes mellitus.

Based on the operative findings, the most common type of acute appendicitis found was phlegmonous (50%) followed by gangrenous (38.8%), and congestive (11.2%).

A 4.8% rate of postoperative complications was reported: surgical site infections (3.2%), and hemoperitoneum (1.6%)

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