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Ergonomics: an imperative need for surgeons

La ergonomía: una necesidad imperiosa para los cirujanos

* *Helmut Alfredo Segovia Lohse*

*Universidad Nacional de Asunción. Facultad de Ciencias Médicas. Paraguay
Ministerio de Salud Pública y Bienestar Social. Hospital General de Lambaré. Paraguay*

From the beginnings of surgery, it was the nurses, kinesiologists, and the surgeons themselves whom indicated the patients about the best positions and movements that they could and should perform after a surgery. Generally, the objectives consists on mobilizing and strengthening joints and muscles, with the goal of preventing circulatory and respiratory complications, lessening the pain, and correcting the body's position, as well as the habituation and correct use of drainages, implants or stomas for example.⁽¹⁾

It was Hippocrates who, with the theory of the four humors of the 5th and 4th centuries BC, started to consider physical injuries and diseases as natural events that can be treated, and not as irreparable divine punishments.⁽²⁾ And it was on that very same ancient Greece that philosophers such as Hippocrates and Aristotle already spoke of the importance of adapting the work environment of the people (similar to nowadays ergonomics).⁽²⁾

During the Renaissance (15th and 16th centuries) an enormous leap happened in the study of human anatomy and systematic comprehension of physical activities' and exercise's medical role, based on two pillars, anatomical and kinetic, and allowed medical rehabilitation to being becoming a definitive discipline in the second half of the 15th century.⁽²⁾ Despite this, the first explicit use of the word rehabilitation in a sanitary context would be in 1940.⁽³⁾

Another remarkable leap were the multimodal postoperative rehabilitation programs (fast-track surgery) and the Enhance Recovery After Surgery (ERAS). In

2001, the ERAS® Study Group is formed, later called ERAS® Society, whose objective is the development of perioperative attention and enhancement of the patient's recovery through investigation, education, auditory and implementation of the evidence-based practices.⁽⁴⁾

Everything listed up until this point was focused on the patient's wellbeing. And what about the surgeon's wellbeing? Surgical specialty is physically demanding and exhausting: it required surgeons to work many hours and in non-ergonomic positions for extended periods of time.⁽⁵⁾

These non-ergonomic positions carry work-related musculoskeletal disorders (WMSDs), with the currently preferred and defined term by the Disease Control Center being "musculoskeletal disorders (injuries or disorders of the muscles, nerves, tendons, joints, cartilages, and spinal discs) which are significantly contributed to be caused by the work environment and performance; and/or the condition worsens or persists longer due to the work conditions". They're represented by tendonitis, tenosynovitis, carpal tunnel syndrome, myalgias, cervicgia, low back pain as the most frequent ones, and always with pain and swelling being the predominant symptom.⁽⁵⁻⁶⁾

These WMSDs cause surgeons to more frequently take sickness leaves, professional performance's limitations and difficulties, even a likely early retirement of the professional activity. To avoid these complications, decadent factors must be recognized and modified to minimize pain, and thus promoting professional wellbeing and longevity.⁽⁷⁾

Etymologically, the word ergonomic comes from the

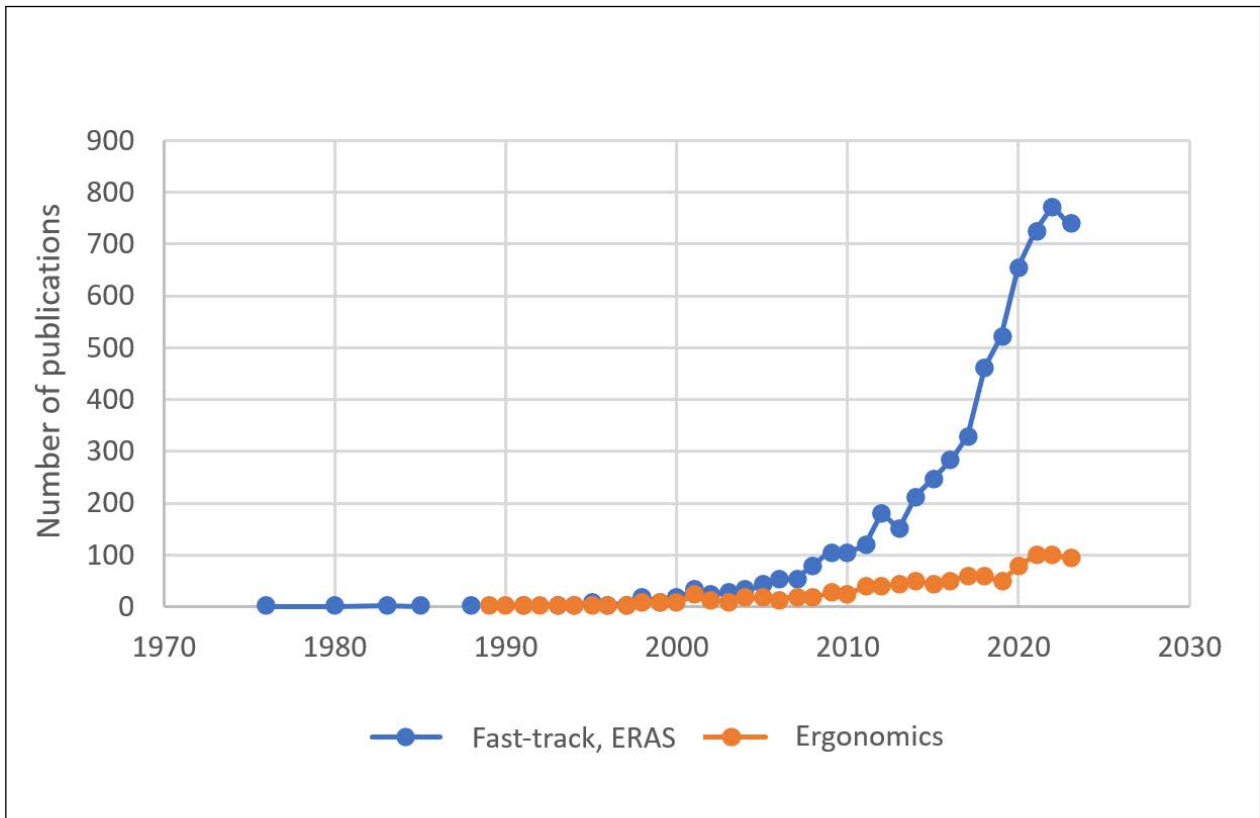
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Corresponding author: Dr. Segovia Lohse HA - Email: hhaassll@gmail.com

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Graphic 1. Number of publications about Fast-track and ERAS® compared to surgical ergonomics.

Source: PubMed. <https://pubmed.ncbi.nlm.nih.gov>
 Search done: *ergonomic[Title/Abstract] AND surgery[Title/Abstract]*
fast-track[Title/Abstract] OR ERAS[Title/Abstract] AND surgery[Title/Abstract]

Greek “ergon” which signifies work and from “nomos” law, rule, and has been popularized in the 40’s.⁽⁸⁾ Ergonomics is a science that studies human being’s interactions with other elements of a system with the objective of optimizing efficiency and wellbeing of the human being. This could be one of the broadest definitions of the word.⁽⁸⁾

Within the surgical sphere it would be the relationship between the surgeon (or other members of the team) and the instruments, furniture, equipment, materials and even the environment where they perform.

It is worth noting that the importance given to the patient’s recovery and wellbeing in the postoperative (with fast-track protocols and ERAS® reaching 700 yearly publications in the past years) surpasses ten times the number of published articles about surgical ergonomics, which has a much slower and less accentuated ascendance curve (*see Graphic 1*).

With this it is interpreted that surgeons are more focused on the patient’s wellbeing than their own. It’s worth mentioning that in the last two decades there has been a proved increase on the importance of the surgeon’s wellbeing, although almost always centered solely around burnout.⁽⁵⁾

The American College of Surgeons, giving importance

to surgical ergonomics, formed the ergonomics committee, which carried out the first Hands On Surgical Ergonomics Clinic during their clinical congress in 2022, with simulation stations for open, laparoscopic and robotic surgery. In these stations they taught about the correct positions which a surgeon must maintain during surgeries.

Next are a list of important aspects to improve posture and ergonomics during surgery:⁽⁹⁻¹¹⁾

1. Exercises: stabilization and stretching exercises must be performed before, during, and after surgeries. Between the listed examples are active movement range exercises, neck, shoulders, hands, and wrists stretching exercises, etc. Static body postures must be avoided.
2. Operating table: the table’s height must match with the surgeon’s elbows for open surgery, and lower for laparoscopic surgery, with the chance of ample movements. The height must allow an elbow positioning of 90-120° angles.
3. Surgical instruments: it’s recommended to use laparoscopic instruments with maximum palpate support, instead of putting the thumb through the rings. Avoid excessive pressure on the instruments

and locate the trocars in relation to the needed angle.

4. Monitor: must be in front of the surgeon, with the upper edge of the monitor at the surgeon's eye level. More than one might be needed for the surgical team's comfort.
5. Pedals: contact with them must not be lost.
6. Stress: use checking lists to avoid unforeseen situations. Perform brief breaks during the

operation for the team to have a physical and mental refreshment.

7. Lenses: adequate use of them in the required surgical expertise.

Societies and the surgeons themselves must take conscience of the importance of surgical ergonomics and perform training activities to prevent injuries that can affected the professional surgical performance.

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Transient hypocalcemia after total thyroidectomy on general surgery services. Hospital Nacional de Itauguá. Period: 2016 – 2022

Hipocalcemia transitoria en pacientes operados de tiroidectomía total en el servicio de cirugía general. Hospital Nacional de Itauguá. Periodo: 2016 – 2022

¹ Miguel Ángel Aranda Wildberger*

¹ Robert Ayala*

² Marcelo Damián Villalba-Aquino**

1. Ministerio de Salud Pública y Bienestar Social, Centro Médico Nacional, Hospital Nacional, Departamento de Cirugía. Itauguá, Paraguay.

2. Ministerio de Salud Pública y Bienestar Social, Centro Médico Nacional, Hospital Nacional. Servicio de Cirugía de Cabeza y Cuello. Itauguá, Paraguay.

ABSTRACT

Introduction: Transient post thyroidectomy hypocalcemia is the most frequent complication of neck surgery, it can be mild and asymptomatic, or severe. The objective was to identify the incidence of transient hypocalcemia in patients undergoing total thyroidectomy, in the General Surgery Service of the Hospital Nacional de Itauguá. **Material and methods:** A descriptive, observational, retrospective, cross-sectional study was carried out, with a non-probabilistic sampling of consecutive cases of all patients undergoing total thyroidectomy for benign pathology, from January 2016 to December 2022. **Conclusions:** Of the total of 141 records of operated patients, in the distribution by sex a prevalence of 92% of the female sex with an average age of 55 years \pm 5 SD was found. The incidence of laboratory hypocalcemia was 32.6% (46), considering the total calcium value less than 8 mg/dl; however, only 19.9% (27) of the patients presented clinical hypocalcemia.

Keywords: Hypoparathyroidism; Hypocalcemia; Thyroidectomy.

RESUMEN

Introducción: La hipocalcemia transitoria posttiroidectomía es la complicación más frecuente de la cirugía cervical, la misma puede ser leve y asintomática, o grave. El objetivo fue identificar la prevalencia de hipocalcemia transitoria en paciente operados de tiroidectomía total, en el servicio de cirugía general del Hospital Nacional de Itauguá, durante el periodo entre enero de 2016 a diciembre de 2022. **Métodos:** Se realizó un estudio descriptivo, observacional, retrospectivo de corte transversal, con un muestreo no probabilístico de casos consecutivos de todos los pacientes sometidos a tiroidectomía total por patología benigna, desde

enero 2016 hasta diciembre 2022. **Resultados:** Del total de 141 fichas de pacientes post operados, en la distribución por sexo se encontró una prevalencia del 92% del sexo femenino con una edad promedio de 55 años \pm 5. La prevalencia de hipocalcemia laboratorial fue de 32,6% (46), considerando el valor de calcio total inferior a 8 mg/dL, sin embargo, solo el 19,1% (27) de los pacientes presentó hipocalcemia clínica. **Conclusión:** La hipocalcemia sigue representando una complicación frecuente en la tiroidectomía: desde un 19,1% con manifestaciones clínicas hasta casi un tercio de los pacientes en los análisis laboratoriales.

Palabras clave: Hipoparatiroidismo; Hipocalcemia; Tiroidectomía

INTRODUCTION

Postoperative hypocalcemia is the most frequent of the thyroidectomy complications,¹ some can be mild and totally asymptomatic while others can manifest bronchospasms, laryngospasms, seizures, and conscious-level alterations.² In general, when there is clinical proof of hypocalcemia the blood calcium levels are 8.0 or will be under 8.0 mg/dL.³

The most frequent injury mechanism is direct damage to the parathyroid glands: whether it is by a vascular system injury, by mechanical damage or by partial or complete excision of themselves, voluntary or not.⁴

Due to, in most cases, postoperative hypocalcemia being resolved on the first month after surgery, some authors choose to

* General Surgery Resident

** Chief of the Otolaryngology Service

Corresponding author: Dr. Miguel Angel Aranda Wildberger

Email: maaw_94@hotmail.com - Address: Ruta Mariscal Estigarribia N° 244. Ypacarai. Paraguay

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wait to the 4-6th week to establish a hypoparathyroidism diagnosis^{5,6} that can be classified according to its transitory treatment time if the recovery happens in less than 12 months and permanent if this period is exceeded.⁶

Hypocalcemia caused by lack of parathyroid hormone (PTH) can be severe, and present symptoms of carpopedal spasms, tetany, seizures, and QT interval lengthening. Likewise, asymptomatic hypocalcemia presents acutely with corrected calcium levels less than or equal to 7.5 mg/dL, which could lead to serious complications if left untreated.⁶

Chvostek sign can be positive in 10% of normocalcemic patients, and be absent in 30% of hypocalcemic patients, while Trousseau sign is more sensitive and specific, appearing in 95% of hypocalcemic patients and only in 1% of normocalcemic ones.⁷

The diagnosis done with the blood's analytics is the diagnostic proof that allows the specialist to determine whether there is hypocalcemia or not. Hypocalcemia is considered to exist when the blood calcium quantity is below 8.0 mg/dL. However, it must be corrected in accordance with the albumin, given that low albumin levels can produce a false hypocalcemia (1 g/dl drop of albumin decreases 0.8 mg/dL of calcium).⁸

The acute hypocalcemia treatment (of fast emergence), symptomatic or with low calcium levels (under 7 mg/dL) consists of intravenously administering calcium, which must be replenished first.^{5,8}

Chronic hypocalcemia treatment consists of orally administering calcium and vitamin D supplements. The objective is to keep calcium levels just below the average. To do this blood calcium levels must be controlled, first weekly and, once stabilized, every 1-3 months.⁹

The objective of the present work was to identify the incidence of transitory hypocalcemia on total thyroidectomy surgery patients, within the General Surgery Service of the Hospital Nacional de Itauguá between January 2016 to December 2022.

METHODS

A descriptive, observational, and retrospective cross-section study was performed, alongside a non-probabilistic sampling of consecutive cases of all the total thyroidectomy patients from January 2016 to December 2022 on the Hospital Nacional de

Itauguá. Patients with a TI-RADS (Thyroid Imaging Reporting and Data System) III preoperative ultrasound diagnosis and fine-needle (PAAF) Bethesda III aspiration¹⁰ with proper thyroid profile control were also included, whom which had a total calcium control at postoperative 12 hours. Those who had the same laboratory hypocalcemia symptoms as the patients with a postoperative total calcium level below 8 mg/dL were deemed as clinical hypocalcemia. Those with TI-RADS IV or above, or Bethesda IV or above, those who required some other procedure besides total thyroidectomy alike lymphatic drainage, those with an altered preoperative thyroid profile, and those with only postoperative ionic calcium controls were excluded. 152 patient forms were included, of which only 11 did not have a total calcium control at 12 hours, reason why they were omitted.

Acquired data was arranged in Microsoft Excel® and frequency, percentage, and measures of dispersion (standard deviation, SD) tables were used.

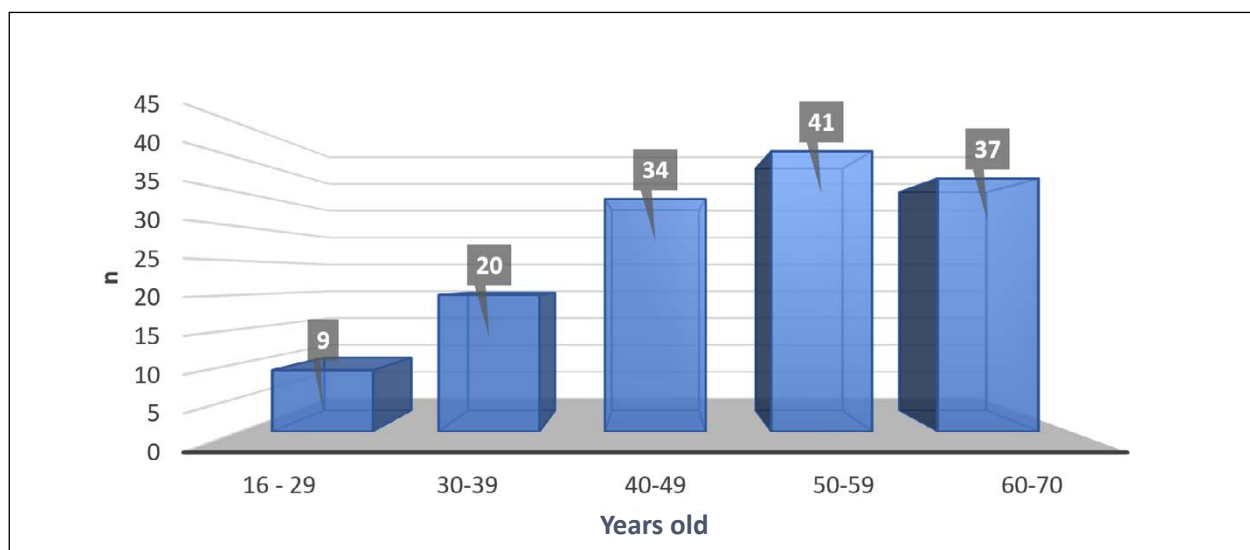
Bioethical principles were respected: obtained information was confidentially analyzed. Inquired consent was not required due to the data being extracted from the records. There was no risk of ill-intension nor discrimination. There were no commercial interest conflicts.

RESULTS

From the total of 141 postoperative patient forms, in the gender distribution it was found a 92% (130) female gender and 8% (11) male gender ratio. The average age of the patients was 55 years-old \pm 5, with the following distribution of age groups: 16-29 years-old 6.4% (9 patients), 30-39 years-old 14.1% (20), 40-49 years-old 24.2% (34), 50-59 years-old 29.1% (41), 60-69 years-old 26.2% (37). *See Graphic 1.*

Of the 141 total thyroidectomy patients, all of them had a preoperative ultrasound TI-RADS III diagnosis, and through PAAF Bethesda III it was found an incidence of laboratorial hypocalcemia of 32.6% (46), considering the total calcium levels below 8 mg/dL, however, only 19.1% (27) of patients presented a clinical hypocalcemia, the remaining 80.9% (144) were asymptomatic, see *Table 1.*

All laboratorial hypocalcemia cases received oral calcium treatment.



Graphic 1. Distribution according to age group. n=141

Table 1. Laboratorial hypocalcemia prevalence in total thyroidectomy patients.

| Hypocalcemia | n | % |
|--------------|-----|-------|
| Laboratorial | | |
| Present | 46 | 32.6% |
| Absent | 95 | 67.4% |
| Clinical | | |
| Present | 27 | 19.1% |
| Absent | 114 | 80.9% |

DISCUSSION

In our research we obtained a 92% (130) prevalence of the female gender. A slightly elevated figure compared to the one mentioned by Velázquez et al, whom in a multicenter study on the Universidad Nacional de Asunción found an 85.7% prevalence of the female gender in 1,913 thyroidectomy patients.¹¹

The average age obtained was 55 years-old \pm 5, a figure which differs from the one found by Velázquez et al that stratifies age for cancer types, with papillary cancer being the most frequent one, 42 years-old \pm 13.¹¹ This age is also elevated compared to the sample of Medina Ruiz et al who in the Instituto del Cáncer del Paraguay found the average age of 47 years-old.¹² These results are more similar to the ones obtained in 2012 on the surgical oncology service of the Hospital San Juan de Dios of Costa Rica, where the demographic variables of age and gender are included as a risk factor for postoperative hypoparathyroidism, finding that 85% appertains to the female gender with an average age of 50 years-old.⁹

Laboratorial hypocalcemia prevalence was 32.6% (46), dosed between 12 to 24 hours postoperative; Franco Lopez et al found in a parallel study at the Hospital Nacional a postthyroidectomy hypocalcemia incidence of 55.4% in 97 patients. With a 78.4% of global postthyroidectomy complications this study does not mention that TI-RADS or Bethesda were included.¹³ While Medina Ruiz et al describes only a 15.3% of transitory hypocalcemia in total thyroidectomy patients with a clinical goiter classification of Grade 2 and 3, whereas more than 80% were benign.¹¹ Barquero-Melchor et al, in Mexico reported a post thyroidectomy hypocalcemia rate of 50%, considering patients that required lymphatic drainage as part of the sample.⁹ Gac-E et al in Santiago de Chile obtained similar figures in 448 patients, where they also found a postoperative hypocalcemia rate of 50%.¹⁴ This difference could be explained by the encompassed population, in this study only patients with TI-RADS III and Bethesda III were included, considering them as low malignant potential, and whom only required a total thyroidectomy,

and lymphatic drainage techniques were not included.

In a study performed by González-Botas in 2013 in Spain about total thyroidectomy surgery, transitory hypocalcemia was found in 29.1%, where the cause was due to trauma or inadvertent injury of the parathyroid gland.⁷ The figure is close to the one in our study, which we consider low. The clinical test is not the most sensible one to measure hypocalcemia given that only 19.1% (27) manifested symptoms in postoperative, phenomena also described by Gac-E et al in Chile which found a laboratorial incidence of 42-50% with a clinical manifestation of only 14.8-15%.¹⁴ In our research, the treatment in every single case was immediate and with a good clinical response through oral method. We do not certified cases of severe hypocalcemia.

This report has its limitations: it only analyzes total thyroidectomies through probably benign pathologies hence results cannot be generalized; on the other hand, it's a retrospective design with a less-than 30 days follow-up.

Medium- and long-term patient follow-up is recommended, to describe the transitory hypocalcemia's incidence or permanence, besides a longitudinal study of cases and controls to relate the variables with which determine the emergence of postoperative hypocalcemia. Another possible bias was the lack of correlation between the anatomical pathology reports.

CONCLUSION

The female gender is more prevalent when submitted to thyroidectomy, with an average age of 55 years old. The laboratorial postthyroidectomy hypocalcemia's prevalence through benign pathologies is 32.6%, while the clinical hypocalcemia is of 19.1%. Every hypocalcemia case presented a proper response to early oral treatment.

Author's contribution: MAAW: participated on substantial contributions of the idea or design of the work, data recollection and studying, literary search, writing of the work and critically revising in search of important intellectual content, critical revision, and final approval. **RA:** participated on substantial contributions of the idea or design of the work, data recollection, literary search, partial writing of the work and final approval. **MDVA:** participated on the contribution of the idea, data analysis and graphics and table creation, design and writing of the work, and final approval.

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Ethical considerations: ethical conducts and proper publication practices were respected. More ethical affairs data were described on the method's section.

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Management of patients with appendicular mass, in the general surgery service at the Hospital Nacional de Itauguá in the period 2011-2021

Manejo de pacientes con plastrón apendicular, en el servicio de cirugía general del Hospital Nacional de Itauguá en el periodo 2011-2021

Teresa Echagüe*
Jessica Franco*
Rubén Baruja*

Hospital Nacional de Itauguá. Itauguá, Paraguay

ABSTRACT

Introduction: this study seeks to determine the characteristics and management of patients with appendiceal mass at the General Surgery Service at the Hospital Nacional de Itauguá, an infrequent pathology manifested as an inflammatory tumor consisting of the inflamed appendix, adjacent viscera and greater omentum when the organism manages to partially control appendicitis, thus avoiding peritonitis. **Methods:** retrospective, descriptive study, being variables: reason for consultation, days of illness and hospitalization, treatment, etc. **Results:** of the total of 50 samples, 88% consulted for pain, the average number of days of illness is 9 days and hospitalization 11 days, on physical examination 82% presented a tumor in the right iliac fossa. 56% required surgery: 16 were cavity lavage plus drainage, 1 case right colectomy and 2 cases percutaneous drainage. **Conclusion:** According to the bibliographies, in recent years a conservative attitude is spreading. In our work, however, immediate surgery was performed in 56% of the cases, we did not verify the use of delayed surgery, probably due to lack of follow-up. Most come with symptoms of approximately 9 days, already as a ruptured abscess in the cavity, so the most used technique was lavage + cavity drainage.

Keywords: appendiceal mass, acute appendicitis, appendectomy, conservative treatment

RESUMEN

Introducción: el plastrón apendicular es una patología infrecuente manifestada como una tumoración inflamatoria constituida por el apéndice, vísceras adyacentes y epiplón mayor cuando el organismo logra controlar parcialmente la apendicitis, evitando así una peritonitis. Este trabajo busca determinar características y manejo de pacientes con plastrón apendicular del Servicio de Cirugía general del Hospital Nacional de Itauguá. **Métodos:** estudio retrospectivo, descriptivo de corte transversal. **Resultados:** del total de 50 pacientes, 88% consultó por dolor, el promedio de días de enfermedad previo de 9 días y una

internación promedio de 11 días. Al examen físico 82% presentaba tumoración en fosa iliaca derecha. El 56 % requirió cirugía: 16 fueron lavado de cavidad más drenaje (por plastrón roto y abscedado a cavidad), 1 caso colectomía derecha y 2 casos drenajes percutáneos. **Conclusión:** Probablemente debido al retraso al acceso del sistema de salud, los pacientes al acudir ya presentan complicaciones del plastrón apendicular que requieren un tratamiento quirúrgico en más de la mitad de los casos.

Palabras clave: plastrón apendicular, apendicitis aguda, appendicectomía, tratamiento conservador

INTRODUCTION

Appendiceal mass, infrequent pathology that appears as an acute appendicitis complication: it consist of an inflammatory myofibroblastic tumor constituted by the swollen appendix, which is generally already punctured, adjacent viscera and greater omentum. It may or may not contain pus (abscess/phlegmon). It occurs when the organism can partially control this process, hence avoiding a peritonitis. Additionally, the infectious process increments morbidity, as well as prolonging the treatment, hospitalization or resting time, tests, etc.^(1,2)

There are advantages and disadvantages between the choice of medical (conservative) or surgical (whether immediate or deferred) treatment. Deferred surgical treatment consists of initial conservative treatment followed by a scheduled appendectomy: it entails minimal complications, given that it's performed in a stable patient, with solved inflammatory symptoms. Furthermore, it prevents recurring appendiceal episodes, which are present more frequently between the 6 to 24 following months,


* General Surgeon

Corresponding author: Dra. Teresa Echague

Email: tereecha_91@hotmail.com - Address: San Lorenzo, Paraguay

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also preventing diseases such as Meckel diverticulum, Crohn's disease or appendiceal neoplasms, and if some of these are already in progress, early detection allows better prognosis hence avoiding the use of more aggressive therapies.^(2,3)

On immediate surgical treatment a simple drainage (if the appendix is digested), appendectomy, or even a right hemicolectomy can be performed. A Colombian research of 2,175 acute appendicitis cases reported that a right hemicolectomy was necessary in 1.7% of cases (half of them due to an unspecific inflammatory mass or plastron), with primary anastomosis and a morbidity of 69%.⁽⁴⁾ Another surgical option is ileocolic resection, a procedure associated with low morbi-mortality, compared to the right hemicolectomy.⁽⁵⁾ Malignant tumors of the appendix, cecum and ascending colon are the main cause of concern when a surgeon finds these inflammatory masses; in these cases a right hemicolectomy with lymph node dissection and primary anastomosis is recommended.⁽⁴⁾ The advantages of immediate surgery, although high mass recurrency chance (71%), and high malignant tumor incidence, show a lessened hospital stay and, therefore lower use of resources, however it presents multiple complications such as other viscera's injuries, surgical wound's infection, pelvic abscess and the need of surgical reintervention. Henceforth, this option is not of the first considerations of professionals, choosing the conservative approach to avoid the aforementioned adverse situations.^(6,7)

Those who propose the conservative approach only predicate based on the number of patients that develop a subsequent appendicitis and/or appendiceal cancer to be minimum (0.2-0.5% of the total of gastrointestinal tumors), considering it's an intervention that increases hospitalizations and unnecessary use of resources. However, it also presents complications as failure, uncomplete drainage or the need of additional drainages, infections, fistula, laparotomy for abscess drainage and recurrent appendicitis.⁽⁶⁾ Nowadays the use of minimally invasive therapy with percutaneous drainage for the resolution of abdominal build-up and abscessed appendiceal mass is also recommended. Its use will depend on the personnel's experience and the existence of this resource in the institution, however it also presents limitations as to not being able to achieve an anatomopathological study, therefore being unable to discard malignant pathology.⁽⁸⁾

The relevance of this work rests on the lack of national publications about the subject and above all else the fact that nowadays there are many diverse stances on a pathology's treatment that could eventually present low morbidity and be fatal in cases in which diagnosis nor proper treatment were achieved. The present retrospective research seeks to determine the appendiceal mass patient's characteristics and handle, within the Adult General Surgery Services in the Hospital Nacional de Itauguá, during 2011 through 2021.

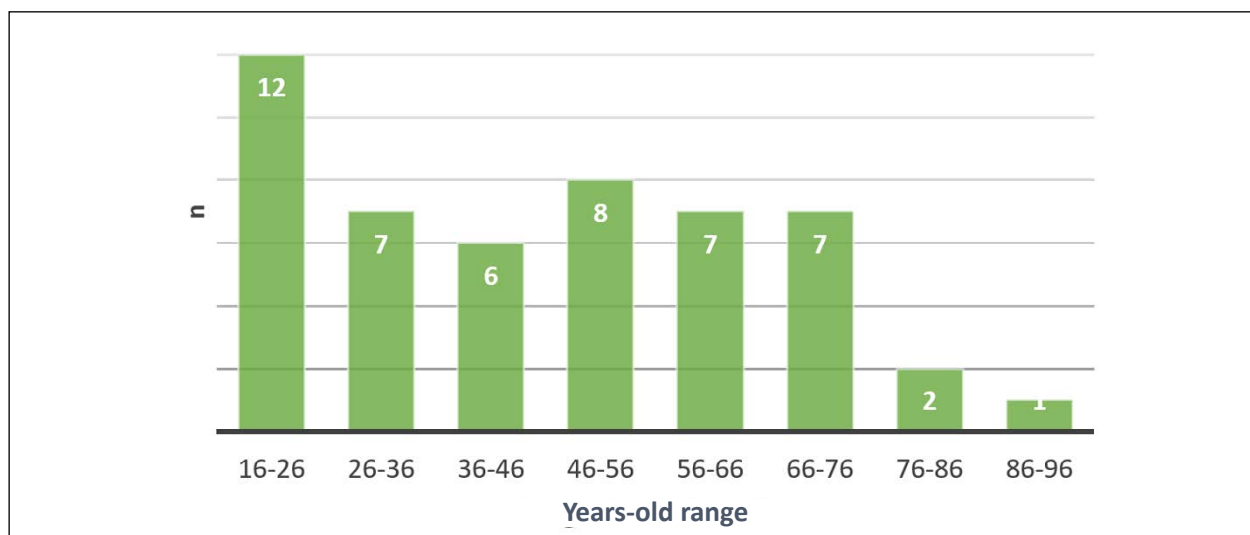
METHODS

50 completed clinical forms were found in the Hospital Nacional de Itauguá, from which we solely focused on the ones that presented an appendiceal mass diagnosis, excluding uncomplete forms. A retrospective, descriptive and observational study was performed, with a cross-sectional non-probability sampling. Our job consists of literary search through virtual libraries about the topic in question, as well as reading, analysis, comprehension, and synthesis of the found literature, and subsequent recollection of data from the forms, respecting the right of privacy and confidentiality of the identity of the patients. Likewise, corresponding authorization was solicited to the information access service's personnel, and the protocol was accepted by the ethical committee. The studied variables are: age, gender, consultation's reason, days of hospital stay and sickness, antibiotic therapy, treatment, and complications. For the variable's study the data was transferred to a Microsoft Office Excel 2007®-type virtual spreadsheet and submitted to statistical observations.

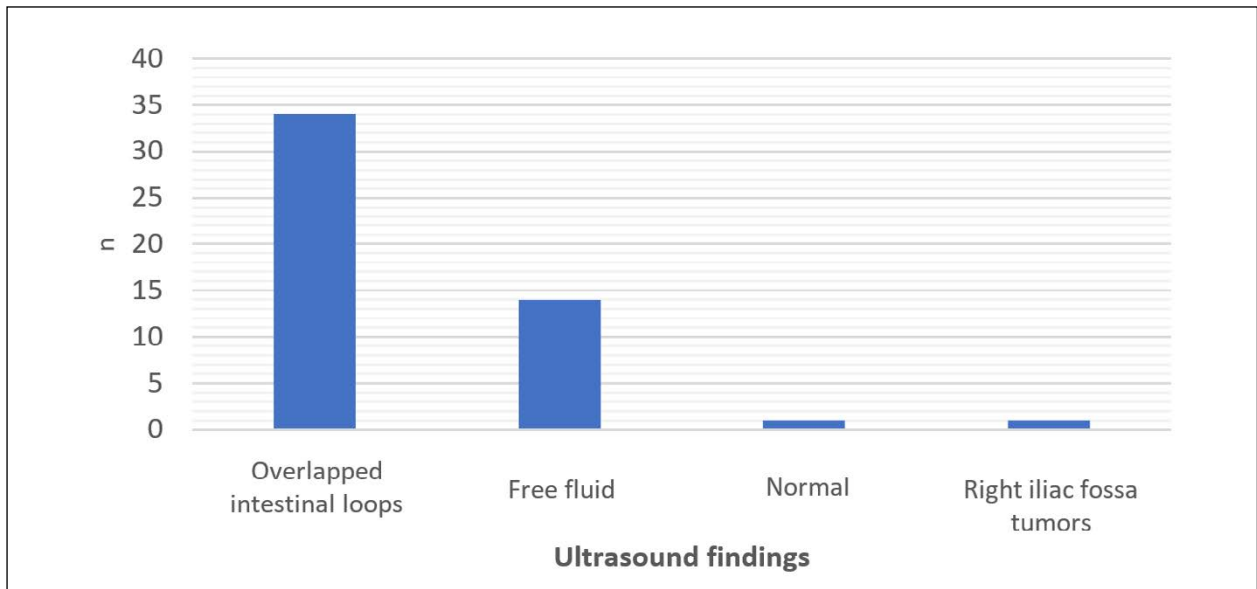
RESULTS

Regarding the sample total (50 patients), 54% of cases were of the female gender and the prevalent age range were between 16 to 26 years old (**Graphic 1**). 88% of patients consulted because of pain, while the rest did so because of tumors, with an average formation rate of 9.27 days before consultation.

Upon performing the physical exam, it was reported that 82% of patients presented tangible tumors on the right iliac fossa and 64% presented Delbet's sign during abdominal palpation. Between the most frequent ultrasound findings are the over-



Graphic 1. Appendiceal mass patient's age. n=50.



Graphic 2. Appendiceal mass patient's ultrasound findings. n=50.

lapped intestinal loops (68%), free fluid (28%) (*See Graphic 2*).

Those whom required surgical treatment during hospital stay were 56% of patients, in whom surgical techniques inform that 16 cases had cavity cleaning and draining, with most of them having a generalized postoperative peritonitis diagnosis by broken-cavity abscessed mass, from which a successful appendectomy was only achieved in 8 cases, right colectomy was performed in one case and only an ileostomy plus drainage was performed in one case, minimally invasive was performed in 2 of the cases (percutaneous drainage) (*See Table 1*). 80% did not present any complications, among mentioned postoperative complications are surgical site infection as first place (14%), and evisceration, fecal fistula in less cases. There was only one deceased, caused by sepsis on a senior patient.

The remaining patients received the conservative handle (antibiotic therapy), being ciprofloxacin/metronidazole the combination utilized in 98% of cases.

The general average of hospital stay days was 11.

Table 1. Patient classification by treatment: surgical/conservative.

| Treatment | n | % |
|-------------------------------------|-----------|------------|
| Surgical | | |
| Cleaning plus drainage | 16 | 32% |
| Appendectomy | 8 | 16% |
| Percutaneous drainage | 2 | 4% |
| Ileostomy | 1 | 2% |
| Right colectomy | 1 | 2% |
| TOTAL SURGICAL TREATMENT | 28 | 56% |
| Conservative Treatment | | |
| Antibiotic Therapy | 22 | 44% |
| TOTAL CONSERVATIVE TREATMENT | 22 | 44% |

DISCUSSION

According to the references, a conservative attitude towards appendiceal mass has been extending for the past few years. The presence of a pericecal inflammatory mass of infectious etiology has reached a variable frequency of 2-10% of the appendiceal procedures.^(9,10)

Nowadays the appendiceal mass treatment options are the deferred surgical alternative, versus the conservative or medical handle, as the most idoneous treatment. On the other hand, the no-less-important immediate surgery option is also presented. There is no consensus regarding which would be the correct option, the resolution is greatly related to the surgeon's experience, resource availability and the patient's state. In the last few years a conservative attitude has been extending in non-complicated ways through hydration, broad-spectrum antibiotic therapy and clinical observation, based on the development of imagery techniques with better diagnostic precision, increasing therapeutic efficiency and the concept that a non-complicated appendicitis will not always evolve towards perforation, regardless of showing a near 20% global recurrency of appendicitis symptoms and a small impact on the necessity of a subsequent appendectomy due to therapeutic failure.^(3,11,12,13)

According to studies, appendectomy have much simple results when performed in between 3-6 months.⁽¹⁴⁾ In our research, however, immediate surgical treatment was performed in 56% of cases, without considering deferred surgical use, most likely due to lack of proper follow-up of the patients after discharge, which represents a bias. The vast majority of patients were young, who attended the emergency room reporting 9-month evolutive symptoms, and unlike other researches, the most frequently used surgical technique in our casuistry was abdominal cavity cleaning and drainage. Only 20% presented postoperative complications. The consultation reason and performed surgery is most likely due to most patients already arriving with pre-operative acute abdomen diagnosis and whose intraoperative findings were acute generalized peritonitis by broken-cavity abscessed appendiceal mass, which also explains the fact that one

of the most frequent postoperative complications was surgical site infection. We will continue to perform follow-ups to discharged patients without surgery, and investigate further about the handling to reach an unanimous and effective conclusion regarding therapeutics.

CONCLUSION

In our research immediate surgery was performed in 56% of cases. We did not consider to the use of deferred surgery, most likely due to lack of patient follow-ups. Most of them report with 9-days symptoms, them being broken-cavity abscess in most cases, therefore cavity cleaning and draining was the most utilized surgical technique. This study is of outmost relevance

due to the fact that there is practically no recent national publications about the subject, and as we described during the study, this pathology can be of high impact to the working capability and quality of life of the patient, especially due to handling being mostly conservative, reason why it's very important to avoid subsequent complications.

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Experience in the videolaparoscopic surgical management of achalasia at the Hospital Nacional de Itauguá, period 2017-2021

Experiencia en el manejo quirúrgico videolaparoscópico de la acalasia esofágica en el Hospital Nacional de Itauguá, periodo 2017-2021

Pedro Forcado*
Jessica Franco López**
Teresa Echagüe**

Hospital Nacional. Itauguá, Paraguay.

ABSTRACT

Introduction: achalasia is a motility disorder of the distal esophagus of unknown etiology, manometrically characterized by loss of esophageal peristalsis and lack of lower esophageal sphincter relaxation; radiographically by aperistalsis, esophageal dilatation, with minimum opening of the lower esophageal sphincter, and endoscopically by dilated esophagus. Objective: prove the experience of the videolaparoscopic treatment of esophageal achalasia in the Hospital Nacional de Itauguá. **Methods:** Observational, descriptive, cross-sectional, retrospective study. **Results:** A total of 31 patients were evaluated; 15 were men and 16 were women; average age was 54.19 years old. Dysphagia was the predominant consultation motive, followed by regurgitation, vomiting and sternal pain. Most of the patients presented a Grade II esophageal dilatation through esophagram. Upper endoscopy was used in 100% of the patients as a diagnosis method, esophagram was used in 74%, and manometry was used in 32%. The most frequently used surgical technique was laparoscopic Heller's cardiomyotomy with Dor fundoplication (71%). No mortality rate was registered. **Conclusion:** Dysphagia is the main reason for consultation and laparoscopic Heller's cardiomyotomy with Dor fundoplication is the most frequently used surgery for esophageal achalasia.

Keywords: achalasia, esophagus, dysphagia, manometry, Heller myotomy.

RESUMEN

Introducción: La acalasia es un trastorno motor esofágico primario de etiología desconocida caracterizada manométricamente por pérdida del peristaltismo esofágico y relajación insuficiente del esfínter esofágico inferior; radiográficamente por aperistalsis, dilatación esofágica, con mínima apertura del esfínter esofágico inferior, y endoscópicamente por esófago dilatado. Objetivo: demostrar la experiencia del tratamiento videolaparoscópico de la acalasia esofágica en el Hospital Nacional de Itauguá. **Métodos:** Estudio observacional descriptivo, retrospectivo de corte transversal. **Resultados:** Se evaluaron un total de 31 pacientes; 15 fueron hombres y 16 mujeres; la edad promedio fue de 54,19 años. La disfagia fue el motivo de consulta predominante seguido de regurgitación, vómitos y dolor retroesternal. La mayoría de los pacientes presentaron una dilatación esofágica Grado II por esofagograma. Como

métodos diagnósticos se utilizaron la EDA en el 100% de los pacientes, el esofagograma en un 74% y la manometría en 32%. La técnica quirúrgica mayor frecuencia fue la cardiomiectomía laparoscópica de Heller con funduplicatura de Dor (71%). No se registraron tasas de mortalidad. **Conclusión:** La disfagia es el principal motivo de consulta y la cirugía más frecuentemente realizada para la acalasia esofágica en la cardiomiectomía laparoscópica de Heller con funduplicatura de Dor.

Palabras Claves: acalasia, esófago, disfagia, manometría, miotomía de Heller

INTRODUCTION

Achalasia is a motility disorder of the distal esophagus of unknown etiology manometrically characterized by loss of esophageal peristalsis and lack of lower esophageal sphincter (LES) relaxation; with radioscopic proof of aperistalsis, esophageal dilatation with minimum opening of the LES and bird-beak appearance, improper emptying contrast; and endoscopically by dilated esophagus with retained saliva, liquid, and non-digested food in absence of mucous membrane's stenosis or tumor.¹

Achalasia occurs equally between men and women with an incidence of 1 in 100,000 individuals annually, without racial predilection. The incidence peak presents itself between 30 to 60 years old.²

It is of autoimmune, viral, or neurodegenerative etiology; the secondary most frequent cause is Chagas disease, produced by endogenous protozoan *Trypanosoma cruzi* from South and Central America; this parasite causes long-term autonomic dysfunction of the esophagus' (and other organs') intramural neurons, which induce achalasia symptoms.²

The main clinical manifestations are: dysphagia in 95% of cases; regurgitation in 75%, chest pain, pyrosis, weight loss and nighttime cough.³

* 3rd Year General Surgery Resident


** General Surgeon

Corresponding author: Dra. Teresa Echagüe

Email: tereecha_91@hotmail.com - Address: San Lorenzo, Paraguay

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Regarding the diagnosis methods, the ones used are esophageal manometry, dynamic esophagography and upper gastrointestinal endoscopy (UGE). Esophageal manometry is considered the golden pattern for achalasia diagnosis given the peculiarity of being able to confirm and distinguish between three types of different manometric patterns (Chicago Classification). Type 1 is characterized by minimal esophageal pressurization, type 2 presents panesophageal pressurization, and type 3 is distinguished by secondary spasms to the spastic contractions. In the esophagram, the diagnosis is backed by findings such as esophageal dilation, a gastroesophageal tight junction with bird-beak appearance, aperistalsis and improper emptying contrast. As for upper gastrointestinal endoscopy, the main function is to discard a mechanical obstruction or a pseudoachalasia, given that they can emulate clinical as well as manometrical achalasia.⁴

Achalasia treatment continues to be palliative and is aimed towards functional and symptomatic relief through the slit of the lower esophageal sphincter.⁵

Amongst the therapeutic options, the laparoscopic approach has proven to be a safe, replicable, and effective technique that achieves control over the symptoms with minimal morbidity.⁶

The objective of the present study is to prove the experience in the videolaparoscopic handling of the esophageal achalasia in the Hospital Nacional de Itauguá.

METHODS

Observational, descriptive, cross-sectional, retrospective study on patients who attended the general surgery service of the Hospital Nacional de Itauguá during the period between March 2017 and March 2021 (4 years). Adult patients (18 years old and above) from both genders with completed forms were included, with an esophageal achalasia diagnosis through at least one of these three methods: esophagram, esophageal endoscopy and/or manometry, and those who were submitted to videolaparoscopic surgical treatment during the study's duration. Patients

with an achalasia diagnosis who received medical or endoscopic pneumatic dilation treatment; or an open approach surgical treatment were excluded. For the recollection of data, a data instrument was designed where all variables were included, and the data was obtained through the studied patients' medical forms. The data was anonymously registered within the Microsoft Office Excel 2010® program and summarized according to the nature of the variables.

RESULTS

31 patients were included, from which 15 were men (48,39%) and 16 were women (51,61%). The average age was 54,19 years old, with a 22 to 85 years-old range.

The main cause of consultation was dysphagia in 87,1% of patients, followed by regurgitation in 6,4%; vomiting in 3,2%, and sternal pain in 3,2% (*See Graphic 1*).

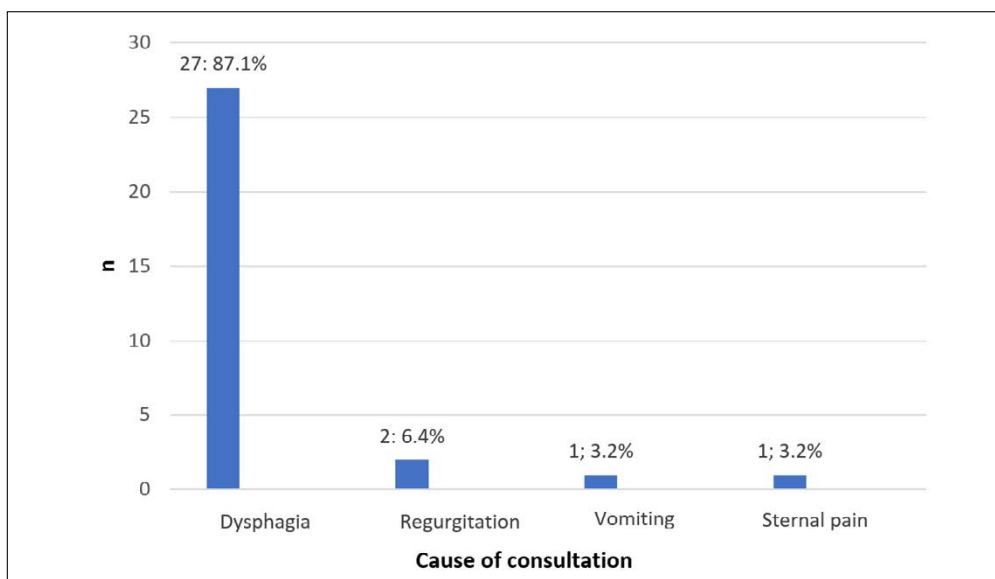
The city of origin of the patients was of 29% from Asunción, 22.58% from Alto Paraná, 13% from Cordillera, 9.67% from Caaguazú, among others (*See Graphic 2*).

Esophageal achalasia diagnosis was performed most frequently through upper gastrointestinal endoscopy with an esophagram (n=17), followed by a least frequent upper gastrointestinal endoscopy, esophagram, and manometry (n=6). Esophageal manometry was only able to be performed in 10 patients (*See Graphic 3*).

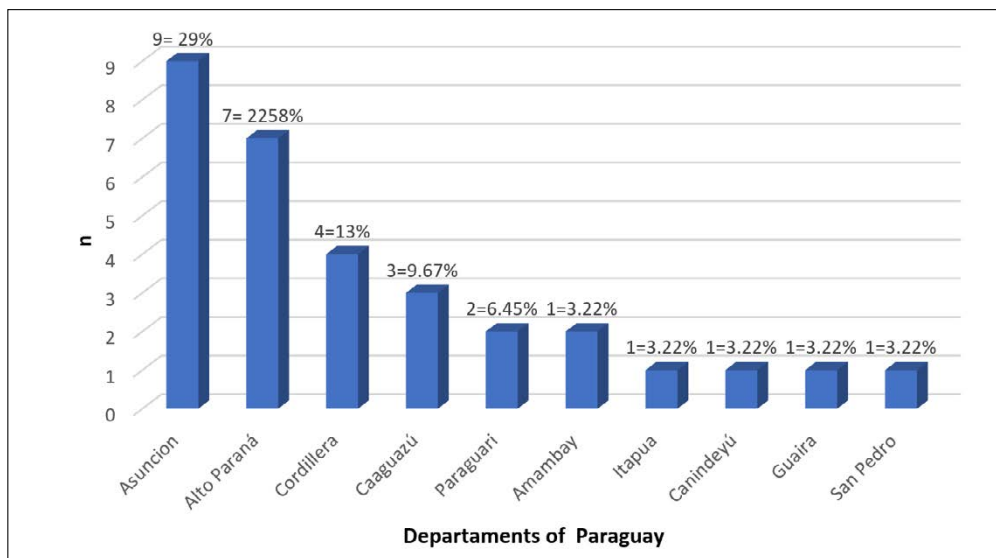
Of the 23 patients with an esophagram, grade II esophageal dilation was recorded in 16 of them (69.5%), grade III esophageal dilation in 6 of them (26%), and grade IV in one of them.

As for the surgical technique, the laparoscopic Heller's cardiomyotomy was performed, and the Dor fundoplication associated antireflux procedure was done on 22 patients (71%), the Toupet one on 6 (19.3%), and the Nissen one on 3 (9.7%).

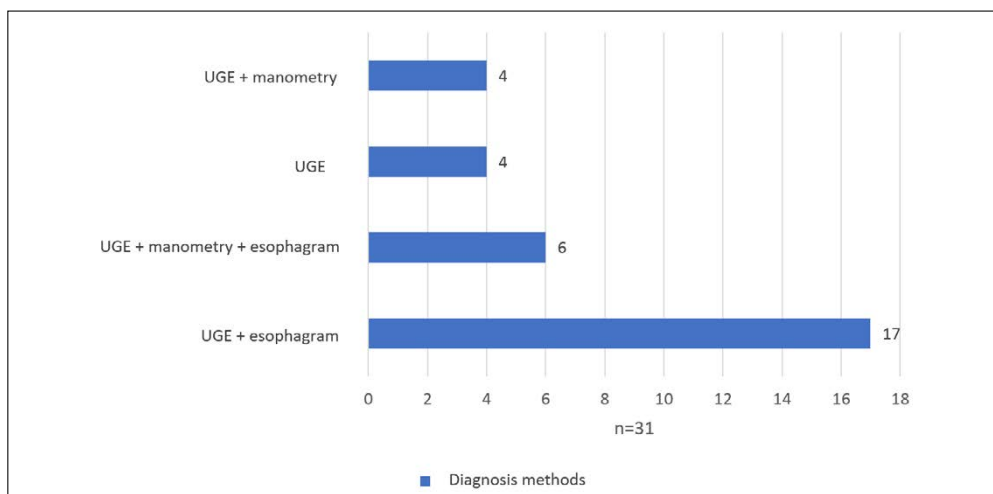
The average hospitalization days for each surgical intervention before discharge was of 5.22 days, with a range between 2 to 22 days, most of them being dedicated to finishing diagnosis studies. No mortality was registered.



Graphic 1. Cause of consultation for laparoscopy-intervened patients with achalasia.



Graphic 2. Patient distribution according to city of origin.



Graphic 3. Utilized methods for esophageal achalasia diagnosis. Ref.: UGE: upper gastrointestinal endoscopy.

DISCUSSION

Achalasia is a motility disorder of the distal esophagus, whose main symptom is dysphagia. It occurs equally between men and women. There is no racial predilection. The incidence peak presents itself between 30 to 60 years old.

There were no significant differences in regards to gender in the present study, whereas the average age was of 54.19 years old. In a study performed in our country in 2014, Cabral et al observed that the average age was of 57±10 years old, figure slightly higher than the one found in this study.⁷

The main cause of consultation was dysphagia followed by regurgitation, and vomiting and sternal pain in lesser occasions, data that matches a published work by Méndez-Sánchez from Mexico in 2018, where the most common clinical manifestation was dysphagia for solids followed by the one for liquids.²

More than half of the patients were from Asunción y Alto

Paraná, although patients from almost every department of the western region were present.

The diagnosis of said pathology was more frequently performed by UGE and esophagram. UGE was performed in all patients (100%), esophagram in 23 (74.2%), and manometry in 10 (32.3%). In a Paraguayan study published in 2016, the main diagnosis methods were chest x-ray and esophagram in 100% of patients, and UGE in less quantity.⁸

This reflects the current systematic use of UGE and the progressive increase of esophageal manometry as a diagnosis method, although performed in less than a third of the patients. Being manometry the gold standard, this figure represents a limitation of the present study.

An esophageal dilation by esophagram was recorded in all patients, with grade II having the most frequency (69.5%). In their thesis, González Paredes showed that the greater percent-

age of patients were diagnosed in late-stage achalasia according to the esophagram: Grade II in 33%, Grade III in 5%, and Grade IV in 24% which matches with the findings of the present work.⁹

The surgical technique performed was laparoscopic Heller's cardiomyotomy, plus the Dor antireflux procedure on 22 patients (71%) which matches with a published work in our country done by the Instituto de Previsión Social on 2022, where the same technique was performed on 61% of patients.¹⁰

The average hospitalization days for said surgical interventions before discharge were of 5.22 days. In the work done by Ramírez Sotomayor published in 2016, the hospitalization days were of 8.82±6.06 days on average.⁸

The hospitalization days remain very high, due mainly to the delay of diagnosis studies.

As bias of the present study, due partially to the low esophageal manometry usage rate, are the systematic lack of Chagas' tests in an endemic country such as Paraguay, even though they were performed, it wasn't studied in every case. It would be interesting to develop protocols to define the necessary diagnosis methods for esophageal achalasia. Another limitation of the study was the lack of long-term follow-ups, most likely due to the patients being from very distant areas to the Hospital Nacional de Itauguá.

CONCLUSION

In the present study a clear gender predilection was not found. The average age was of 54.19 years old.

The main cause of consultation was dysphagia in 87.1% of

patients followed by regurgitation, vomiting and sternal pain.

The city of origin of the patients were nearly all the oriental region's departments of Paraguay.

As diagnosis studies, UGE was performed on 100% of the patients, esophagram in 74.2% (mostly grade II), and manometry in only 32.2%.

The performed surgical technique was laparoscopic Heller's cardiomyotomy, most frequently done alongside Dor fundoplication (71%). Toupet and Nissen fundoplication were also performed.

The preoperative hospitalization average was high due to delays on diagnosis studies. No mortality recorded.

Author's contribution: FP: conceptualization, data processing, formal analysis, investigation, methodology, project and resource administration, validation, visualization, writing, revision and editing of the original draft. **JFC and TE:** conceptualization, methodology, supervision, validation, visualization, writing, revision, and editing. Authors are aware of the final content and authorize its publication.

Conflict of Interest: the authors declare no conflict of interest.

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Ethical considerations: The present study respects the medical and ethical bases given that it will not negatively affect the patients; likewise proper authorization was solicited to the General Surgery Services' personnel.

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Experience in the surgical treatment of bile duct stone not removed by ERCP at the Itauguá National Hospital from January to October 2022

Experiencia en el tratamiento quirúrgico de la coledocolitiasis no resuelta por CPRE en el Hospital Nacional de Itauguá de enero a octubre de 2022

Sebastián Ríos*
Jessica Franco López**
Teresa Echagüe**

Hospital Nacional. Itauguá, Paraguay.

ABSTRACT

Introduction: Bile duct stones is the presence of calculi in the common bile duct caused by its migration from the gallbladder or its extrahepatic or intrahepatic formation in the bile duct. **Objective:** Determine the surgical conduct adopted for BDS treatment not removed by ERCP. **Materials and methods:** Observational, retrospective, descriptive, cross-section study. **Results:** From the studied patients, calculi were found in 62% of the performed ERCP, in which the symptoms were resolved 85% of the times (151/245). The average age was of 56.3 ± 20.75 years old with a female predisposition of 78%. In the remaining patients, the most used surgical techniques were open surgery (22/23) and choledochotomy, more frequently with primary closure (14/23). Only a single case was resolved by laparoscopy. **Conclusion:** open method and choledochotomy with primary closure are the main surgical techniques used.

Keywords: Bile duct stones. Endoscopic retrograde cholangiopancreatography. Cholecystectomy.

RESUMEN

Introducción: La coledocolitiasis es la presencia de cálculos en el cóledoco como consecuencia de su migración desde la vesícula o de su formación en la vía biliar extrahepática o intrahepática. **Objetivo:** Determinar la conducta quirúrgica adoptada para el tratamiento de la coledocolitiasis no resuelta por CPRE. **Materiales y métodos:** Estudio observacional, retrospectivo, descriptivo, de corte transversal. **Resultados:** De los pacientes en estudio se hallaron cálculos en el 62% de las CPRE realizadas, en los cuales se pudo resolver el cuadro en 85% (151/245). La edad media fue de $56,3 \pm 20,75$ años con mayor predominio del sexo femenino en el 78%. En los demás pacientes la técnica quirúrgica evidenció en la mayoría se realizó cirugía abierta (22/23) y coledocotomía, más frecuentemente con rafia primaria (14/23). Un solo caso fue resuelto por laparoscopia. **Conclusión:** para el tratamiento quirúrgico de las coledo-

colitiasis se utiliza principalmente la vía abierta, y la coledocotomía con rafia primaria.

Palabras claves: Coledocolitiasis. Colangiografía retrograda endoscópica. Colectectomía.

INTRODUCTION

Bile duct stones (BDS) is the presence of calculi in the common bile duct caused by its migration from the gallbladder (secondary stones) or its extrahepatic or intrahepatic formation in the bile duct (primary stones)⁽¹⁾; representing a gallstone complication that is present in 7-20% of symptomatic lithiasis⁽²⁾.

Asymptomatic BDS has a 75% chance of becoming symptomatic at some point during its evolution and bring forth serious complications such as: acute cholangitis, acute pancreatitis, among others, possibly deadly pathologies hence it must always be treated⁽³⁻⁴⁾.

BDS diagnosis is based on the combination of symptoms and clinical signs, serum cholestasis markers and imagery findings (transabdominal ultrasound, among others); individually these pointers possess variable levels of diagnostic precision and none of them, by themselves, represent a completely reliable method to identify bile duct calculi⁽⁵⁻⁶⁾.

The ideal BDS treatment is still a subject of debate; with the invention and development of the endoscopic cholangiopancreatography and sphincterotomy, the presurgical endoscopic handle of BDS was popularized, followed double-time (ideally not more than 24 hours) by laparoscopic cholecystectomy⁽⁷⁾.

* 3rd Year General Surgery Resident, Hospital Nacional de Itauguá.


** General Surgeon.

Corresponding author: Dra. Jessica Franco Pablo López

Email: jessicafanco52@gmail.com - Address: Teodoro S. Mongelós casi Mangoré. Nembu, Paraguay

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Laparoscopic bile duct exploration techniques have still been refined and consolidated, although the studies that have compared the single-time surgical handle against the sequential handle are few; both modalities show similarities in terms of common bile duct cleaning and complications, however single-time handle results in a shorter hospital stay reduced costs. In that regard, BDS handle depends nowadays on the surgical team's experience and the technological availability of hospital centers⁽⁸⁻¹⁰⁾.

The present study's objective is to evaluate retrospective data of patients with a BDS diagnosis not resolved by an endoscopic retrograde cholangiopancreatography (ERCP) who were submitted to surgical treatment between January through October of 2022 in the Hospital Nacional de Itauguá.

MATERIALS AND METHODS

Observational, retrospective, descriptive, cross-section study. The work's objective was to determine the surgical conduct adopted for BDS treatment not resolved by ERCP in admitted patients in the Hospital Nacional de Itauguá, from January through October 2022. Patients of both genders were included, 18-year-old and older, with a BDS diagnosis through ERCP, in the Hospital Nacional de Itauguá during the period between January through October of 2022. Deceased patients and those with incomplete forms were excluded. For data recollection records from the Endoscopy Service, patients' clinical forms and surgical techniques of surgery-submitted patients were reviewed. The Excel® and Epilinfo™ programs were employed for data processing and analysis. A descriptive analysis of all analyzed variables was performed.

RESULTS

Between January and October of 2022, 326 ERCP procedures were performed, from which 75% (245 patients) were ordered for patients with BDS suspicion, 25% (81 patients) for other reasons (neoplasia, biliary stent, biopsy sample, etc.).

From the 245 patients submitted to ERCP by BDS suspicion, calculi were found in 151 patients equal to 62%, and no calculi were found in 94 patients equal to 38%, being ERCP unnecessary. (see Figure 1).

Of the 151 patients of which BDS were reported, 128 patients equal to 84% had a successful ERCP extraction and 23 patients (16%) had an unsuccessful one due to various reasons (calculi disproportion, lack of appropriate instruments, multiple lithiasis). This last group belong to the surgically handled patients, whether by conventional or laparoscopic approach (see Graphic 1).

Of the 23 patients of which BDS extraction by ERCP was unsuccessful, an average age of 56.3 ± 20.75 years old was identified, with an age range between 24 to 92 years old. (see Graphic 2). The age group with the most frequency was the 70-years-old upwards, with 30% (n=7) of the cases. Most patients were of the female gender with 78% (n=18).

Presurgical diagnosis were obstructive jaundice by BDS and acute cholangitis by BDS, with 61% and 39% respectively, equal to 14 and 9 patients.

Of the 23 patients, 15 (65%) presented an on-site gallbladder, while the 35% (8 patients) had already being submitted to either conventional or laparoscopic cholecystectomy. (see Table 1)

The surgical technique showed that in 96% of the patients, a conventional or open choledochotomy was performed, and only in a single case through laparoscopy. It is observed that in patients without gallbladder surgery history a cholecystectomy +

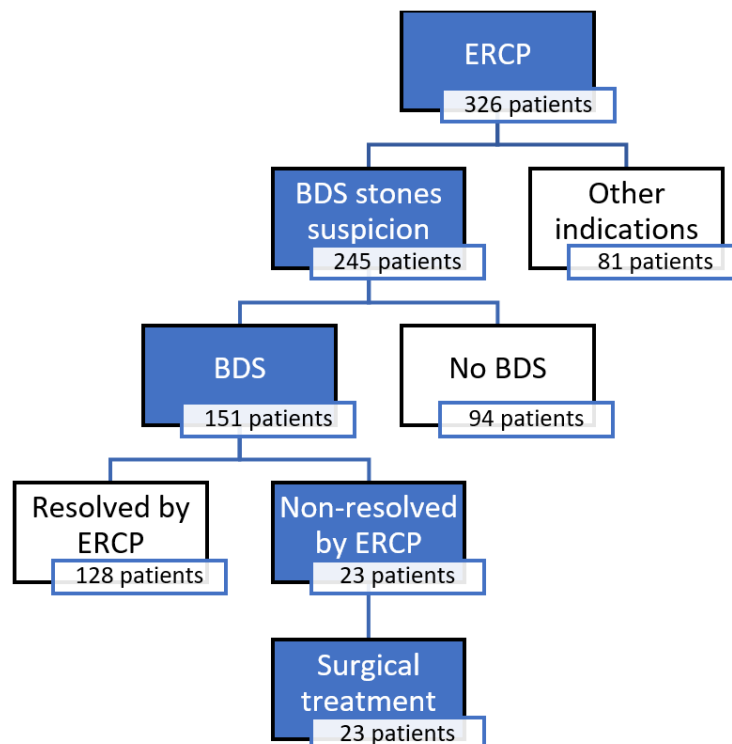
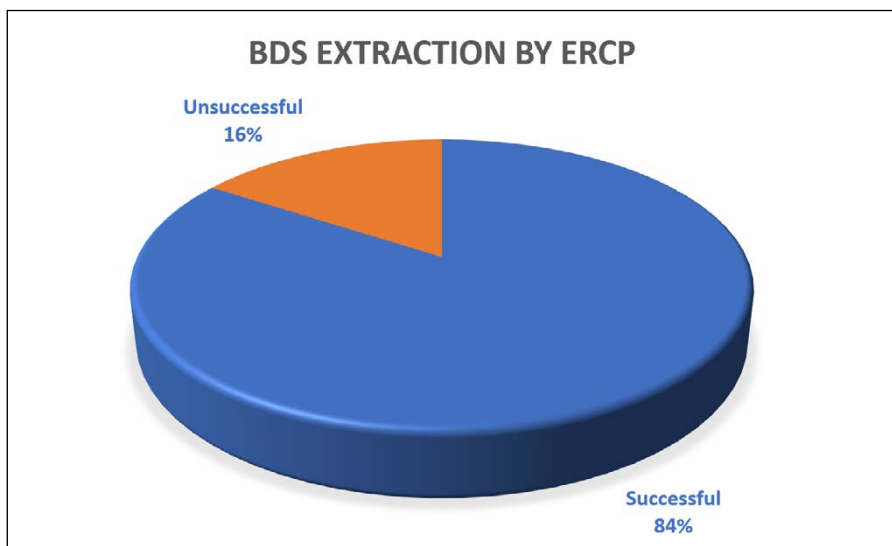
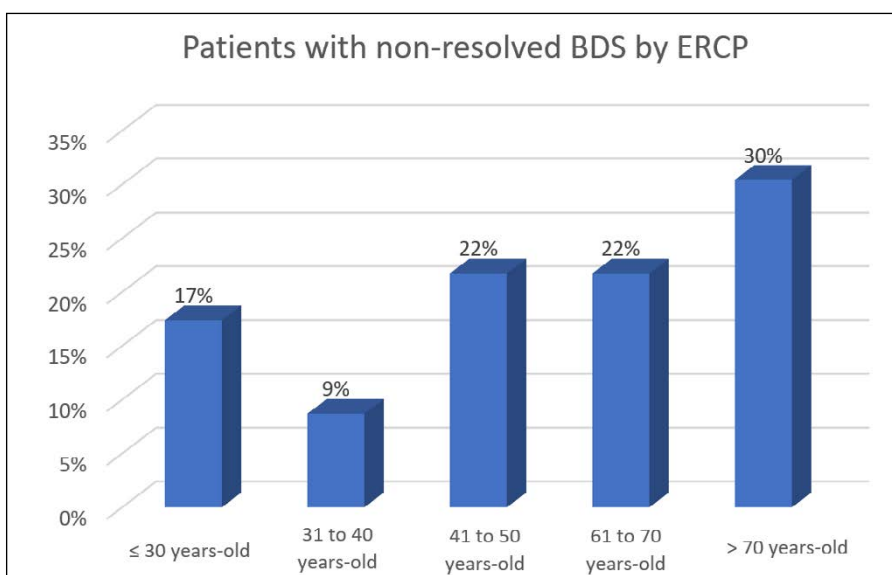


Figure 1. Flux diagram regarding ERCP indications and BDS findings.



Graphic 1. ERCP performance for BDS extraction. n=245.



Graphic 2. Patients with BDS unresolved by ERCP.

choledochotomy was performed equal to 39% (n=9), which was the most frequent situation, followed by cholecystectomy + choledochotomy + Kehr's T tube placement which was performed in 4 patients equal to 17% and cholecystectomy + choledochotomy + transcystic drainage placement on 2 patients (9%). On the other hand, 5 patients (22%) that had already had a cholecystectomy performed on a previous occasion were submitted to a choledochotomy + primary closure, 3 patients (13%) to a choledochotomy + Kehr's T tube placement. (*see Table 1*).

DISCUSSION

Despite multiple studies and different expert meetings, currently there isn't an algorithm for the diagnosis and treatment of BDS that could be considered the gold standard.⁽¹⁰⁾

Table 1. Patients' surgical treatment in which the BDS couldn't be resolved by ERCP.

| | Number of patients | |
|---------------------------------|--------------------|-----------|
| On-site gallbladder | | 15 |
| Choledochotomy and closure | 9 | |
| Choledochotomy and T tube | 4 | |
| Choledochotomy and transcystic | 2 | |
| Previous cholecystectomy | | 8 |
| Choledochotomy and closure | 5 | |
| Choledochotomy and T tube | 3 | |
| Total | | 23 |

Nowadays, bile lithiasis disease is a clearly identified condition that forces the general physician, gastroenterologist, and general surgeon to have a proper diagnostic approach; this pathology contemplates a spectrum of clinical and paraclinical manifestations according to the lithiasis' location and to this day there isn't an optimal approach for patients in risk of BDS.⁽¹¹⁾

Amongst the literature there is a variety of predictive models that seek to focus an optimal handle of these patients; the ASGE grading system stratifies said patients according to clinical criteria, ultrasound imagery, and labs and categorizes them with the goal of achieving a better handle of BDS risk.⁽¹¹⁾

Currently, the usual treatment consists of first performing an ERCP and then a cholecystectomy; if the first one fails, bile duct exploration with Kehr's T tube placement or primary closure is indicated. The laparoscopic approach is the worldwide standard; however, it is not a common practice in our area.⁽¹²⁾

In this work a total of 326 ERCP procedures were considered, from which 75% (n=245) were indicated due to BDS suspicion and 25% (n=81) due to other causes.

Amongst the patients with probable BDS, it was confirmed in 151 (62%) of them, with calculi absence in 94 patients. The low lithiasis finding percentage tells us that ERCP indication is not optimal, needing the utilized criteria to be evaluated; according to a study published by the Hospital de Clínicas (Asunción) in 2019, of the 40 patients submitted to ERCP due to BDS suspicion, calculi were reported in 21 of them (51%) numbers similar to the ones in the present work.⁽¹³⁾

Since its implementation, ERCP has become an excellent technique for the preoperative study of the bile duct, with diagnostic sensibility and specificity close to 100%; it allows, through a side view endoscope, to cannulate the papilla and to opacify the bile duct injecting contrast. In this study, ERCP proved to be effective in 84% of BDS patients; according to a study published by Franco López J in 2021, endoscopic treatment's effectiveness was of 79.2%.⁽¹⁴⁾

Regarding the average age of the patients submitted to surgery (50 years old), it is similar to the one found in literature and other performed studies at national level; the greater prevalence in the female gender also matches the greater frequency of bile lithiasis presentation on said gender, being considered a risk factor for said pathology.⁽¹⁾

Presurgical diagnosis were obstructive jaundice by BDS and acute cholangitis by BDS; with 61% and 39% respectively based on clinical and imagery criteria; according to an international

study published in March of the current year performed in 1.001 patients, the most common ERCP indication was confirmed or suspected BDS in 52,6% of cases and cholangitis suspicion in 7,7%.⁽¹⁵⁾

In this group of patients, open or conventional surgery was performed in most of them and a choledochotomy was done in all of them. Choledochotomy's primary closure was the most frequent procedure, followed by Kehr's drainage and the trans-cystic one. In the study performed by Machain G in 2021, choledochotomy with Kehr's drainage by open surgery was the most performed surgery done in patients submitted to surgery due to non-resolved BDS by ERCP (21 cases).⁽¹³⁾

The main bias of the current study is the lack of long-term follow-ups, in order to corroborate subsequent clinical success.

CONCLUSION

326 ERCP procedures were performed during the study, 245 were by suspicion of BDS, which was confirmed in 151 patients, giving a total of 38% of unnecessary ERCP (94 patients).

Of the 151 BDS patients, calculi extraction by ERCP was successful in 128 patients (85%), and the remaining 23 patients were submitted to surgical resolution.

All the BDS cases which were submitted to surgery were resolved: in every case a choledochotomy was performed, most of them by primary closure. Only one case was resolved by laparoscopic approach.

Author's contribution: Ríos S: Conceptualization, data analysis, formal analysis, investigation, methodology, project administration, resources, validation, visualization, writing of the original draft, writing, revision, and editing.

Franco López J, Echague M.: Conceptualization, methodology, supervision, validation, visualization, writing, revision, and editing.

Conflict of interest: The present study respects the bases of medical ethic given that it will not produce any ill-being to the patients; likewise corresponding authorization was solicited to the General Surgery Service's personnel.

Ethical considerations: Patient's information will remain anonymous. This study does not present any risk to the patients. Results and conclusions of this investigation will be available to any who requires them.

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Choledocholithiasis resolved by laparoscopy. Case report

Coledocolitiasis resuelta por laparoscopia. Reporte de un caso

Pablo E. Schaerer Elizeche*
Marcelo F. Duarte*
Ariel J. Benegas Masi**
Giovanna P. Vera Figueredo**
Giulianna Davoli Benedetti***

Hospital de Especialidades Quirúrgicas Ingavi del Instituto de Previsión Social. Asunción, Paraguay.

ABSTRACT

Choledocholithiasis is a common obstructive pathology of the bile ducts, which can lead to a series of symptoms and complications. We present a 64-year-old female patient, with a history of cholecystectomy 30 years ago, who presented with epigastric pain, jaundice, choloria and acholia for six days. Upon admission obstructive jaundice related to gallstones was diagnosed by MRCP. The condition could not be resolved by ERCP and was resolved with a laparoscopic approach.

Keywords: choledocholithiasis, aparoscopic choledochotomy, ERCP.

RESUMEN

La coledocolitiasis es una patología obstructiva frecuente de las vías biliares, pudiendo llevar a una serie de síntomas y complicaciones. Presentamos una paciente femenina, de 64 años con antecedente de colecistectomía 30 años antes, que acude con dolor epigástrico de 6 días de evolución, ictericia, coluria y acolia. Al ingreso se diagnostica por colangiografía resonancia, ictericia obstructiva de etiología litiásica. El cuadro no pudo resolverse por colangiopancreatografía retrógrada endoscópica y se resuelve por vía laparoscópica.

Palabras clave: coledocolitiasis, coledocotomía videolaparoscópica, CPRE.

INTRODUCTION

Choledocholithiasis is one of the most frequent pathologies of the bile ducts and consists in the presence of calculi on the common bile duct, which obstructs bile flow causing complications such as: obstructive jaundice, acute pancreatitis, acute cholangitis, among others 1. Choledocholithiasis can be classi-

fied in primary and secondary, with primary being the ones that develop within 24 months of the previous cholecystectomy in absence of obstructive symptoms, while secondary being the ones that develop within 24 months of the previous bile surgery. For the diagnosis it is necessary to perform a proper anamnesis, laboratorial diagnosis of the jaundice and obstructive pattern, besides utilizing complementary studies and images, being magnetic resonance cholangiopancreatography (MRCP) the *gold standard* for the diagnosis of choledocholithiasis 2. The therapeutic *gold standard* is the endoscopic retrograde cholangiopancreatography (ERCP) which allows the extraction of these type of calculi, and if the patient presents very strong criteria, it could be performed even without a previous MRCP, being these the criteria: evidence of choledocholithiasis by ultrasonography, total bilirubin over 4 mg/dl, or signs and symptoms of ascending cholangitis. The ERCP, besides being a therapeutic method it could also be utilized as a diagnosis method, considering the 95% sensibility and specification for the detection of calculi on the bile ducts. 2,3. There are situations when the extraction of calculi cannot be solved by endoscopic approach: when calculi of considerable size are present, disproportionate to the common bile duct's diameter, or when identification of the duodenal papilla is unsuccessful. When the ERCP is not possible, the surgical resolution must be proposed, with the laparoscopic approach being the one chosen, along with choledochotomy and calculi extraction, and placement of a T-tube for the bile duct's decompression.

* General surgeon

** Physician


*** College student

Corresponding author: Dr. Pablo Schaerer

Email: psher2025@hotmail.com - Address: Capellanes del ejército en campaña N° 554. Asunción, Paraguay

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CLINICAL CASE

A 64-year-old female patient presented with a 6-day history of epigastric pain of insidious onset, colic type of moderate intensity, radiating to the interscapular zone and partially yields with common analgesic intake. Two days before admission, nausea and vomiting of food content on two occasions were added to the symptoms, and 24-hours before admission, change in skin and mucous membrane coloration which gain a yellowish tone were also added, besides choluria and acholia. For pathological history, the patient reported arterial hypertension in regular treatment with 50 mg/day of losartan and denies other base pathologies. For surgical history, she reported a choledochotomy performed 30 years ago by Kocher incision. The ultrasound showed intrahepatic non-dilated bile ducts, and a 10.2mm common bile duct on its proximal portion, with the distal portion not being visible. On admission, the laboratory reported: white blood cells 17,600/ μ L, neutrophils 76%, hemoglobin 12.3 g/dL, total bilirubin 2.66 mg/dL and direct bilirubin 1.41 mg/dL, alkaline phosphatase 171 U/L, GOT 51 U/L and GPT 71 U/L. Due to laboratory findings, the patient was submitted to a MRCP which showed the common hepatic duct and

common bile duct to up to 10 mm, with a 5 mm signal voids compatible with calculi. An ERCP was performed based on the aforementioned findings, in which the duodenal papilla could not be identified, therefore, the extraction of choledocholithiasis was not possible and so surgical therapy was performed: laparoscopic choledochotomy with calculi extraction with a Fogarty balloon, peroperative cholangiography and T-tube placement (*see Figure 1*). In the peroperative cholangiography, proper contrast passage to the duodenum without residual filling defects' imagery was recorded. The patient had a favorable postoperative course, beginning oral tolerance within the first postoperative day (POD1). Within the POD5 a T-tube cholangiogram was performed, in which proper contrast passage to the duodenum was recorded, without evidence of leaking or signs of signal voids suggesting residual calculi (*see Figure 2*). The patient is discharged on the POD6 without complications, good oral tolerance, no spontaneous pain nor infection and it is planned for the T-tube to be extracted within POD45. The extraction of the T-tube was performed after the POD45 and annual controls are performed on the patient without complications up to this date.

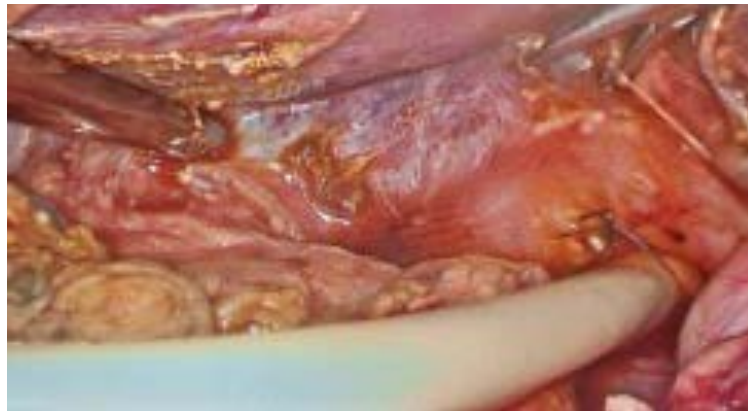


Figure 1. Entrance of the T-tube to the place where the choledochotomy was performed is observed, along with the suture points.



Figure 2. T-tube cholangiogram on POD5, no leaks nor filling defects observed on the bile duct.

DISCUSSION

The presence of choledocholithiasis as a bile pathology is very frequent on our region, with the ERCP being the chosen method upon its presence for the calculi extraction and the prophylactic cholecystectomy within 48-hours after the performed ERCP to avoid future complications. Surgical resolution must proceed when the choledocholithiasis cannot be resolved by an endoscopic approach⁴, with the choices being the open or laparoscopic approach, given that a *gold standard* for surgical treatment does not exist. Several studies, both regional and international, conclude that choledochotomy and extraction of calculus with or without placement of a T-tube for draining is a safe option of treatment^{2,4,7} and according to the findings of Yegros-Ortiz et al⁷ there is no significant difference in the morbi-mortality with or without the placement of the T-tube after the choledochotomy. Canullan et al² proposes the efficacy superiority of the transcystic approach of extraction over the transcholedocian approach.

In our case the choledochotomy with T-tube placement was decided due to the absence of a previous endoscopic papillotomy, which implicated the placement of a drainage for bile duct decompression.

CONCLUSION

Author's contributions: PESE, MFD, AJBM, GPVF and GDB contributed the idea, writing of the work, literature search and final approval.

Conflict of interest: The authors declare no conflict of interest.

Ethical considerations: During this work the ethical requirements towards the protection of the patient and their rights have been respected, as for the protection of privacy and assurance of free participation.

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Bilobed flap utility for local defects due to facial basal cell carcinoma. Case reports.

Instituto de Prevision Social.

Utilidad del colgajo bilobulado en defectos por carcinoma basocelular de la región facial. Reporte de casos. Instituto de Previsión Social.

¹ *Eladio Marcelo Samudio Scavone**

¹ *Rafael Ramón Monzón Cardozo***

² *Michelle Natascha Feltes Escurra****

¹ *Pablo Enrique Schaerer Elizeche**

1. *Hospital Central del Instituto de Previsión Social. Servicio de Cirugía General. Asunción, Paraguay*
2. *Columbia University, Harlem Hospital Center. New York, Estados Unidos*

ABSTRACT

Basal cell carcinoma is a common condition throughout medical centers in Paraguay. The nasal alar region is disadvantaged compared to other body regions due to prolonged exposure to ultraviolet radiation. However, these tumors generally have a good prognosis. The lack of nodal dissemination and distant metastasis makes them quite manageable. The bilobed flap is an excellent option for small defects in this region; it is practical and yields excellent aesthetic results.

Keywords: basal cell carcinoma, surgical flaps, ultraviolet radiation.

RESUMEN

El carcinoma basocelular, es una patología de presentación frecuente centros nacionales de referencia. La región del ala nasal sufre una desventaja con respecto a otras regiones del cuerpo debido a su exposición prolongada a la luz solar. Pero, estos tumores son de buen pronóstico en general. La falta de diseminación linfática y de metástasis a distancia los hacen bastante controlables. El colgajo bilobulado representa una excelente opción para defectos pequeños en esta región, es practico y deja resultados estéticos excelentes.

Palabras clave: Carcinoma basocelular, colgajos quirúrgicos, rayos ultravioletas.

INTRODUCTION

Basal cell carcinoma (BCC) represents an increasingly frequent cutaneous disease on the worldwide population, with Paraguay not being the exception. Several elements have contributed to-

wards the rising prevalence and incidence of this disease, elements that are easily found on the national population.¹

According to a research performed in the Universidad Nacional de Asunción-Paraguay, the most affected population are senior citizens (50 to 59 years-old) with a slight predisposition towards the female gender (54,6%). These patients report very early due to the injuries being located on the facial region, which invades tissues and adjacent structures by direct extension, leaving important aesthetic deformities if left free to evolve, yielding metastasis on rare occasions. They generally present only once, but are capable of doing so multiple times as per Gorlin-Gotz syndrome.² There are multiple subtypes, but the most frequent one is the ulcerated nodule, with surgery being the most effective treatment on the majority of cases.³

Surgical resection of small defects with bilobed flaps for reconstruction is ideal for facial regions. The bilobed transposition flap has ideal characteristics as follows:

- Proximity to the defect.
- Is sizable enough.
- Has enough volume to cover the defect.
- Minimal tractions during the procedure.⁴

The security margin for injuries lesser than 2 cm and with properly defined limits is 3-4 mm, with a tumor-free margin rate of approximately 95%. In regard to the depth it must encompass the entirety of the dermis or up to half of the subcutane-

* General Surgeon. Departamento f General Surgery. Hospital Central del Instituto de Previsión Social.

** General Surgeon. Otolaryngologist. Chief of the Department of Otolaryngology. Hospital Central del Instituto de Previsión Social.


*** General Surgery Resident, 1st Year. Columbia University - Harlem Hospital Center, New York.

Corresponding author: Dr. Marcelo Samudio

Email: marcesasca@gmail.com - Address: Jacaranda casi Las guindas. San Lorenzo, Paraguay

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ous cellular tissue. The pivot movement of the flap is between 90° to 100°. This movement variability yields excellent aesthetic results.⁴

In this work, evidenced by the two clinical cases, we exhibit the handling of these small cutaneous tumors and the versatility of the bilobed flap once mastery over its principles is achieved.

CLINICAL CASES

CASE 1

An 83-year-old female patient, from the city of Concepción, Paraguay. First visit to the dermatology department for an ulcerated injury located on the face. No relevant pathological history nor associated pathologies. She works on the countryside under several hours of solar exposure, many times without physical protection. As surgical history, a similar injury on the upper lip vermilion must be mentioned, which required surgical treatment also through BCC without local recurrences.

The patient reports with an evolution of approximately 3 years of erythematous aspect-ulcerated lesion with an oval size of 0.5 cm, improperly defined edges and different skin tones. (Figure 1).

Solar exposure yielded itching and local pain. Said injury is reported to have the same latency for a period of 2 years without change. On the past 6 months symptoms resurface and there is a

change in the dimensions of the injury, reaching 1.5 cm.

A biopsy of the injury was performed as outpatient which confirms the diagnosis of ulcerated BCC that infiltrated up to the reticular dermis (Figure 1, panel A). Surgical resection demarcating of the flap through modified transposition was performed under balanced general anesthesia, with a single lobe, given that the patient's skin laxity allows ample movement of the flap's pivot (Figure 1, panels B and C) achieving a tension-free closure utilizing a non-absorbable monofilament suture 3.0 (Figure 1, panel D). The pathological report showed BCC infiltrating up to the reticular dermis with injury-free margins.

CASE 2

An 82-year-old female patient, retired, from the city of Asunción, Paraguay. No personal pathological history. Reports an approximately 1-year evolution of a small, crusted ulceration of 0.5 cm located on the nose's wing. The size has increased with tonal changes on the past months. It presents spontaneous bleeding during desquamation.

The pain grows more intense during the last week, with frequent bleeding. It is worth mentioning that the patient performed many leisurely activities out in the open without protection against solar radiation.



Figure 1. Clinical case 1. Panel A: previous image of the BCC. Panel B: modified transposition flap design with a single lobe. Panel C: resection of the injury with 1cm margins, in which ample flap's pivot movement is visible. Panel D: final appearance of the flap with tension-free suture.



Figure 2. Clinical case 2. Panel A: an injury on the nose's wing very close to the lower edge is visible, as well as clear solar elastosis. Panel B: proof of defect's closure with the confectioned advancement flaps. Panel C: tension-free suture of the edges. Panel D: aesthetic result of the scar 4 months after the postoperative.

Along with the previous BCC diagnosis through biopsy, and due to the injury's location on the nose's wing 5mm off the lower edge, under balanced general anesthesia the flaps with security margins of approximately 7mm were performed (*Figure 2, panels A and B*). After ascertaining the non-existence of tension and proper pivot movement, the closure with a non-absorbable monofilament suture 4.0 was performed (*Figure 2, panel C*). The diagnosis was confirmed with free margins through pathology. The patient presents proper aesthetic results on the offsite postoperative (*Figure 2, panel D*).

DISCUSSION

As a general rule, for a bilobed flap to work properly there must be an appropriate laxity for the wound to be able to be fixed without too much tension. One of the biggest advantages of this flap is the ability to recruit healthy skin from the surroundings without being attached to the injury, which yields better aesthetic and functional results.⁵

The bilobed flap is the best fit for circular defects of the caudal third of the nose besides allowing the surgeon the capability

to repair defects using nearby skin without causing major nasal distortions. The main disadvantage is the need to perform two or more curvilinear incisions that are not parallel to the patient's lines of tension – relaxation. This is especially notorious when it is used on patients with overly thick skin with many sebaceous glands or hyperplasia.

This type of flaps is ideal in patients with thin and lax skin, whose laxity can be tested by the surgeon, pinching the nasal skin between the thumb and the index finger.⁶

This flap is known by its excellent application on the nasolabial region, mainly on the nose's wing, its versatility, easy design and excellent aesthetic results once the technique is known and mastered.⁴

For defects of smaller size, rotation, or advancement flaps like bilobed ones are an excellent choice for the patient. For more extensive defects, and the need for full-thickness flaps, the microvascular flaps or thick flaps would be the first options. Many of these more complex flaps possess contradictions such as: previous radioactivity in the area or atherosclerotic diseases of the neck which could interfere with the procedure. In many hospitals around Paraguay, the rotation of advancement flaps

such as the bilobed one prove to be a legitimate choice when it comes to rebuilding defects.⁷

In a retrospective study it was proved that non-microvascular flap reconstructions yield greater satisfaction amongst patients, better tissue coordination, better skin tone and color, as well as providing a shorter hospital stay compared to microvascular reconstructive techniques.⁸

It is recognized as a suitable flap especially for senior populations or those with some type of severe comorbidity condition alike blood malnutrition or those who report a medical contra-indication. It is ideal for smaller defects and good skin laxity.⁹

CONCLUSION

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Conflict of interest: The authors declare no conflict of interest.

Ethical considerations: The ethical committee authorized the execution of the present study. Consent of the patients was obtained for the presentation of the case: data, images, and results, with due diligence for anonymity.

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Clinical case: severe upper gastrointestinal bleeding and covid-19

Caso clínico: hemorragia digestiva alta grave y covid-19

Valentina Seballos*
Daniel González**

Hospital Regional Salto, Uruguay

ABSTRACT

Upper gastrointestinal bleeding in patients with COVID-19 is unusual and can be fatal. It is described in up to 13% of hospitalized patients with coronavirus. Endoscopic treatment is a challenge for the patient due to the risk of respiratory failure, as well as for health personnel due to the risk of airborne transmission. We present an atypical clinical case of severe upper gastrointestinal bleeding due to COVID-19.

Keywords: Coronavirus, gastrointestinal bleeding.

RESUMEN

La hemorragia digestiva alta en pacientes con COVID-19 es inusual y puede llegar a ser mortal. Se describe en hasta un 13 % de los pacientes hospitalizados con coronavirus. El tratamiento endoscópico es un desafío para el paciente debido al riesgo de insuficiencia respiratoria, como para el personal de salud debido al riesgo de transmisión aérea. Presentamos un caso clínico atípico de hemorragia digestiva alta grave por COVID-19.

Palabras clave: Coronavirus, hemorragia gastrointestinal.

INTRODUCTION

The severe acute respiratory syndrome SARS-CoV-2 establishes the disease through COVID-19, air-transmitted viral disease which rapidly became a pandemic in the year 2020. SARS-CoV-2 mainly presents respiratory afflictions, nowadays gastrointestinal, cardiac, and renal manifestations are also known. Gastrointestinal symptoms are present on up to 35% of patients with these being vomiting and diarrhea¹⁻². It is exceptional that a patient infected with coronavirus reports upper gastrointestinal bleeding.

CLINICAL CASE

A 43-year-old male patient, arterial hypertension currently in treatment with losartan 50mg/day, left hemiplegia due to a stroke. No history of anti-inflammatory, analgesic, antiaggregant nor anticoagulant intake.

Reported nausea and vomiting of gastric content. Stable hemodynamics, clinical anemia. Rectal examination yielded nor-

motonic sphincter, and melena on glove.

Hemoglobin 7.5 g/dl was recorded, and the patient was transfused two volumes of red blood cells. A nasopharyngeal swab was performed due to pandemic state, positive PCR test for COVID-19, currently on the 4th day of the disease.

An emergency fibrogastroscopy was performed which yielded an extensive injury on the infrapyloric region extending to the second portion of the duodenum, with an isolated hemorrhaging blood vessel (Forrest 1A), without ulcerated injury. Hemostasis through endoscopic sclerosis with adrenaline was performed (Figure 1, panel A and B).

Admitted to intensive care unit, proton-pump inhibitors were initiated. He showed hemodynamic instability 24-hours afterwards, another fibrogastroscopy was performed which yielded a jet bleeding subsequent to the adrenaline injection, resolved by hemostatic clip placement.

Proper development after the last performed procedure. Third fibrogastroscopy before discharge yielded no evidence of active bleeding (Figure 1, panels C and D), negative *Helicobacter pylori* through biopsy.

The patient developed properly, being discharged after 15 days and continuing outpatient check-ups through a polyclinic.

DISCUSSION

The most common symptoms of the COVID-19 disease are respiratory, gastrointestinal disorders are key extrapulmonary afflictions, and gastrointestinal hemorrhage is reported on 2 to 13% of admitted coronavirus patients³.

The intestinal epithelium secretes the angiotensin-converting enzyme, viral entry receptor, which is present on the esophagus, ileum, and colon¹⁻³. It is not yet clear if SARS-CoV-2 damages the epithelium and causes the bleeding or if it appertains to multiple factors, including stress caused by the disease, epithelium damage and active inflammation of the mucous membrane through cytokine storm⁴.

Several authors have proven that the bleeding is most fre-

* General Surgery Resident, Clínica Quirúrgica 3.

** Professor, Clínica Quirúrgica 3.

Corresponding author: Dra. Valentina Seballos.

Email: vs-94@hotmail.com - Address: 25 de Agosto 139. Código Postal: 50000. Salto, Uruguay.

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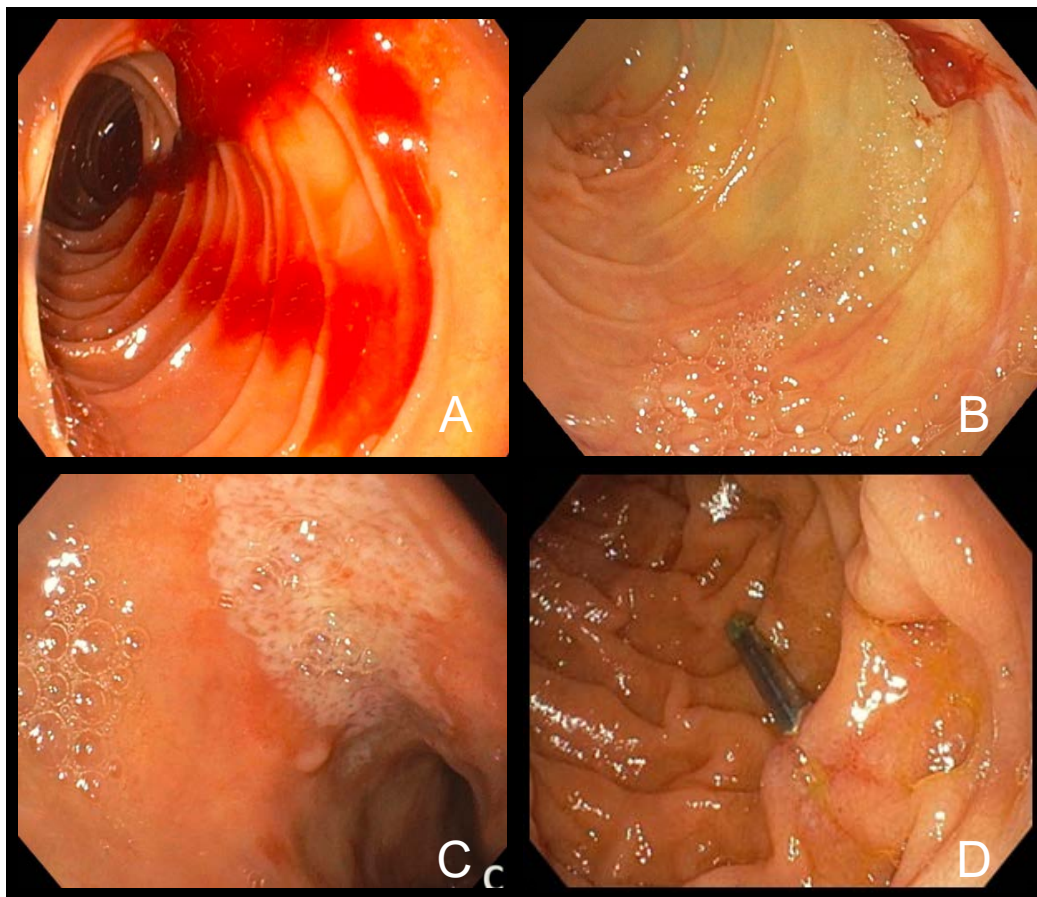


Figure 1. Emergency fibrogastroscopy. Panel A: arterial jet bleeding in the infrapyloric region. Panel B: isolated blood vessel without ulcerated injury after hemostasis with adrenaline. Check-up fibrogastroscopy. Panel C: injury on the infrapyloric region, no bleeding. Panel D: endoscopic check-up of the clipped injury.

quent during hospitalization which suggests its related to the treatment or its secondary to viral factor related to the critical disease, instead of a virus-induced mucous membrane injury³. A multicenter study has proven that 80% of gastrointestinal bleeding were caused by duodenal or gastric ulcers³. In our clinical case an extensive injury of atypical topography (infrapyloric up to duodenum II) was observed, non-ulcerated where an isolated blood vessel protruded from.

The treatment of these patients must be performed by a multidisciplinary team. Firstly, perform an initial fibrogastroscopy on hemodynamically unstable patients and/or under clinical suspicion of rebleeding, due to the risk of respiratory failure for the patient and increase of infection rate for the health personnel.

Secondly, evaluate risk-benefit of anticoagulation, although

the COVID-19-induced coagulopathy is recognized, which is the reason why anticoagulation is one of the treatment's pillars, caution and extreme vigilance must be implemented in comorbidity patients⁵⁻⁶.

CONCLUSION

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Neuromuscular and vascular hamartoma of the small intestine: a case report

Hamartoma neuromuscular y vascular de intestino delgado: reporte de caso

Alexandra Colucci
Jorge Giubi
Rosa Ferreira

Universidad Nacional de Asunción, Facultad de Ciencias Médicas, Hospital de Clínicas. San Lorenzo, Paraguay

ABSTRACT

Small bowel neoplasms are extremely rare (2%) and generally malformative, neuromuscular and vascular hamartoma being even rarer with approximately 28 cases reported since 1982, when it was first described. As more common clinical manifestations, obstructive abdominal pain and occlusive pictures in the intestinal lumen are described, however, it can also mimic clinical features of inflammatory bowel disease and other reactive conditions. Imaging studies may show signs of stricture, intussusception, or directly a polypoid mass. Surgical resection is curative and no recurrences have been reported.

Keywords: Hamartoma, neuromuscular and vascular hamartoma, small intestine.

RESUMEN

Las neoplasias de intestino delgado son extremadamente raras (2%) y generalmente malformativas, el hamartoma neuromuscular y vascular es aún más raro con aproximadamente 28 casos reportados desde 1982, cuando fue descrito por primera vez. Como manifestaciones clínicas más comunes, se describen el dolor abdominal obstructivo y cuadros oclusivos en la luz intestinal, sin embargo, también puede imitar características clínicas de enfermedad inflamatoria intestinal y otras afecciones reactivas. En los estudios de imagen, se pueden observar signos de estenosis, invaginación intestinal o directamente una masa polipoide. La resección quirúrgica es curativa y no se han registrado recurrencias.

Palabras clave: Hamartoma, Hamartoma neuromuscular y vascular, intestino delgado.

INTRODUCTION

Small bowel neoplasms are extremely rare (2%) and generally malformative, neuromuscular and vascular hamartoma being even rarer with approximately 28 cases reported since 1982, when it was first described.^(1,2)

Many published cases even cast doubt on the existence of this pathology due to the clinical similarity and histology with reactive pathologies such as Crohn's disease, ischemic enteritis, or radiation enteritis, which has been a cause for debating

whether the injury really is a hamartoma or a "burned" phase of said pathologies.^(3,7)

This is a case report of a 67-year-old female patient with 2-month evolutive symptoms of black stool and cathartic habits' alterations, imagery studies yielded signs of intestinal intussusception, therefore the patient was submitted to small bowel resection of the affected area and ileal-anal anastomosis with manual suture in a single plane. The patient reported a proper evolution after the procedure and was discharged.

CLINICAL CASE

67-year-old female patient with 2-month evolutive symptoms of black stools and presyncope, hence she attends a physician although no hemodynamic alterations are detected, therefore she is discharged. She reports a second episode approximately 1 month afterwards with a 5 g/dl hemoglobin drop which required a 2-volume concentrated red blood cells transfusion. Furthermore, she reports alternating episodes of diarrhea and constipation. Known high blood pressure patient in current treatment with telmisartan/amlodipine 40/5mg e/24hs and Type 2 mellitus diabetes in current treatment with metformin 850 mg e/24hs and glimepiride 4 mg e/24hs.

Abdominal ultrasound yielded a cross-section rounded formation in the hypogastrium and right iliac fossa, formed by hypo and hyperechoic concentric layers (cockade sign) of approximately 50 mm of diameter. Said formation continues with thin folds, which are not dilated, although of thickened walls (9mm of thickness) with proper color Doppler vascularity, lack of gastrointestinal peristalsis.

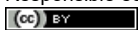
In the contrasted tomography, signs of intestinal intussusception of thin folds (ileal) can be seen close to the ileocecal junction in the hypogastrium region, the compromised thin folds show thickened walls of up to 7 mm of thickness with pres-

Corresponding author: Dra. Alexandra Colucci

Email: alexcolucci92@hotmail.com - Address: Mcal. López casi Cruzada de la Amistad. Hospital de Clínicas. San Lorenzo, Paraguay

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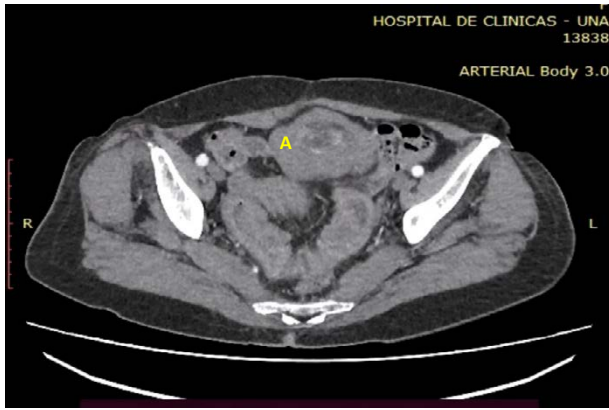


Figure 1. Contrasted tomography where intestinal intussusception of thin folds (A) close to the ileocecal junction can be observed.



Figure 2. Surgical piece of small bowel resection including the ileo-anal intussusception zone.

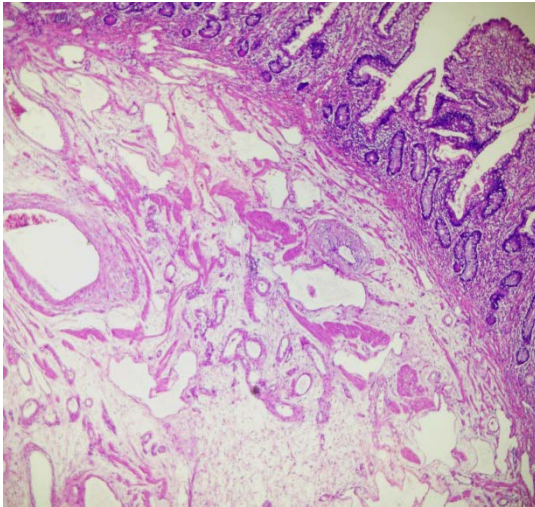


Figure 3. Jejunal submucosa, disorganized muscle fascicles, and numerous hemangiomatous blood vessels were observed.

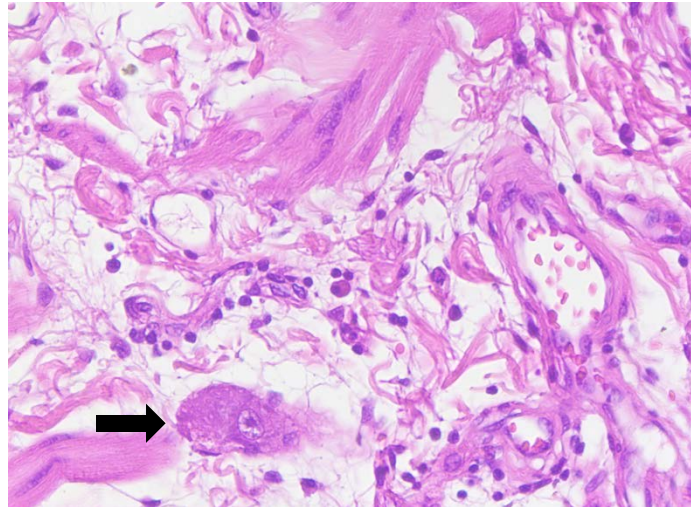


Figure 4. At increased lens magnification, presence of ganglion cells (arrow), disorganized muscle fascicles and blood vessels were observed in the submucosa.

ent parietal enhancement without signs of proximal intestinal obstruction (*see Figure 1*). Furthermore, an upper gastrointestinal endoscopy and colonoscopy are performed without relevant findings.

An exploratory laparotomy was performed where ileal-anal intussusception without transition zone nor occlusion signs was reported (*see Figure 2*). A resection of the affected area of approximately 25 cm long 90 cm away from the ileocecal valve with term-terminal ileo-anal anastomosis with manual suture in a single layer was performed.

In the macroscopy, a brownish, heterogeneous, smooth external surface was observed, with a grayish beige internal surface with preserved intestinal folds and walls of up to 0.7 cm of thickness. An elongated polypoid formation of 11 cm long and 3 cm wide was observed, coated by grayish beige mucous of irregular aspect which stays 6 cm away from the closest resection margin.

In the histology, said polypoid formation presented itself coated by benign small intestine mucous, without atypia and ulcerated on the distal portion. In its own slide, parallel to the crypts, smooth muscle bundles were observed. The muscularis mucosae was found disorganized and improperly constituted. In

the center of the injury corresponding to the submucosa, numerous vessels of different calibers were observed, of abnormal appearance. The major vessels with hyalinization and eccentric myxoid changes to an intimate level; others presented themselves with recent thrombosis, partially rechanneled, irregular ectatic venous structures, and small vessels of walls with hyperplasia, as well as small and medium caliber vascular changes that partially extend to the mucous and intestinal villus. Furthermore, abundant disorganized smooth muscle tissue around said vessels was observed. (*see Figures 3 and 4*)

The macroscopic and histological findings are compatible with neuromuscular and vascular hamartoma of the small intestine (11 cm) of polypoid pattern.

DISCUSSION

Neuromuscular and vascular hamartoma of the small intestine is a rare condition first described in 1982. There are approximately 28 known published cases to this date, in which an average age of 53 years old is observed as presentation age, generally at jejunal and ileum level, although there has been a reported case in the cecal appendix^(1,3,5). In our case, the 67-year-old pa-

tient presents an ileal-level tumor at approximately 90 cm from the ileocecal valve.

As the most common clinical manifestations, it is described obstructive abdominal pain and occlusion at intestinal light, however, it can also mimic clinical characteristics of intestinal inflammatory disease and other reactive affectations, hidden gastrointestinal bleeding, and anemia by iron deficiency^(1,2). In the case of our patient, both types of symptoms were present due to her presenting episodes of bleeding as well as cathartic habits' alterations.

In the imagery studies, signs of stenosis, intestinal intussusception or directly a polypoid mass can be observed⁽³⁾. In the presented case, the ultrasound yielded a cross-section round formation, formed by hypo and hyperechoic concentric layers (cockade sign) of approximately 50 mm of diameter, and in the tomography, signs of intestinal intussusception of thin folds (ileal) close to the ileocecal junction in the hypogastrum region.

She presents with abnormal proliferation, no neoplasms of cellular elements which are generally part of the gastrointestinal mucous and submucosa. Neoplasm injuries of the small intestine, besides being extremely rare (2%), are generally malformative. Cases with single or multiple stenoses, or injuries of mass similar to simple polyps which can also be single or multiple were reported^(2,3). Coincidentally, our patient reported a single

elongated polypoid injury, coated by grayish beige mucous of irregular aspect.

At histological level, disorganized elements of unmyelinated nerve fibers were observed, as well as ganglion cells, muscle fascicles, and hemangiomas vascular channels which were found in the mucous and submucosa of the small intestine's walls.⁽¹⁾ In our patient's case, abundant disorganized and improperly constituted smooth muscle tissue was observed, and in the submucosa, vessels of different calibers and of anomalous aspect were observed.

Surgical resection is healing, and no recurrences have been registered^(1,2), in our patient's case the surgery was successfully performed, and the patient was discharged 5 days afterwards with a favorable evolution and without recurrences up to this date.

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- 12- Others.

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- 1- **EDITORIAL:** With few exceptions, their writing will be done by order of the Editorial Committee or the editor of the **CIRUGIA PARAGUAYA** magazine, expressing personal or institutional ideas on a specific current issue, whether or not it refers to an article published in that issue of the Magazine (maximum 6 pages).
- 2- **ORIGINALS:** Publication of clinical, experimental or surgical techniques investigations that allow expanding and emulating the knowledge about a surgical problem, repeating the observations and judging their conclusions. It should be made up of: Abstract. Introduction. Material and method. Discussion. Selected references are recommended, limited to the number of 20 (twenty). Do not exceed the maximum of 15 pages.
- 3- **REVIEW ARTICLES:** Retrospective or recapitulative studies in which already published information on surgical problems is analyzed, completed with personal contributions. It should not exceed 20 pages.
- 4- **CASE REPORT - REPORT OF CASES OR CLINICAL NOTES:** Initial notes that contain one or more new information, or infrequent or interesting clinical cases as a contribution to understand the problem. It will have a maximum of 4 pages.
- 5- **LETTERS TO THE EDITOR:** Publication of objections or comments regarding articles recently published in the Journal, observations or experiences that, due to their characteristics, can be summarized in a brief text (maximum 2 pages). The Journal Editor is not obliged to publish all the letters received.

ARTICLE ORGANIZATION

- 1- **PAGE- TITLE:** The title must be clear, in Spanish; containing the maximum information with a minimum of words, it should not contain formulas, abbreviations, or question marks. It must be accompanied by the full name(s) of the author(s), fol-

lowed by their professional titles, correspondence address and email, as well as the name of the work institution. For original articles the number of authors will be a maximum of 10 (ten) and for brief notes and case reports a maximum of five.

- 2- **SUMMARY - SUMMARY:** A summary in Spanish and English must accompany the work, not exceeding 200 words. This summary must be structured as follows: objectives, material and method as well as results with their statistical significance and conclusion. The literal translation of the abstract should be avoided. Abstracts of review articles, clinical cases and technical notes do not need to be structured. However, your abstracts should not exceed 75 words.
- 3- **KEY WORDS - KEY WORDS:** According to Index Medicus indications (between 3 to 5 key words).
- 4- **INTRODUCTION:** You must indicate the objective of the work, the formulated hypothesis. The reason for the work. It is recommended to avoid extensive bibliographic reviews, history and anatomical bases.
- 5- **MATERIAL AND METHODS:** Characterizing the research, experiment or work carried out, duration, type of series or population studied and techniques used, providing sufficient details and following the ethical principles of the Helsinki declaration of 1975.
- 6- **RESULTS:** Reports of the observations made with the material and method used. These data can be expressed in detail in the text or in the form of tables and figures.
- 7- **DISCUSSION:** The author will try to offer his own opinions on the subject, highlighting among others: meaning and application of the results, considerations on the inconsistency of the methodology and the reasons for the validity of the results; relationship with similar publications: similarities and differences, indications for future research.
- 8- **REFERENCES - BIBLIOGRAPHY:** (According to Vancouver Standards) they will be numbered in order of appearance in the text. All bibliographic citations will be mentioned in the text by means of their corresponding Arabic number and no author will be mentioned who does not appear in said cita-

tions. Bibliographical references will be presented in the manner shown in the following examples: Journal articles and initials of all authors if there are six or less. Seven or more, only the first six will be required, followed by the expression et al.: Title of the work in original language: abbreviation of the name of the Journal according to its use by the Index Medicus: year of publication, volume and first page and last from work.

Book and monographs: Authors, book title, or monograph, city, publisher and year of publication. Book chapters: authors, chapter titles in the original language, surnames and initials of the editor(s), title of the book, city of publication, publisher, year of publication, and page (first and last of the chapter). The number of bibliographic citations should not exceed 20 (twenty) for original articles, 8 (eight) for clinical cases and 5 (five) for technical notes.

- 9- **FIGURES:** Illustrations, photographs, graphs and diagrams will be considered figures. The photographs will be carefully selected, ensuring that they are of good quality. The author must provide the original in high definition jpg format (300dpi). The photos will be published in black and white. When the publication of color photographs is desired, the expenses will be borne by the author, who will request a budget from the publisher. The editor of the magazine and the editorial committee reserve the right to reject, after informing the authors, those photographs that do not meet the necessary quality for a good reproduction. Each figure must have an explanatory title.
- 10- **TABLES:** They will be presented in sheets and will include: a) numbering of the table, b) statement (title) and c) a single table per sheet. They must be clear and without corrections.

The works that do not strictly comply with these conditions will be returned to their authors so that they can proceed to make the modifications that are suggested by this Journal.

The Editorial Office of **CIRUGÍA PARAGUAYA** reserves the right to introduce modifications in the works received, without altering their meaning, in order to adapt them to these publication regulations.