

Laparoscopic management of benign esophageal pathologies at the First Chair of Surgical Clinic of the Hospital de Clínicas (Paraguay), 2014-2022

Manejo laparoscópico de patologías esofágicas benignas en la Primera Cátedra de Clínica Quirúrgica del Hospital de Clínicas (Paraguay), 2014-2022

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ABSTRACT

Introduction: Benign esophageal pathologies, such as achalasia, hiatal hernia, and gastroesophageal reflux disease, significantly affect patients' quality of life and usually present with dysphagia, retrosternal pain, and reflux. **Objective:** To describe the laparoscopic management of benign esophageal pathologies at the First Chair of Surgical Clinic of the Hospital de Clínicas, Paraguay, from January 2014 to December 2022. **Materials and methods:** Observational, descriptive, cross-sectional, and retrospective study. A non-probabilistic consecutive case sampling was performed through review of medical records of patients older than 18 years, of both sexes, diagnosed with benign esophageal pathology and treated laparoscopically during the study period. **Results:** Twenty patients were included. Females predominated (55%), and the most frequent age group was 50 to 69 years (60%). Dysphagia was the most common symptom (60%). Achalasia was the main diagnosis (55%), followed by hiatal hernia (30%) and GERD associated with hiatal hernia (15%). The most frequently used surgical techniques were Nissen fundoplication (45%) and Heller myotomy associated with fundoplication (55%). Operative time was predominantly 3 to 4 hours (80%), hospital stay was most commonly 1 to 6 days (90%), and conversion to open surgery occurred in 10% of cases. **Conclusion:** In this series, laparoscopic management of benign esophageal pathologies was mainly represented by achalasia and hiatal hernia, with Nissen fundoplication and Heller myotomy associated with fundoplication being the most commonly performed procedures. Conversion to open surgery was uncommon.

Keywords: Achalasia; Hiatal hernia; Gastroesophageal reflux; Dysphagia; Laparoscopy.

RESUMEN

Introducción: Las patologías esofágicas benignas, como la acalasia, la hernia hiatal y la enfermedad por reflujo gastroesofágico, afectan de forma importante la calidad de vida de los pacientes y suelen manifestarse con disfagia, dolor retroesternal y reflujo. En este contexto, el abordaje laparoscópico se ha consolidado como una alternativa quirúrgica mínimamente invasiva para su tratamiento. **Objetivo:** Describir el manejo laparoscópico de las patologías esofágicas benignas en la Primera Cátedra de Clínica Quirúrgica del Hospital de Clínicas del Paraguay durante el período comprendido entre enero de 2014 y

diciembre de 2022. **Material y métodos:** Estudio observacional, descriptivo, transversal y retrospectivo. Se realizó un muestreo no probabilístico de casos consecutivos mediante revisión de historias clínicas de pacientes mayores de 18 años, de ambos sexos, con diagnóstico de patología esofágica benigna sometidos a tratamiento laparoscópico en el periodo de estudio. **Resultados:** Se incluyeron 20 pacientes. Predominó el sexo femenino (55%) y el grupo etario de 50 a 69 años (60%). La disfagia fue el síntoma más frecuente (60%). La acalasia constituyó el diagnóstico principal (55%), seguida de hernia hiatal (30%) y ERGE asociada a hernia hiatal (15%). Las técnicas quirúrgicas más empleadas fueron la funduplicatura de Nissen (45%) y la miotomía de Heller asociada a funduplicatura (55%). El tiempo quirúrgico predominante fue de 3 a 4 horas (80%), la estancia hospitalaria más frecuente fue de 1 a 6 días (90%) y la conversión a cirugía abierta ocurrió en el 10% de los casos. **Conclusión:** En esta serie, el manejo laparoscópico de las patologías esofágicas benignas se caracterizó por el predominio de acalasia y hernia hiatal, con mayor utilización de funduplicatura de Nissen y miotomía de Heller asociada a funduplicatura. La conversión a cirugía abierta fue infrecuente.

Palabras claves: Acalasia; Hernia hiatal; Reflujo gastroesofágico; Disfagia; Laparoscopia.

INTRODUCTION

Benign esophageal pathologies, among them achalasia, hiatal hernia, and gastroesophageal reflux disease, are frequent entities in clinical practice and can cause significant deterioration in patients' quality of life due to symptoms such as dysphagia, retrosternal pain, regurgitation, and pyrosis.⁽¹⁻³⁾

The development of minimally invasive surgery has favored the consolidation of the laparoscopic approach as a widely used therapeutic alternative in the surgical treatment of these pathologies, as it is associated with less surgical trauma, adequate anatomical visualization, and faster postoperative recovery compared to open surgery in selected patients.^(1,6,7)

At the Hospital de Clínicas of Paraguay, the First Chair of Surgical Clinic has incorporated this approach in the management of patients with benign esophageal pathology. However, national reports on the clinical characteristics of patients, the diagnostic methods employed, and the surgical

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techniques used remain limited.

Therefore, the present study was designed with the objective of describing the laparoscopic management of benign esophageal pathologies in the First Chair of Surgical Clinic of the Hospital de Clínicas de Paraguay during the period between January 2014 and December 2022.

Sociodemographic characteristics, clinical history, diagnostic methods, surgical techniques employed, and the need for conversion to open surgery were also analyzed.

OBJETIVES

General Objective:

- To describe the laparoscopic management of benign esophageal pathologies in the First Chair of Surgical Clinic of the Hospital de Clínicas de Paraguay during the period January 2014 to December 2022.

Secondary Objectives:

- To describe the sociodemographic characteristics of patients.
- To identify the main clinical history of surgical interest, such as body mass index, comorbidities, previous surgeries, symptoms, and diagnostic methods used.
- To describe the characteristics of the laparoscopic approach, including the surgical technique employed, use of drainage, surgical time, and hospital stay.
- To determine the frequency of conversion from laparoscopy to open surgery in this series.

MATERIALS AND METHODS

Observational, descriptive, cross sectional, and retrospective study. A non probabilistic sampling of consecutive cases was carried out through the review of medical records of patients treated at the First Chair of Surgical Clinic of the Hospital de Clínicas in San Lorenzo, Paraguay, between January 2014 and December 2022, with a diagnosis of benign esophageal pathology and who underwent laparoscopic treatment.

Complete records of patients of both sexes, over 18 years of age, were included. The variables studied were:

- Age
- Sex
- Place of origin
- Body mass index (BMI)
- Comorbidities
- Types of comorbidities
- Previous surgeries
- Types of previous surgeries
- Clinical presentation
- Auxiliary diagnostic methods
- Diagnosis
- Surgical technique
- Surgical time
- Length of hospital stay
- Conversion from laparoscopy to open surgery

RESULTS

Twenty patients undergoing laparoscopic management of benign esophageal pathologies were included in the First Chair of Surgical Clinic of the Hospital de Clínicas during the period 2014–2022. A predominance of the female sex (55%) and the age group of 50 to 69 years (60%) was observed. Most of the patients came from the Central Department (70%).

Table 1. Sociodemographic characteristics of patients undergoing laparoscopic management of benign esophageal pathologies in the First Chair of Surgical Clinic of the Hospital de Clínicas, period 2014–2022 (n=20).

Variable		Number of cases	Percentage
Sex	Female	11	55%
	Male	9	45%
Age	18-28 years-old	2	10%
	29-39 years-old	4	20%
	40-49 years-old	1	5%
	50-59 years-old	6	30%
	60-69 years-old	6	30%
	70-79 years-old	1	5%
Place of origin	Caaguazú	1	5%
	Central	14	70%
	Cordillera	1	5%
	Itapúa	2	10%
	Paraguari	1	5%
	San Pedro	1	5%

Source: Author's archive

Regarding clinical history, 45% presented with overweight and 90% had at least one comorbidity. Arterial hypertension was the most frequent comorbidity, followed by obesity and type 2 diabetes mellitus. Thirty percent had a history of previous surgery.

Table 2. Clinical history characteristics of patients undergoing laparoscopic management of benign esophageal pathologies in the First Chair of Surgical Clinic of the Hospital de Clínicas, period 2014–2022 (n=20).

Variable		Number of cases	Percentage
BMI	18,5–24,9	5	25%
	25.0–29.9	9	45%
	30.0–34.9	4	20%
	35,0–39,9	2	10%
Comorbidities	No	2	10%
	Yes	18	90%
Types of comorbidities	T2DM	6	23%
	HBP	12	46%
	Obesity	8	31%
Previous surgeries	No	14	70%
	Yes	6	30%
Types of previous surgeries	Open appendectomy	2	10%
	Open cholecystectomy	2	10%
	Video-laparoscopic cholecystectomy	1	5%
	Inguinal hernioplasty	1	5%
	None	14	70%

Source: Author's archive. HBP: high blood pressure. T2DM: type 2 diabetes mellitus. BMI: body mass index.

Dysphagia was the most frequent presenting symptom (60%), followed by retrosternal pain (40%). Regarding diagnostic studies, upper digestive endoscopy, alone or combined with esophagogram, was the most commonly used method. Achalasia was the predominant diagnosis (55%), followed by hiatal hernia (30%) and GERD associated with hiatal hernia (15%).

Table 3. Clinical characteristics and auxiliary diagnostic methods of patients undergoing laparoscopic management of benign esophageal pathologies in the First Chair of Surgical Clinic of the Hospital de Clínicas, period 2014–2022 (n=20).

Variable		Number of cases	Percentage
Symptoms	Dysphagia	12	60%
	Retrosternal pain	8	40%
Diagnostic studies	EGD	9	45%
	Esophagogram	1	5%
	EGD and Esophagogram	10	50%
Chagas test	Negative	17	85%
	Positive	3	15%
Diagnosis	Achalasia	11	55%
	Hiatal hernia	6	30%
	GERD with hiatal hernia	3	15%

Source: Author's archive. EGD: esophagogastroduodenoscopy. GERD: gastroesophageal reflux disease.

Regarding surgical treatment, the most frequently employed techniques were Nissen fundoplication (45%) and Heller myotomy associated with fundoplication, performed in cases of achalasia (55%). All patients received postoperative drainage. Surgical time was between 3 and 4 hours in 80% of cases, and the most common hospital stay was 1 to 6 days (90%). Conversion to open surgery occurred in 2 patients (10%), attributed to difficulty during dissection; in the remaining 90% the procedure was completed laparoscopically.

Table 4. Surgical characteristics and conversion from laparoscopy to open surgery in patients undergoing laparoscopic management of benign esophageal pathologies in the First Chair of Surgical Clinic of the Hospital de Clínicas, period 2014–2022 (n=20).

Variable	Technique/detail		Number of cases	Percentage
Surgical technique	Achalasia	Heller + Dor	8	40%
	Achalasia	Heller + Nissen	3	15%
	GERD / hiatal hernia	Nissen	9	45%
Drainage	Si		20	100%
Surgical time	2 hours		1	5%
	3 hours		10	50%
	4 hours		6	30%
	5 hours		3	15%
Hospital stay	1 to 3 days		9	45%
	10 to 12 days		1	5%
	4 to 6 days		9	45%
	7 to 9 days		1	5%
Laparoscopy to open surgery conversion	Yes		2	10%
	No		18	90%

Source: Author's archive. GERD: gastroesophageal reflux disease.

DISCUSSION

The results of this series allow the institutional experience in laparoscopic management of benign esophageal pathologies at a national referral center to be characterized. Given the

descriptive design and the small sample size, the findings should be interpreted mainly as the clinical surgical profile of the cases treated, rather than as a generalizable epidemiological description.

In this series, female sex and the age group of 50 to 69 years predominated. Likewise, most patients came from the Central Department, a fact that likely reflects the geographic proximity to the hospital and the access to specialized surgical services, rather than a population distribution inherent to the disease.

From the clinical perspective, dysphagia was the predominant symptom, consistent with the high frequency of achalasia observed in the sample. The literature describes dysphagia as a cardinal manifestation of esophageal motility disorders and one of the main reasons for consultation in these entities ^(2,5). Regarding the diagnostic approach, the use of upper digestive endoscopy, alone or combined with esophagogram, is coherent with current recommendations for the evaluation of patients with dysphagia and suspected structural or functional esophageal pathology ^(2,5,6).

Achalasia was the most frequent diagnosis, followed by hiatal hernia and GERD associated with hiatal hernia. Consequently, the most commonly used surgical techniques were Heller myotomy associated with fundoplication and Nissen fundoplication. This finding is consistent with the established role of these procedures in the surgical management of such pathologies, particularly in patients selected for laparoscopic resolution ^(1,7).

The predominant surgical time of 3 to 4 hours and the most frequent hospital stay of 1 to 6 days reflect an acceptable postoperative course within this series. However, given the descriptive nature of the study, these data should be understood as outcomes of local experience rather than comparative measures of superiority over other approaches.

Conversion to open surgery was infrequent, occurring in 10% of cases, and was attributed to difficulty during dissection. This finding supports the feasibility of the laparoscopic approach in the institutional context evaluated, although its interpretation should be made with caution due to the small number of patients included.

Among the limitations of the study are its retrospective design, the small sample size, and the fact that it was conducted in a single center, aspects that restrict the generalization of the results. In addition, functional outcomes and long term follow up were not evaluated, making it impossible to draw conclusions regarding late symptom control, recurrence, or quality of life.

For future research, it would be advisable to design prospective studies with a larger number of patients and standardized postoperative follow up, in order to strengthen the local evidence.

CONCLUSION

In this series, patients undergoing laparoscopic management of benign esophageal pathologies were predominantly women, aged 50 to 69 years, and mainly from the Central Department.

From the clinical standpoint, dysphagia, overweight, and the presence of comorbidities were predominant. Upper digestive endoscopy, alone or combined with esophagogram, was the most frequently used diagnostic method, and achalasia was the most common diagnosis.

From the surgical standpoint, the most frequently employed techniques were Nissen fundoplication and Heller myotomy associated with fundoplication. Surgical times were usually between 3 and 4 hours, and hospital stays most often ranged from 1 to 6 days. Conversion to open surgery was infrequent.

CONFLICT OF INTERESTS

None.

AUTHOR'S CONTRIBUTION

All authors participated in the information search, data

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