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Experience in the surgical treatment of achalasia in the National Hospital of Itauguá in the years from 2020 to 2024

Experiencia en el tratamiento quirúrgico de la acalasia en Hospital Nacional de Itauguá en los años de 2020 a 2024

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ABSTRACT

Introduction: Achalasia is a rare condition characterized by the absence of peristalsis and lack of relaxation of the lower esophageal sphincter. Symptoms vary according to severity and can be classified using Eckardt's clinical classification. Achalasia is caused by degeneration of the enteric neurons within the esophageal wall and tends to cause dysphagia. The diagnosis is made through an upper digestive endoscopy, barium esophagram and high-resolution esophageal manometry, the latter being the choice for diagnosis. **Objectives:** Determine the clinical, epidemiological characteristics and the surgical treatment received in patients diagnosed with Achalasia who attended the National Hospital of Itauguá during the period 2020 to 2024. **Materials and Methods:** Descriptive observational cross-sectional research with retrospective, non-probabilistic sampling for convenience. It was carried out at the facilities of the National Hospital of Itauguá in Paraguay. The variables were classified as sociodemographic and clinical-surgical. The results were presented in frequency tables calculated in Microsoft Excel. The basic principles of bioethics were respected. **Results:** 50 post-operative Achalasia patients in the general surgery service between 2020 and 2024 were included in the study. With an average age of 50 years, 52 % were male and 48 % were male. female sex. Among the main reason for consultation, 62 % of patients had dysphagia to solid foods and in 75 % of cases weight loss was one of the accompanying symptoms. The most useful auxiliary diagnostic method for the diagnosis of achalasia among the patients studied corresponds to upper digestive endoscopy. Among the surgical treatment that was most used corresponds to laparoscopic surgery using the Heller technique plus Dor fundoplication in 90 % of the patients studied. Of the patients studied, 62 % had achalasia type 2; 20 % correspond to patients diagnosed with achalasia type 1 and 18 % with achalasia type 3 according to the Chicago classification. **Conclusion**: Although achalasia corresponds to the most common and well-known functional disorder of the esophagus, its presentation is relatively rare. But it is the functional disorder that most frequently requires surgical treatment. Decision making, multidisciplinary management and early diagnosis are the fundamental pillars for the treatment of Achalasia.

Keywords: Achalasia; Esophageal pathology; dysphagia.

RESUMEN

Introducción: La acalasia es una condición poco común caracterizada por la ausencia de peristaltismo y falta de relajación del esfínter esofágico inferior. Los síntomas varían según la gravedad y pueden ser clasificados utilizando la clasificación clínica de Eckardt. La acalasia es causada por la degeneración del sistema entérico neuronas dentro de la pared esofágica y tiende a provocar disfagia. El diagnóstico es realizado a través de una endoscopia digestiva alta, esofagograma con bario y la manometría esofágica de alta resolución, siendo esta última de elección para el diagnóstico. **Objetivos:** Determinar las características clínicas, epidemiológicas y el tratamiento quirúrgico recibido en los pacientes con el diagnostico de Acalasia que acudieron al Hospital nacional de Itauguá durante el periodo 2020 al 2024. **Materiales y Métodos:** Investigación observacional descriptiva de corte trasversal de muestreo retrospectivo, no probabilístico por conveniencia. Se realizó en el Hospital Nacional de Itauguá de Paraguay mediante el análisis de fichas clínicas. Las variables se clasificaron en socio demográficas y clínicos - quirúrgicas. Se presentaron los resultados en tablas de frecuencia calculados en Microsoft Excel. Se respetaron los principios básicos de la bioética. **Resultados:** se incluyeron en el estudio 50 pacientes post operados de Acalasia en el servicio de cirugía general entre los años 2020 al 2024. Con una media de edad de 50 años y en un 52 % corresponde al sexo masculino y el en un 48 % al sexo femenino. El el 62 % de los pacientes presentó disfagia a alimentos sólidos como principal motivo de consulta y en un 75 % de los casos la pérdida ponderal de peso fue un síntoma acompañante. El método auxiliar de diagnóstico de mayor utilidad para el diagnóstico de la acalasia entre los pacientes estudiados corresponde a la endoscopia digestiva alta. El tratamiento quirúrgico principalmente elegido corresponde a la cirugía laparoscópica por técnica de Heller más funduplicatura de Dor en un 90 % de los pacientes estudiados. De los pacientes estudiados el 62 % presentaba acalasia tipo 2; el 20 % corresponde a pacientes con el diagnostico de acalasia tipo 1 y el 18 % a acalasia tipo 3 según la clasificación de Chicago. **Conclusión:** Aunque la acalasia corresponde al desorden funcional más común y conocido del esófago, su presentación es relativamente rara. Se trata del trastorno funcional que con mayor frecuencia requiere tratamiento quirúrgico. La toma de decisiones, el manejo multidisciplinario y el diagnóstico precoz son los pilares fundamentales para el tratamiento de la Acalasia.

Palabras claves: Acalasia; Patología esofágica; disfagia.

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INTRODUCTION

Definition of the word achalasia dates to ancient Greece, coined by the English physician; Edwin Cooper in 1913 and it means; lack of relaxation. Achalasia's clinical characteristics are mainly defined by difficulty in ingesting solid food and progressively liquids, accompanied by gastroesophageal reflux episodes, coughing, weight loss, and bronchoaspiration [1]. The main characteristic regarding achalasia may correspond to the absence of esophageal peristalsis and lack of relaxation of the lower esophageal sphincter. These anomalies correspond to the loss of myenteric neurons, which coordinate esophageal peristalsis and lower esophageal sphincter relaxation [2].

Achalasia has a low incidence (1: 100,000) worldwide, affecting teenagers to elder adults, without any gender predisposition. Its causes aren't clear, it invokes eosinophilic myenteric ganglionitis, secondary to an unchained aberrant immune response by viral infection, in some genetically susceptible individuals. It manifests clinically through severe and progressive dysphagia, regurgitation, aspiration, thorax pain, and weight loss. Conventional or high-resolution esophageal manometry is the gold standard for diagnosing [3].

Common characteristics of the entity include normotonic or hypertonic lower esophageal sphincter, with incomplete relaxation upon swallowing, and absence of esophageal peristalsis. High-resolution esophageal manometry (HRM) uses catheters with 36 stationary sensors (solid or perfusion) situated 1 cm from each other and turns registered pressure data into topographic piloting. The data can be modified through an interpolation, which generates a topography of high-resolution esophageal pressures, more sensitive than conventional ones, which provides more detailed information and is easier to perform than a conventional manometry. This novel technique resulted in the emergence of Chicago's movement disorders' list, whose 2014 update ratified the three achalasia subtypes. Thus, we have Type 1 (classic achalasia or with minimal esophageal pressurization), Type 2 (achalasia with esophageal compression), and Type 3 (achalasia with spasms) [4].

Achalasia treatment is divided into pharmacologic, endoscopic, and surgical. The latter is the most accepted, due to the technique's development through laparoscopic surgery, in which Heller myotomy with partial fundoplication is the most accepted variant [5]. Lower esophageal sphincter myotomy can also be performed through endoscopic way, a technique known as peroral endoscopic myotomy (POEM), which is still in development [6].

OBJECTIVE

MAIN OBJECTIVE

- Determine clinical and epidemiological characteristics and surgical treatment performed on patients with an achalasia diagnosis, who reported to the Itauguá National Hospital from 2020 to 2024.

SPECIFIC OBJETCTIVES

- Establish gender and age of patients with an achalasia diagnosis.
- Gauge the most recurring geographical location of achalasia diagnosis.
- Analize clinical manifestations and diagnostic studies that were used to perform the achalasia diagnosis.
- Determine the surgical treatment performed in patients with an achalasia diagnosis and if they presented relapsing after surgical intervention.
- Identify postoperative complications and mortality rate after surgical intervention.

METHODOLOGY

Design

- Retrospective longitudinal observational descriptive study.

Study period

- From January 2020 to December 2024.

Population

- Patients who reported to the Itauguá National Hospital with an achalasia diagnosis from 2020 to 2024.

Timeframe

- General Surgery Services of the Itauguá National Hospital from 2020 to 2024.

Inclusion criteria

- Patients with complete files within the Itauguá National Hospital archive from 2020 to 2024.

Data collection

- Performed by reviewing files from patients with an achalasia diagnosis from 2020 to 2024.

Data collection tools

- A technical file was developed for data collection, designed with the variables of interest, to collect the required data from clinical files of the patients included in the study.

Sample size

- The sample consisted of all patients who fulfilled the inclusion and exclusion criteria. A total of 50 patients were selected for the study within the years 2020 through 2024.

Statistical aspects

- Data was inputted into the Excel 2013 program for statistical analysis. Data was collected following a stablished form and revised by the researcher to avoid error during data upload.

RESULTS

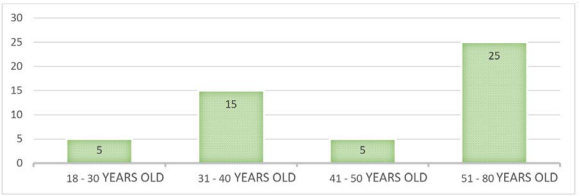
Achalasia has a low incidence (1: 100,000) worldwide, affecting teenagers to elder adults, without a gender predisposition. The difference between the gender of studied achalasia-diagnosed patients who reported to the Itauguá National Hospital's services from 2020 to 2024 corresponds to 52% males and 48% females. *(Table1)*.

TABLE 1: Distribution according to gender of achalasia-diagnosed patients who reported to the Itauguá National Hospital's services from 2020 to 2024:

GENDER	2020	2021	2022	2023	2024	Total
Male	4	3	8	6	5	26 (52%)
Female	3	5	7	6	3	24 (48%)

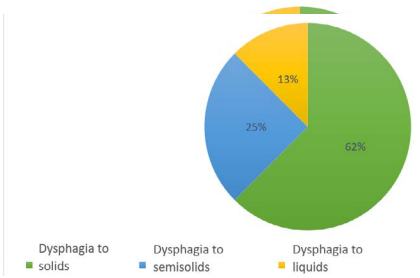
Source: *Itauguá National Hospital's archive.*

Regarding the age range, during the study, 50% of the patients were between 51 to 80 years old; 30% between 31 to 40 years old, 10% between 41 to 50 years old and the remaining 10% corresponds to the ages between 18 and 30 years old. *(Graph 1)*.



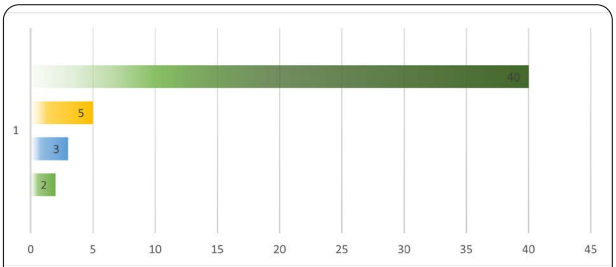
Graph 1: Age distribution of achalasia-diagnosed patients who reported to the Itauguá National Hospital's services from 2020 to 2024.
Source: Itauguá National Hospital's archive.

The main reason for consultation was dysphagia, with 62% of patients presenting difficulty to ingest solid food, 25% with dysphagia to semisolid food and 13% with dysphagia to liquids *(Graph 2)*.



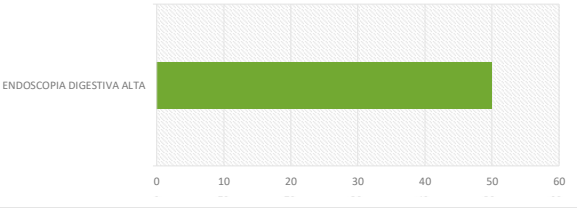
Graph 2: Reason of consultation for patients with an achalasia diagnosis who reported to the Itauguá National Hospital's services from 2020 to 2024.
Source: Itauguá National Hospital's archive.

Amongst the main symptoms presented by achalasia-diagnosed patients who reported to the Itauguá National Hospital's services from 2020 to 2024, 75% presented weight loss, 12% presented retrosternal pain, 8% pyrosis, and 5% gastroesophageal reflux *(Graph 3)*.



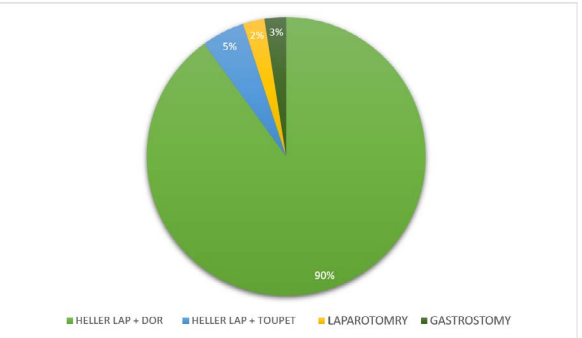
Graph 3: Symptoms presented by achalasia-diagnosed patients who reported to the Itauguá National Hospital's services from 2020 to 2024.
Source: Itauguá National Hospital's archive.

The most used auxiliary method of diagnosis for achalasia on studied patients was the upper digestive endoscopy, with a 100% frequency *(Graph 4)*.



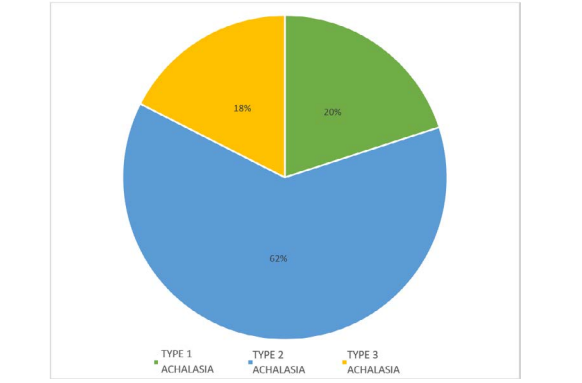
Graph 4: Complementary method of diagnosis performed for the achalasia diagnosis upon reporting to the Itauguá National Hospital's services from 2020 to 2024.
Source: Itauguá National Hospital's archive.

The most used surgical treatment was laparoscopic surgery through the Heller technique with Dor fundoplication performed on 90% of the studied patients. On 5% the Heller laparoscopic technique with Toupet fundoplication was performed, while 3% required a gastrostomy and 2% an exploratory laparotomy *(Graph 5)*.



Graph 5: Performed surgery on patients with an achalasia diagnosis who reported to the Itauguá National Hospital's services from 2020 to 2024.
Source: Itauguá National Hospital's archive.

Amongst the studied patients, 62% presented Type 2 achalasia, 20% was diagnosed with Type 1 achalasia and 18% with Type 3 achalasia, according to Chicago's classification *(Graph 6)*.



Graph 6: Frequency of cases with an achalasia diagnosis who reported to the Itauguá National Hospital's services from 2020 to 2024, according to Chicago's classification
Source: Itauguá National Hospital's archive.

DISCUSSION

Achalasia is a pathology with worldwide prevalence and a yearly incidence of 0.5 to 1 case for every 100 000 habitants, reported in the United States, with a prevalence of 8 cases for every 100 000 habitants per year [1].

Regarding gender, the most prevalence observed in this study was in male patients (52%), while 48% corresponded to female patients. However, these findings contrast with studies from Vaezi and collaborators, who concluded that there is no gender predilection for this disease [2].

As for age, the most incidence registered in our study was in the 51 to 80 years old group. Nevertheless, according to European achalasia guides, the most incidence is found among 20- and 50-year-old patients [3].

The main consultation reason in 62% of patients studied was dysphagia to solid food as a starting symptom, while the most common accompanying symptom was weight loss, present in 75% of cases. Most commonly, patients report progressive dysphagia for solid as well as liquids, which can aggravate due to stress situations and with the ingest of cold liquids. Weight loss is variable, and its magnitude correlates with the disease's severity.

In this study, 83% of patients didn't present associated base pathologies. These findings match the studies performed by Pesce and Pagliaro, who identified dysphagia to solid foods as the main symptom and weight loss as the most frequent accompanying symptom, matching with our obtained results [1].

At the time of the achalasia diagnosis, the auxiliary method performed in 100% of cases was the upper digestive endoscopy. However, this finding differs from the studies performed by Willanson and collaborators, who identified esophageal manometry as the main method of diagnosis [5].

The most used surgical treatment on the patients studied was laparoscopic surgery through the Heller cardio-myotomy technique with Dor fundoplication, performed in 90% of cases. In 5% of patients, the Heller cardio-myotomy laparoscopic technique along with fundoplication and creation of an anti-reflux valve through Toupet technique was performed. Furthermore, 3% required a gastrostomy and 2% exploration laparotomy. These findings match the studies performed by Vaezi and collaborators, who also identified cardio-myotomy followed by the creation of an anti-reflux valve as the most used surgical technique [7].

The Chicago classification categorizes achalasia according to its manometric characteristics. Common manometric findings include a hypertense lower esophageal sphincter, incomplete or absent relaxation of said sphincter, aperistalsis of the esophageal body and high basal pressure of the lower esophageal sphincter. In this investigation, 62% of patients presented Type 2 achalasia, 20% were diagnosed with Type 1 achalasia, and 18% with Type 3 achalasia. According to Chicago's classification, some authors have suggested that Type 1 achalasia answers better to treatment by Heller myotomy, with recovery rates from 56% to 85%. Type 2 achalasia, being the most frequent one, presents higher recovery rates (85% to 95%) with any treatment. On the other hand, Type 3 achalasia, the most uncommon, shows lower recovery rates, ranging from 29% to 69%.

Achalasia treatment focuses in reducing the pressure of the lower esophageal sphincter, which can be achieved through pharmacological, endoscopic or surgical options.

CONCLUSION

It was observed in this study, that in the last five years the achalasia prevalence was slightly higher in males, although still without a significative difference regarding gender. The most case incidence was present in the fifth decade of life, with an average age of 55 ± 10 years old, without relation to other diseases or base pathologies in the patients studied. The average evolutive time of dysphagia was approximately two years, accompanied by weight loss, pyrosis and gastroesophageal reflux.

The most used auxiliar method for diagnosis was the upper digestive endoscopy, while high-resolution esophageal manometry is considered the confirmative method of choice. However, its use is less frequent due to its high cost and limited availability of the service in our means.

Most patients were treated through Heller cardio-myotomy laparoscopy with the creation of an anti-reflux valve by Dor technique. Although achalasia is the most well-known esophageal function disorder, its presentation is still relatively rare. Nevertheless, it's the functional affection which most frequently requires surgical treatment.

The proper choice-making, multidisciplinary focus and early diagnosis constitutes the fundamental pillars for the adequate handling and treatment of achalasia.

AUTHOR'S CONTRIBUTION

Dr. Ramon Rafael Escobar Pereira. Manuscript writer.
Dr. Arturo Antonio Adorno Romero. Research advisor.

ETHICAL CONSIDERATIONS

This study was performed according to generally accepted scientific principles, backed by profound knowledge of scientific bibliography and other pertinent sources of information.

Fundamental ethical principles were respected, including dignity, integrity, privacy, and confidentiality of the participants' data, guaranteeing full disclosure of the study subjects' names.

Likewise, the non-malice principle was upheld, assuring that at no stage of the study there is damage or prejudice caused to the physical or moral integrity of the participants during data collection.

Regarding the principle of beneficence, data obtained in this investigation will be delivered to the institution's authorities, with the goal of contributing to the development and success of the program in the future, benefiting both current patients and future cases. Respect for health and individual rights of all participants was also promoted.

There were no risks nor adverse effects identified that could generate negative or unfavorable conditions to those who formed part of this study.

CONFLICT OF INTERESTS

There is no conflict of interests.

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