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EDITORIAL
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October-December 2021
Vol. 43, no. 4 / p. 221-222

The results in a scientific paper

Los resultados en un artículo científico

Abilene Cirenia Escamilla-Ortiz*

One of the essential things when presenting research work is how the information is presented; this is reflected in the results section. Some people underestimate this section and need to write down everything or repeat data in the discussion; they should compare their results against what is described in the literature.[1]

The results should answer each part of the research, go back to the material and methods section, and make sure that the variables and analysis are explained. It should begin by describing the total number of participants, how many still need to complete the study or why they were eliminated, and the characteristics of the participants. It is suggested to place the most significant results first, but remember to include the non-significant results.[2]

Write in the past tense, use headings for each section or what is wanted to represent, try to use a few words, and be more visual. When reporting statistical tests for analysis, including the appropriate and adequate values for the study.[3]

Visual aids allow better communication of the results; these can be graphs, tables, charts, images, or illustrations, and they should not repeat what is already in the text.[3] Tables or figures capture the reader's attention better and allow more efficient communication of what is to be communicated, the use of abbreviations should be avoided, and if they are used, the meaning should be indicated.[2] It should be remembered that the interpretation of the data is part of the discussion.

When data or results are reported, they should be logical; the results are text descriptions of what was important in the data. Please do not refer to unpublished results unless they carry significant weight.[4]

How to organize the results section:[4]

1. Chronological order.
2. From general to specific.
3. From most important to least important.
4. Group the results by topic, study group, or experiment.

It is important not to duplicate or repeat what is in tables or figures or in the text itself; only if it is wanted to emphasize something can be done. They should be placed at the beginning of the paragraph to highlight the significant results, which is the substantial part, and the key findings can receive more attention.[4]

Do not forget to write down the units of measurement, and the units of the laboratory results, and punctuate the hours, if it is a.m. or p.m. regarding numbers, they should be written when they are less than 10.[4]

If this section is well narrated, the reader should understand the data and its implications before reading the author's interpretation.

* Editor, Surgeon General. orcid.org/0000-0001-5635-5845

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Surgical technique and challenges of multi-organ procurement in times of COVID-19

Técnica quirúrgica y retos de procuración multiorgánica en tiempos de COVID-19

Jorge Martínez Ulloa-Torres,[*] Paulo Irán Gutiérrez-Torres,[*] Idalia Parra-Ávila,[*] Luis Fernando Aguilar-Castillejos,[*] Mariano Hernández-Domínguez,[‡] Juan Pablo Baas-Cruz[§]

Keywords: transplantation and COVID-19, multi-organ donation, procurement surgery, liver, kidney.

Palabras clave: *trasplante y COVID-19, donación multiorgánica, cirugía de procuración, hígado, riñón.*

ABSTRACT

Mexico performed 1,136 deceased donor kidney and liver transplants in 2019. Due to the SARS-CoV-2 disease pandemic (COVID-19) as of March 2020, all donation and transplant programs were temporarily suspended, so multi-organ procurement decreased by 94% during the second and third quarters of the year. Transplant programs are considered a priority because of their high impact on major public health problems. As a result of a decrease in hospital admissions and occupancy, the National Transplant Center (CENATRA) published a reactivation plan for these programs in June. This plan considers screening measures for all potential donors, including tests such as reverse transcriptase polymerase chain reaction (RT-PCR) and chest tomography (CT), which is why we report in this article the time needed and the feasibility of running these *screening tests* in a clinical case in Yucatan, as well as a review of the surgical technique for explant surgery.

RESUMEN

México realizó 1,136 trasplantes renales y hepáticos de donante fallecido durante el 2019. Como consecuencia de la pandemia por la enfermedad por SARS-CoV-2 (COVID-19), a partir de marzo del 2020 se suspendieron temporalmente todos los programas de donación y trasplantes, por lo cual las procuraciones multiorgánicas disminuyeron en 94% durante el segundo y tercer trimestre del año. Los programas de trasplantes son considerados prioritarios por su gran impacto en los principales problemas de salud pública. Como consecuencia de una disminución de ingresos y ocupación hospitalaria, en junio se publica por parte del Centro Nacional de Trasplantes (CENATRA) el plan de reactivación de estos programas. En dicho plan se consideran medidas de escrutinio a todo potencial donante, así como la realización de pruebas como reacción en cadena de la polimerasa con transcriptasa inversa (RT-PCR) y tomografía (TC) de tórax, motivo por el cual reportamos en el presente artículo el tiempo necesario y la viabilidad de correr estas pruebas de screening en un caso clínico de Yucatán, así como una revisión de la técnica quirúrgica para la cirugía del explante.

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INTRODUCTION

Current organ transplantation is one of the most significant advances in modern medicine, being the definitive treatment for many patients with terminal organ failure. The Mexican Institute of Social Security (IMSS) has been at the forefront in this field for several years, concentrating the most significant activity on donation and transplantation in Mexico.[1]

In 2019 in Mexico, 1,136 deceased donor kidney and liver transplants were performed; currently, more than 17 thousand patients are registered on the waiting list to receive a transplant of one of these two organs.[2,3]

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Around the critical situation generated by the COVID-19 pandemic, the National Transplant Center (CENATRA) issued in March 2020 the "Recommendations to the National Subsystem of Donation and Transplantation on the infection associated with SARS-CoV-2", suggesting the temporary suspension of all organ and tissue donation and transplantation programs nationwide, except for zero emergencies and priority allocations. This is in line with other international recommendations published by the Spanish National Transplant Organization (ONT), the Latin American Society of Nephrology and Hypertension (SLANH), the Transplant Society of Latin America and the Caribbean (STALYC), the Pan American Association of Infectious Diseases (API), as well as by the National Central Institute of Ablation and Implant Coordination of Argentina (INCUCAI).[4,5]

As a result, multi-organ procurement in Mexico plummeted 94% during the second and third quarters of 2020 compared to the same period last year, with a total of 15 vs. 280 procurements completed, respectively.[6,7]

Contrary to some perceptions, transplant programs are considered relevant because of their incredible impact on public health problems, such as end-stage renal failure, making them priority programs. For this reason, associated with a decrease in hospital admissions and occupancy due to COVID-19 cases, CENATRA published a plan to encourage the reactivation of donation and transplantation programs in our country in June of this year. In this plan, the internal transplant committee must carry out a diagnosis of the particular epidemiological situation of the establishment. It will evaluate the availability of human, financial, technological, and material resources, COVID-19-free circuits, hospital beds in intensive care Units, and laboratory and cabinet studies (RT-PCR tests and thorax tomography), among others.[8] These last two *screening* studies for SARS-CoV-2 are necessary for both the donor and the potential recipients, which adds complexity to the already laborious logistics.

This article aims to estimate the time necessary to comply with current RT-PCR and chest tomography protocols, their feasibility, and their impact on the donation/transplantation process; we will also analyze the main surgical aspects of multi-organ procurement surgery.

CASE PRESENTATION (Table 1 and Figure 1)

Surgical aspects

The following is a description of the surgical technique with some images and algorithms to facilitate an understanding of the process.

Preparation and field

a. It is mandatory that the surgeon in charge reviews all documentation prior to the incision, especially: certification of loss of life for the disposal of organs and tissues with the time of death equal to that of the cabinet study showing absence of cerebral flow; consent for the disposal of organs and tissues of cadavers for transplantation purposes, with signatures and identifications; the results of negative infectious serologies and finally, if applicable, the consent of the Public Prosecutor's Office.
b. Negative RT-PCR for SARS-CoV-2, ideally 24 hours maximum 72 hours before the surgical event.
c. In cases where available, a chest CT scan should be performed. It should be clarified that an image not suggestive of COVID-19 does not rule out the active disease process.
d. Communication between the surgeon and the anesthesiologist is confirmed for administering medications at the various crucial stages: hemodynamic support during surgery, relaxants to avoid any spinal reflex or Lazarus reflex in the donor, and anticoagulation prior to clamping.
e. Perfusion set ready with at least eight liters of preservation solution and 10 liters of frozen sterile solutions.

Table 1: Schedule of actions carried out.

Day	Time	Event
0	16:00	The Emergency Department reports to the hospital donation coordinator about a 23-year-old male patient with severe cranioencephalic trauma secondary to a car accident 24 hours before his admission; he is found with clinically absent stem reflexes and a cerebral angio-CT scan showing an absence of flow. In a committee session, it was determined that the two kidneys and the liver would be transferred to Mexico City due to the absence of conditions to perform the transplants in the generating hospital
0	17:00	With the support of the Epidemiology Service and the central laboratory of the generating hospital, a COVID-19 oral-nasopharyngeal RT-PCR test was performed
0	19:00	A chest CT scan showed a left pneumothorax, a pleural bypass tube, and bilateral pulmonary contusion areas without data suggestive of SARS-CoV-2 infection
1	05:00	The result of the COVID-19 test by RT-PCR was negative
1	10:00	Proceedings before the Public Prosecutor's Office are initiated
1	17:00	*TIME OUT*: multi-organ procurement surgery by the generating hospital's transplant surgical team to avoid inter-state equipment transfer
1	19:00	Clamping
1	20:00	Transfer of the organs from Merida to Mexico City by plane
2	03:00	Hepatic depinning
2	06:00	Successful completion of liver transplantation
4	10:00	Successful transplantation of both kidneys during the morning of day four (with pulsatile hypothermic perfusion support from the arrival of kidneys on day one; > 72 h of ischemia)

RT-PCR = reverse transcriptase polymerase chain reaction. CT = computerized tomography.

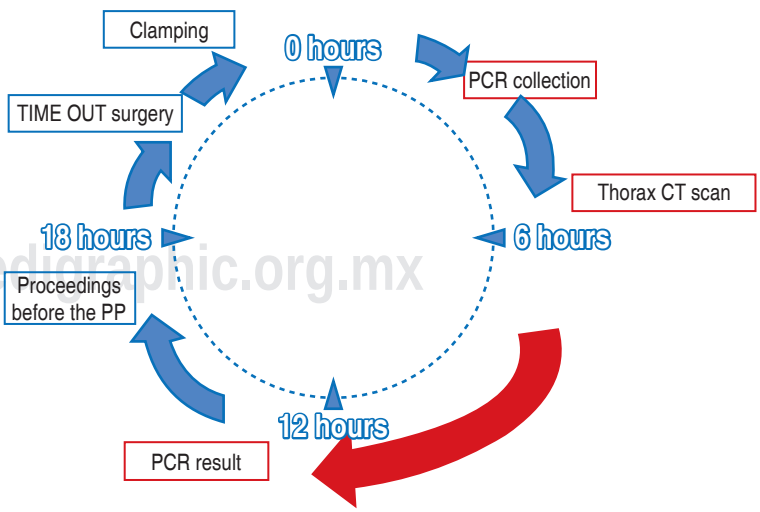

Figure 1:

Hours elapsed between notification and certification of brain death and the various processes culminating in procurement. PCR (one hour after onset), chest CT scan (four hours after onset), PCR result (13 hours after onset), proceedings before the Public Prosecutor's Office (18 hours after onset), start of TIME OUT procurement surgery (20 hours after onset) and aortic clamping (22 hours after onset).
PCR = polymerase chain reaction.
CT = computed tomography.
PP = public prosecutor.

f. Surgical toilet 5 cm above the xiphoid, covering the abdomen to the symphysis pubis, including the middle third of both thighs.

Surgical procedure

a. **Abdominal approach and clinical evaluation.** A cross incision is made, starting with a medial xiphoid incision up to the symphysis pubis and completed with a transverse incision up to the limits of Toldt's fascia. Thoracic enlargement with stereotomy is optional *(Figure 2A)*.
Subsequently, the round and suspensory ligaments are ligated, sectioned, and incised up to a few millimeters proximal to the suprahepatic veins. Examination of the intra-abdominal organs is performed to exclude possible malignant disease *(Figure 2B)*. Clinical evaluation for hepatic steatosis is assessed at this stage, especially if a pathologist is unavailable. The surgeon assesses the coloration, pressing parenchyma, borders, and firmness of the liver *(Figure 2C)*.[9]

b. **Dissection of great vessels and renal exposure.** The parietal peritoneum is incised with electrocautery at the level of the bifurcation of the abdominal aorta. It extends laterally to the cecum to continue along Toldt's fascia, ascending to the hepatic angle *(Figure 3A)*.
Dissection continues (Cattell-Braasch and Kocher maneuver) along the inframesocolic retroperitoneal avascular plane to mobilize and retract the ascending colon medially, mobilization of the duodenum and pancreatic head to expose the Gerota and right renal vein, inferior vena cava and abdominal aorta. The right ureter is identified and dissected *(Figure 3B)*.
At this stage, the superior mesenteric artery is dissected at its origin from the aorta, which emerges above the crossing of the left renal vein to the abdominal aorta, in search of an accessory artery or replacement of the right hepatic artery *(Figure 3C)*.
The contralateral retroperitoneal dissection is performed using the Mattox maneuver, incising the left Toldt's fascia up to the splenic angle, dissection of the retroperitoneal avascular plane exposing the Gerota and the left ureter.

c. **Referral for cannulation.** In preparation for cannulation and Perfusion, the distal segment of the aorta is dissected in search of the inferior mesenteric artery, which is ligated and cut. Similarly, the inferior vena cava is dissected and referred to with umbilical tape at the level of the iliac veins inflow *(Figure 4A)*.
Lateral to the angle of Treitz, the inferior mesenteric vein is identified, dissected,

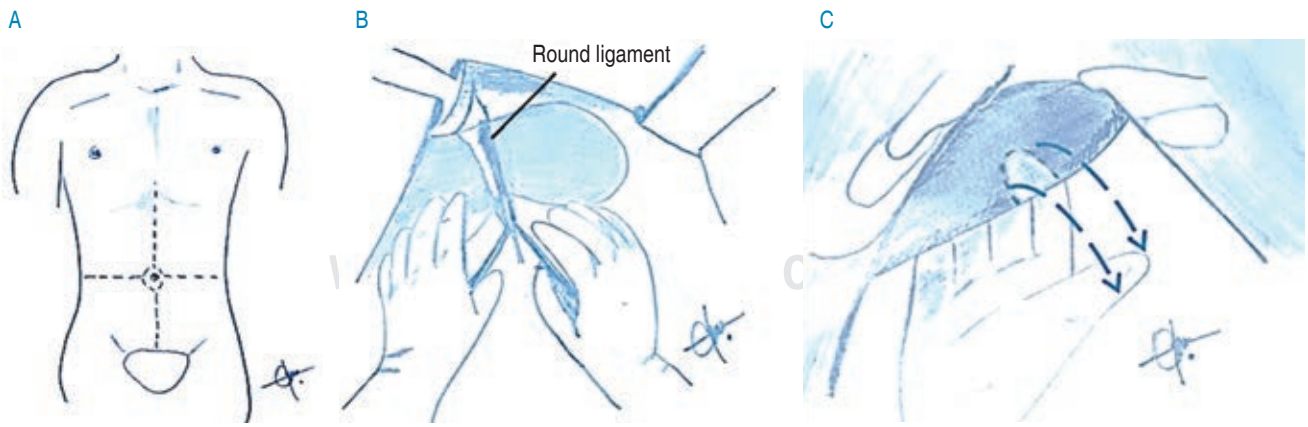

***Figure 2: A)** Cross incision. **B)** Incision of the round and suspensory ligament. **C)** Pressure of the hepatic parenchyma.*

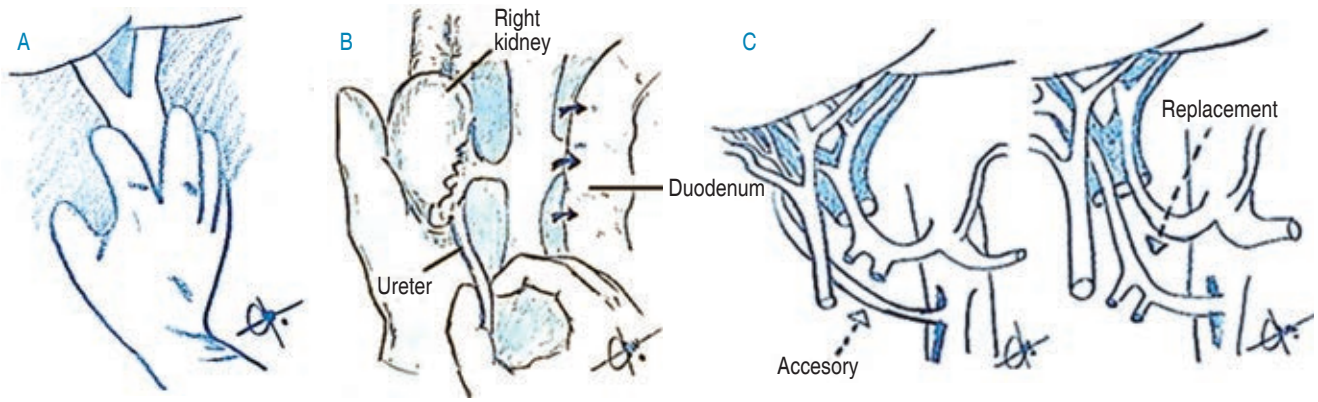

Figure 3: A) *Abdominal aortic bifurcation dissection.* ***B)*** *Cattell-Braasch and Kocher maneuver.* ***C)*** *Accessory or right-side replacement.*

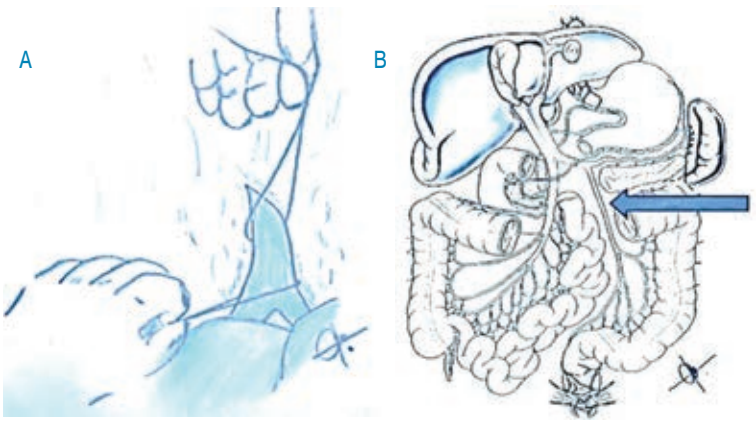

Figure 4: A) *Aorta and infrarenal vena cava referenced.* ***B)*** *Identification of the inferior mesenteric vein.*

and referred with silk for subsequent portal perfusion *(Figure 4B)*.

It is preferred not to cannulate at this time to avoid accidentally decannulating the great vessels during the rest of the dissection.

d. Hepatic Dissection. A compress is placed on the inferior border of the left lobe, and electrocautery is used on the left triangular and coronary ligaments to free the left lobe *(Figure 5A)*.

Dissection of the lesser moment or gastrohepatic ligament continues, taking care to preserve any accessory hepatic artery or left replacement arising from the stomal coronary artery. It should be preserved if present, procuring the celiac trunk *(Figure 5B and C)*.

Subsequently, the structures of the hepatic hilum are dissected. The Dissection of the common bile duct begins at the right lateral border, taking care not to devascularize the pericoledochal vessels, which are located at 3 and 9 o'clock in the circumference of the biliary tract. It is distally ligated with silk at the level of the duodenum and sectioned *(Figure 5D)*.

The vesicular fundus is incised and irrigated with an aseptic syringe until a clear solution emerges through the sectioned biliary tract. It is essential to remember that the right hepatic accessory or replacements pass in the inferior border of the common bile duct, which must be preserved from its inflow at the level of the superior mesenteric artery previously dissected. It is easy to identify them by palpation through Winslow's hiatus at the beginning of the dissection *(Figure 5E)*.

Subsequently, dissect the neuro-lymphatic tissue at the left border of the hilum to dissect the hepatic artery proper only a few millimeters from the gastroduodenal artery. Continue with proximal dissection of the hepatic artery proper to the celiac trunk. This latter dissection can be performed more easily once clamped and cold *(Figures 5F and G)*.

We proceed to dissect the portal vein, which is located below both the biliary tract and the hepatic artery, freeing the neuro-

lymphatic tissue until its emergence at the level of the pancreas so that after perfusion, it is designed intrapancreatic, cutting a few millimeters below the affluence of the superior mesenteric vein with the splenic vein *(Figure 5H)*.

Liver dissection is complete.

e. Hepatic cannulation and *precooling*. Before the anesthesiologist administers 35,000 IU of IV heparin, blood samples are taken from the vena cava and lymph nodes for histocompatibility testing. The aorta is ligated above the bifurcation of the iliac arteries and proximally cannulated for retrograde Perfusion *(Figure 6A)*.

Subsequently, the inferior mesenteric vein and cannula are tied distally for portal perfusion with venoclisis equipment; in this phase, hepatic precooling begins with slow drip infusion of the preservation solution *(Figure 6B)*.

f. Dissection of the supraceliac aorta and diaphragmatic incision. The last Dissection before cold Perfusion consists of dissecting the supraceliac aorta below the diaphragm. The right diaphragmatic pillar is incised to locate the supraceliac aorta and refer with umbilical tape. The right diaphragm is incised to open the thoracic cavity and extends medially to the pericardium exposing the heart *(Figure 7)*.

g. Perfusion. It is essential to note the time of clamping. The vascular *clamp* is ligated or placed in the supraceliac aorta, the aortic and portal preservation solution infusion systems are entirely opened, the right atrium is sectioned, and two aspirators are placed in the thoracic cavity for exsanguination and installation of sterile ice completely covering both kidneys and liver. An average of four liters of preservation solution is infused per aorta and two liters per portal system. *In situ* cold Perfusion of the organs lasts approximately 20 minutes *(Figure 8)*.

h. Explant. For hepatic procurement, start by sectioning the inferior vena cava above the inflow of both renal veins and the aorta at the level of the superior mesenteric artery, taking care not to injure the emergence of the renal arteries and the great vessels are detached from the dorsal plane *(Figure 9A)*.

The dissection of the hepatic hilum continues, sectioning the portal vein at

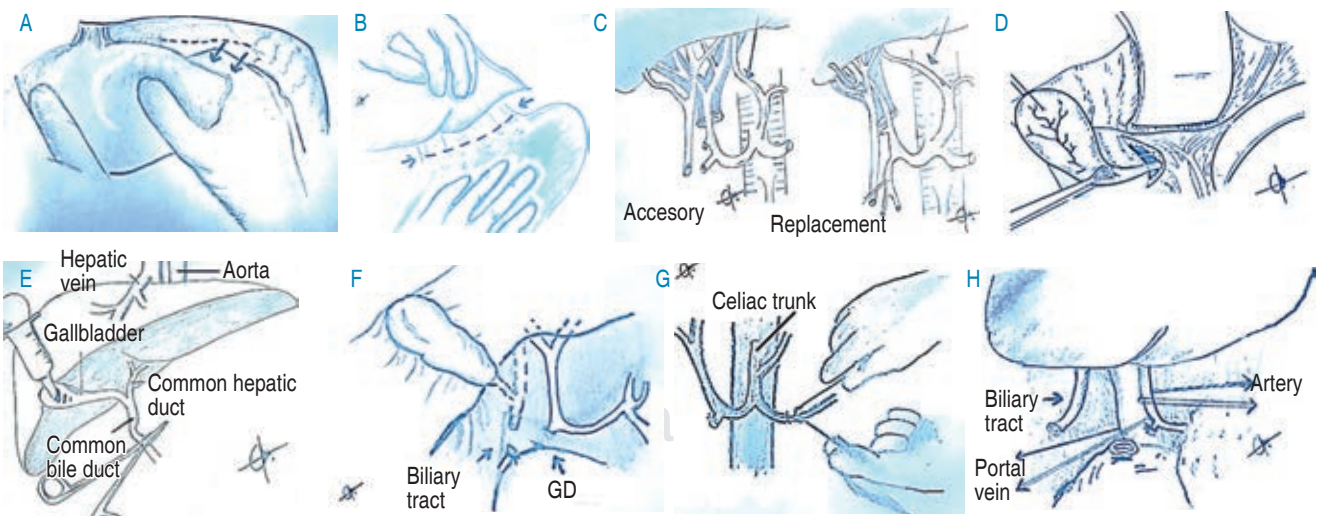

***Figure 5:* A)** *Incision of the left triangular and coronary ligament.* **B)** *Incision of the lesser omentum.* **C)** *Accessory or left replacement.* **D)** *Dissection of the biliary tract.* **E)** *Lavage of the biliary tract.* **F)** *Direction of the hepatic artery.* **G)** *Celiac trunk dissection.* **H)** *Portal dissection.*
GD = gastroduodenal.

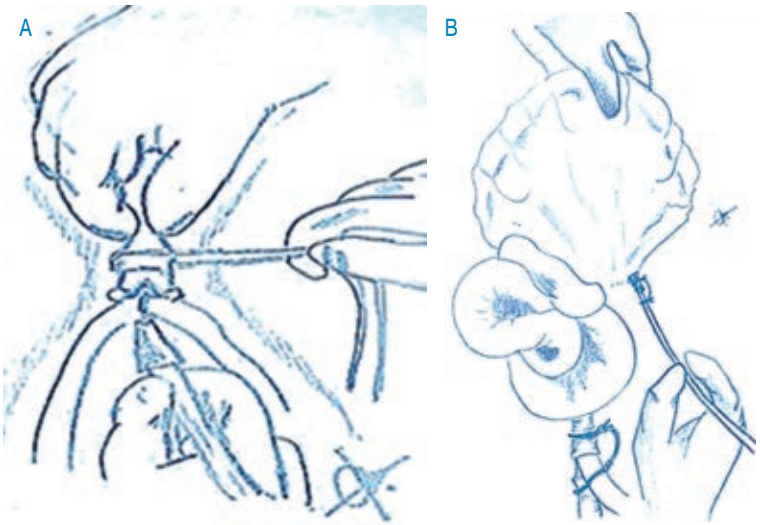

Figure 6: A) *Aortic cannulation.* ***B)*** *Inferior mesenteric vein cannulation.*

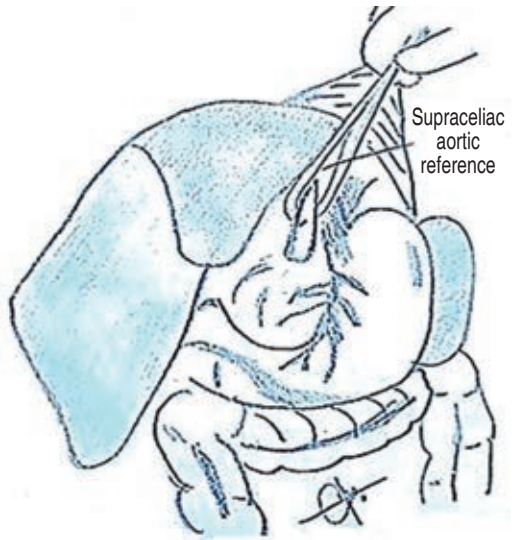

Figure 7: *Supraceliac aorta referenced.*

the described level. The gastroduodenal artery is sectioned, and the hepatic artery itself is dissected up to the celiac trunk, cutting the splenic and left gastric artery (in case it does not have any accessory artery or left replacement if it does, it must be preserved) to section the aorta at the level of the clamp. The aorta or an aortic patch around the ostium of the celiac trunk, including the superior mesenteric artery (in case of any accessory artery or right replacement), should be removed *(Figure 9B)*.

The index finger is then introduced through the retrohepatic vena cava at the pericardial level. The diaphragm that includes it is sectioned, cutting the right diaphragm together with the ipsilateral triangular and coronary ligaments. The liver is now freely removed from the abdomen and placed in the ice-filled container for review at the bench surgery.

The kidneys are explanted *en bloc* to minimize the risk of vascular injury. The ureters are cut at the level of the iliac junction, the inferior vena cava at the level of the iliac inflow, and the aorta at the level of the cannulation. The bowel is retracted anteriorly and superiorly. The left transmesocolic window is opened to dislocate the left kidney to the inframesocolic space *(Figure 9C)*.

Ureters, renal poles, and great vessels are lifted, and a section of the paravertebral muscles is initiated. Both kidneys are obtained and placed on the back table in an ice container.

Finally, the common, hypogastric, and external iliac arteries and veins are procured for packing with the liver *(Figure 9D)*.

Packaging

Another 1.5 liters of preservation solution is infused per portal vein, 500 cm^3 per hepatic

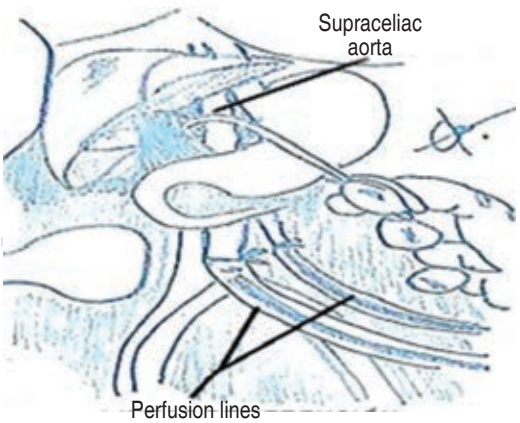

Figure 8: *Supraceliac impingement.*

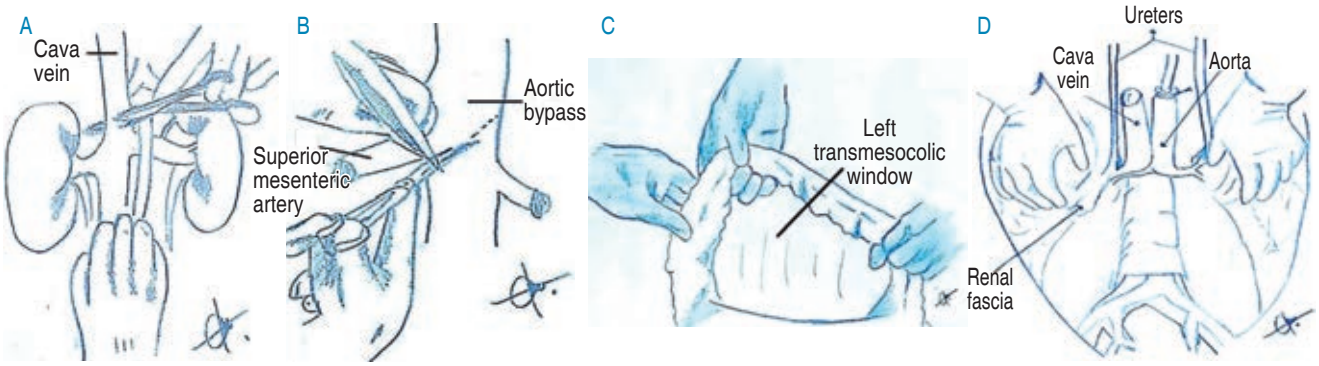

Figure 9: A) *Cut of suprarenal cava vein.* ***B)*** *Cut off the aortic patch.* ***C)*** *Transmesenteric window.* ***D)*** *Renal block explant.*

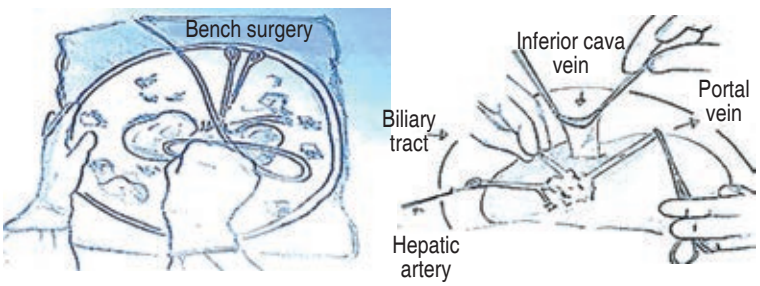

Figure 10: *Renal and hepatic perfusion and packing.*

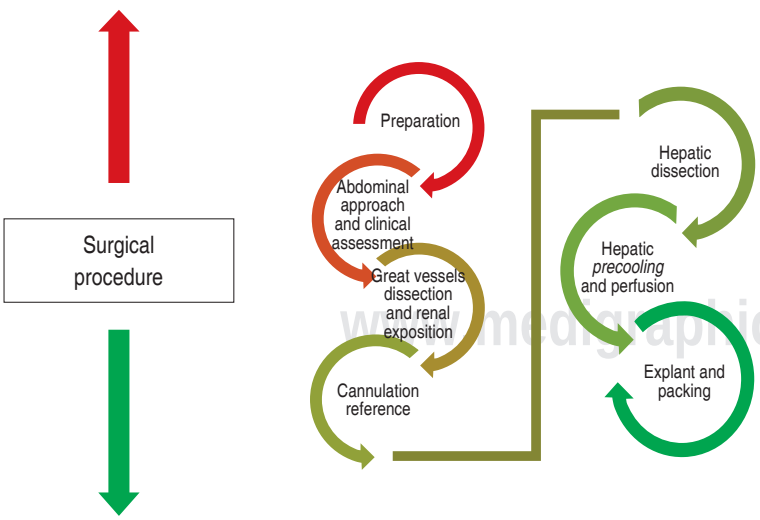

Figure 11: *Algorithm for surgical aspects.*

artery, and packing is performed with the organ submerged in this solution with three sterile protective bags. The kidneys are separated, sectioning the left renal vein in its affluence with the cava to preserve the latter with the left renal vein for its use if elongation is required. The anterior side of the aorta is cleaned, and an incision is made along its midline, allowing the equivalent patch on each side of the renal artery and its polar. Infuse with 500 cm^3 of preservation solution per renal artery and perform packing similarly to the liver *(Figures 10 and 11)*.

DISCUSSION

Let us begin the discussion by contextualizing a pandemic with epidemiological figures with a disputed underreporting in our country. Mexico continues to be on the list of countries with high transmissibility for SARS-CoV-2.[10]

In addition, most of first- and second-level hospitals (donor centers) and third-level and high-specialty hospitals (transplant centers) had to convert into COVID units, severely affecting transplant activity throughout the country.

This effect was not only observed in Mexico. Most transplant centers worldwide have reduced the number of procedures due to the pandemic. At the end of March 2020, a survey of 88 US transplant institutions reported that 71% had suspended living donor kidney transplantation altogether, and 84% had implemented restrictions on deceased

donor kidney transplantation.[11] Another report reported productivity reductions of 51% and 90% in solid organ transplantation procedures in the US and France.[12]

The impact on the decrease in multi-organ donations in Spain was most affected during the March-May period, coinciding with the worst months of the pandemic; however, according to reports from the ONT, these have recovered to levels approaching those recorded in 2019.[13] This recovery is staggered, contrary to what has been observed in Mexico, where so far activity is minimal.

All this may correspond to emerging countries are very different from the first world. Marcelo Cantarovich and collaborators mention several points to consider before performing any deceased donor organ transplantation in developing countries: limitations in personal protective equipment, high prevalence of asymptomatic infections, availability of RT-PCR tests, isolation rooms, and intensive care unit beds, duplication of functions in health care workers, the changing dynamics of this pandemic and finally the overload on the existing health care system. Each unit must study case-by-case, weighing the feasibility of performing procurement and transplantation versus the resources available to manage the pandemic.[14]

Although the potential for SARS-CoV-2 transmission through transplantation is unknown, there are already multiple international reports on the transplanted population. Domínguez-Gil et al. published 363 cases of COVID-19 in organ transplant patients four months after the pandemic in Spain, where most were community-acquired with a median time of 56 months after transplantation. Only 62 (14%) cases of nosocomial infections were reported, in no case with suspected donor-derived infection.[15]

Case series published in the US with more than 400 solid organ transplant recipients have provided information on the clinical presentation of COVID-19 in this population, yielding a mortality of 6-30%.[16] Pereira and his group reported a series of 90 solid organ transplant recipients with COVID-19 with the following symptoms: fever (70%), cough (59%), and dyspnea (43%); 76% required hospitalization and 35% mechanical ventilation. Overall mortality was 18%.[17] In Mexico, CENATRA reports overall mortality of 25% of confirmed and suspected cases as of December.[18]

In order to continue the attention to these priority programs, trying to reduce the health risk of SARS-CoV-2 infection, both in Mexico and internationally, multiple recommendations were issued that coincide with each other for the evaluation and selection of organ donors and recipients in the current context.[19]

One of these recommendations is the performance of RT-PCR and thorax tomography to all potential donors, which is why we analyze in this article the feasibility and the time it added to the procurement process in our environment, being this of 12 extra hours, which did not put the donation event at risk. Clarifying that this surgery was performed in a High Specialty Unit with the capacity to run the polymerase chain reaction in its laboratory, a reality uncommon in most procuring hospitals in the country. The reactivation of our donation program was based on five fundamental guidelines:

1. Assess resources for screening potential donors.
2. Availability of resources in intensive care and shock areas.
3. Risk/benefit assessment of subjecting an immunocompromised patient to the risk of SARS-CoV-2 infection vs. the risk of mortality by remaining on the waiting list.[20]
4. Ability to transfer organs and tissues out of state.
5. Procurement by local surgical teams.

In our country, multi-organ procurement will always be urgent, so it is imperative to resume near-normal activities as soon as possible.[7,8] A strict evaluation of the potential donor before organ procurement will continue to be the cornerstone of the transplant process and an excellent surgical technique, even in the COVID-19 contingency.

Finally, Communication between donation and transplantation teams in the country is

critical to minimize ischemia time and achieve a good result for organ transplantation. It should be taken into account that any anatomical variation may occur during transplantation; therefore, extreme care should be taken to avoid damage to vessels and organs that may endanger the transplantation.

CONCLUSION

The development of organ donation and transplantation has been extraordinarily complex but feasible, as shown in the present case. The most significant impact, we believe, is not in the procurement but in the implantation due to the saturation situation and the lack of COVID-19-free areas in the hospitals, which guarantees the safety of the transplanted patient.

Although it is too early to assess the impact on mortality rates associated with this decline in donation and transplantation activity, it is presumable that deaths on waiting lists that would have been avoidable under normal circumstances will increase.

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Modeling materials disease, adjuvant-induced autoimmune syndrome, and other vanity diseases

Enfermedad por modelantes, síndrome autoinmune inducido por adyuvantes y otras enfermedades de la vanidad

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Keywords: adjuvants, biopolymers, granuloma, autoimmune disease, silicones, dermal filler.

Palabras clave: *adyuvantes, biopolímeros, granuloma, enfermedad autoinmune, siliconas, relleno dérmico.*

ABSTRACT

For a long time, simple, safe, and painless methods have been sought to improve body contour, using infinite materials ranging from solids to liquids. Thus, an epidemic of unknown magnitude has arisen, affecting both sexes between the third and fourth decade of life who, in their eagerness to look better, ask to be injected with "miraculous" substances such as silicone, vaseline, mineral or vegetable oil, etcetera. Not all present signs and symptoms that force them to consult; the sequelae can occur up to 30 years after the application. The risks of using these substances range from the simple migration of the application site, obtaining a different result to the desired one, to death, including reactions of rejection of the organism to the injected substance. Managing these patients is challenging for the physician since it needs to be standardized. Due to the diversity of substances used as fillers, predicting their behavior is difficult, so there is only partially satisfactory treatment. We conclude that, except for autologous fat, no innocuous substances should be applied to the body, and only certified plastic surgeons should be consulted.

RESUMEN

Durante mucho tiempo se han buscado métodos sencillos, seguros y poco dolorosos para mejorar el contorno corporal, al emplear infinidad de materiales que van desde los sólidos hasta los líquidos. Es así que ha surgido una epidemia de magnitud desconocida, que afecta ambos sexos entre la tercera y cuarta década de la vida que, en el afán de verse mejor, solicitan ser inyectados con sustancias "milagrosas" como: silicona, vaselina, aceite mineral o vegetal, etcétera. No todos presentan signos y síntomas que les obliguen a consultar, las secuelas se pueden presentar hasta 30 años después de la aplicación. Los riesgos del uso de estas sustancias van desde la simple migración del lugar de aplicación, con lo cual se obtiene un resultado diferente al deseado, hasta la muerte, debido a las reacciones de rechazo del organismo a la sustancia inyectada. El manejo de estos pacientes es desafiante para el médico, ya que no está estandarizado y, debido a la diversidad de sustancias usadas como relleno, es muy difícil predecir su comportamiento, por lo que no hay un tratamiento del todo satisfactorio. Concluimos que, salvo la grasa autóloga, no existen sustancias inocuas para ser aplicadas en el cuerpo y debería recurrirse solamente a cirujanos plásticos certificados.

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INTRODUCTION

The desire to increase the volume of specific body areas for aesthetic purposes and to prevent and reduce skin aging has existed for a long time. Today, more than ever, people are seeking to achieve it. For a long time, surgeons have searched for simple, safe, and painless methods to improve body contouring, using an infinite number of materials ranging from solids (prostheses that require a formal surgical procedure) to liquids, such as kerosene, silicone, methyl methacrylate, polyacrylamide gel, among others.[1]

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Due to ignorance, lack of resources, or fear of a surgical procedure, people look for procedures that are not wholly accepted by orthodox medicine but that meet their expectations of having a low cost, not involving a scalpel, and even being able to be performed in the comfort of their home or an office, in the best of cases. To top it off, the interested party usually knows someone who has had it done some time ago and has yet to present any complications. This person usually encourages him/her to do it.[2]

According to the latest survey by the International Society for Aesthetic Plastic Surgery, in 2018, injectable treatments accounted for 76% of non-surgical procedures in the top 10 countries with the highest number of aesthetic procedures globally.[3]

Thus, an epidemic of unknown magnitude has arisen,[4] that affects patients who, in their eagerness to look better, request to be injected with "miraculous" substances, known as fillers, modeling,[5] biopolymers, "tissue implants", "expandable cell implants", or modeling, among others;[6] at a bargain cost, compared to anything that has to do with a scalpel, in addition to being able to perform it in different sessions, as your pocket allows and based on the results you get.

The substances used are classified into resorbable ones (hyaluronic acid, poly L-lactic acid, tricalcium phosphate, and alginate-coated polysaccharide) and non-absorbable (silicone polyacrylamide, polymethylmethacrylate) and other substances, such as vegetable oils, motor oil, beeswax, and animal fat.[3] The patient is often unaware of the material and quantity infiltrated and the complications of applying these substances.[4,5,7-10]

HISTORY

The use of fillers dates back to 1899 when Gersuy injected kerosene into the scrotum of a young man who had undergone bilateral orchiectomy for tuberculosis. The same author injected petrolatum into the nose to correct a saddle deformity. The method fell into disuse when tumors produced by this substance, paraphinomas began to appear, and in 1902, Eckstein reported its disadvantages and complications.[7,11] injected liquid silicone for cosmetic purposes became popular after World War II (1937-1945). From 1940 to 1950, in Europe and the United States, similar complications were observed with silicone injections, abandoned in the 1960s and 1970s by indications of the health services, such as the FDA in the United States. By 1962 another element was added to the arsenal for body modeling or correcting congenital disabilities or postmastectomy: breast prostheses filled with liquid silicone that, when broken by its thin cover, the silicone migration gave systemic manifestations of autoimmune type. As early as 1964, Miyoshi, in Japan, described the adverse effects produced by the use of the first breast prostheses and the infiltration of adjuvant substances, proposing the term human disease by adjuvant.[11-15]

In Mexico, one of the first reports about the problems caused by the injection of modeling agents was described by Ortiz Monasterio and Trigos in 1972, showing the experience with 186 patients with mammary injections of different foreign materials.[9,15]

Polyacrylamide has been used for the past 20 years; this material was introduced in the late 1980s in cosmetic surgery under various trade names. Official bodies, such as the Food and Drug Administration of China, banned its production, sale, and use due to all the reports of adverse effects received from 2002 to 2005.

Recently, with the FDA approval of AdatoSil 5000 and Silikon 1000 for ophthalmic use in the United States, silicone is being used legally, but off-label, as a skin filler.[16]

Coiffman, in 2008, reported 342 patients studied and treated in 10 years and coined the term iatrogenic allogenesis to qualify this disease.

In Mexico, since 2000, the plastic Surgery and Rheumatology Departments of the General Hospital of Mexico have been pioneers in the integral and multidisciplinary study of modeling disease. The results of the different study protocols that have been carried out since 2000 have broadened the knowledge of the natural history of this disease, its medical and surgical treatment,

and the prognosis of a disease that is still unknown in many aspects.[8]

In 2011 Shoenfeld and Agmon-Levin introduced the term ASIA (*Autoimmune [Auto-inflammatory] Syndrome Induced by Adjuvants*).[13,14,17-19]

EPIDEMIOLOGY

It affects both sexes between the third and fourth decades of life. From 68.75 to 97% are women.[2,4,7,15,20]

In most patients, the areas infiltrated are buttocks (56-74.4%), breasts (16-47%), legs (24%), hips (17%), thighs (17-22%), face (6-11%), labia majora and penis, among other sites (2%);[2,8,13,21] 14-40% of patients infiltrate more than one area, and 40% do not know the amount infiltrated, which varies from 10 ml to 10 liters.[2,13,15]

In a study done at the General Hospital of Mexico, the infiltrated substances found were: mineral oil (41.4%), guaiacol (11.4%), liquid silicone (8.5%), vegetable oil (5.7%), automobile oil (1.4%), bovine fat (1.4%), vitamins (1.4%), and mixed substances (12.8%).[15]

The true incidence and prevalence are unknown, but it is quickly shaping into a public health problem, which is why this article is.[21]

Risks of the application of fillers, modeling agents, and biopolymers

The risks of the use of these substances range from simple migration of the application site,[4,16] obtaining a different result to the desired one, to death if they are accidentally injected into a blood vessel,[4,16,20] through the body's rejection reactions to the injected substance,[16,20] and even leading to infection, tissue necrosis, sterile abscesses, and autoimmune responses.[10,22]

Not all patients present signs and symptoms that require consultation, but sequelae can occur 10, 20, and even 30 years after application.[5,7,23]

In order to help patients make a better choice, they should be told that the effects of these substances, if they appear beneficial, should not be considered permanent. If unfavorable, they should be considered permanent.

The silicone-induced autoimmune rheumatic disease has been debated for several decades. In 2012 Vera-Lastra et al. reported a patient with Still's disease after he got silicone implants and a cohort of patients with the severe local and systemic disease after illegal use of oils and adjuvants for cosmetic purposes, all of whom had an autoimmune disease.[13]

PATHOPHYSIOLOGY

An immunoregulation disorder and alterations at the connective tissue level generate the disease caused by modeling agents. It is also considered that injecting these substances can precipitate autoimmune phenomena in susceptible individuals.[24]

The following are considered determinants in the occurrence of a reaction: tissue idiosyncrasy or hypersensitivity, nature of the substance and impurities, total amount and anatomical site, local trauma and distant infections, and nutritional or vitamin deficiencies.[4,11,20]

The mechanisms associated with the immune response are related to the immunological transformation of self-antigens, secondary to a chemical, physical or biological alteration, or with foreign antigens that induce an immune response that produces a cross-reaction with the self-antigens creating an inflammatory or immune response of rejection, with cutaneous necrosis, migration of the material, thinning of the tissues and fibrosis with hardening and encapsulation of the material.[8,12]

The result of the injection of these substances is the replacement of normal tissue by cystic spaces of variable size that appear empty when stained with hematoxylin and eosin; with special stains such as Sudan, Nile blue or osmic acid, the encysted oils can be visualized, and the macrophages present their vacuolated cytoplasm, indicating that they have phagocytosed the foreign substance. This chronic inflammation results in the formation of granulomas. At the dermis level, there is thickening with an accumulation of collagen fibers oriented parallel to the superficial epithelium, with increased spindle fibroblasts; fibrosis

subsequently involves the subcutaneous adipose tissue, resulting in a thickened dermis.[4,24]

CLINICAL PICTURE

The clinical presentation is variable in symptomatology, severity, and presentation time. Signs and symptoms can be local, systemic, acute, chronic, controllable, or lethal. Systemic signs and symptoms can be immunologic and non-immunologic.[5,7,11,22]

Inert substances, such as liquid silicone, always induce clinical manifestations in the long term (two to 25 years) and are of lesser severity if infiltrated in scarce to moderate quantities. However, even in small quantities, the more impure oily substances (edible, automobile, mineral oils, etcetera) always cause very early and much more severe clinical manifestations, although more localized.[2,8,15]

The most common general symptoms are pain, fever (45%), arthralgias (36%), myalgias (8.5%), polyarthritis (8%), Raynaud's phenomenon (2.8%), somnolence, malaise, and depression.[2,7,15,16,20,23] According to Coiffman, these last from one to two weeks with periods of exacerbation every two to three months.[7] Antihistamines and non-steroidal anti-inflammatory drugs shorten the duration of symptoms.[7]

The most common local clinical manifestations are signs of inflammation such as edema, erythema (68.5%), hyperemia (68%), pain (62.8%), irregularities, nodules (61.4%), thickening of the skin and subcutaneous tissue (55.7%), hyperpigmentation (54.2%), venous neoformations (34.2%), other inflammatory changes (54.2%), migration of the infiltrated substance causing regional lymphadenopathy, even at great distances and counter gravity,[8] in early stages (27.4%) and in late stages (80%);[2,6,15] keloid scars, hypopigmentation, ulcerations, hardening, necrosis, sclerosis, fibrosis; infection and fistulas draining whitish or oily material that take months to years to heal, in addition to contracture and deformity of the area.[4-9,11-13,16,21,23,24]

In 73% of cases, all these reactions preceded distant or systemic manifestations.[14] They can occur from months to 30 years after the injection, the average being six years,[2,4,8,9] in 73% of cases, they worsen during the menstrual cycle,[16] and in 3% of men after the application of hormones.[15]

Systemic complications include acute pulmonary edema, embolism, and death from the accidental intravascular injection.[20] Systemic granulomatous reactions include acute pneumonitis, granulomatous hepatitis,[5,8,11,24] and renal failure following injection of large quantities.[4,11]

In breast infiltration, migration is by gravity to the abdomen and the lymphatic route to the axillary nodes. In gluteal infiltration, migration is by gravity towards the thighs and legs and, depending on the depth of the infiltration, the substance can be deposited on the fascia and then affect only the skin or under the fascia and additionally affect the muscle; there is also lymphatic migration, causing inguinal adenomegaly and progressive accumulation of the substance at the dorsolumbar level.[15]

Autoimmune diseases related to these substances have been described, appearing on average after three years, such as progressive systemic sclerosis, systemic lupus erythematosus with cutaneous, hematologic, articular, and renal involvement; rheumatoid arthritis with nonspecific manifestations; mixed connective tissue disease, autoimmune hepatitis, primary biliary cirrhosis, Sjögren's syndrome, thyroiditis, serositis, vasculitis, scleroderma, and morphea,[5] coining the term human adjuvant disease to describe these cases,[5,11,18,19,24] and more recently ASIA.[18,19,22]

Disease progression is variable, with periods of relapse and remission. Clinical improvement is observed after surgery and steroid administration.[13]

DIAGNOSIS

The clinical diagnosis is based on the symptoms plus the history of the application of a modeling substance and biopsy.[8] The complete study of the patient should include chest tele radiography to rule out pulmonary involvement.[11,14] The extent of the infiltration is determined by nuclear magnetic resonance.[8,13-15,24]

The most common laboratory abnormalities are anemia, polyclonal hypergammaglobulinemia, elevated erythrocyte sedimentation rate (ESR), positive antinuclear antibodies (ANA) with titers ranging from 1:80 to 1:1,024, rheumatoid factor with titers between 1:80 to 1:280.[18] Other studies that may be requested include C-reactive protein (CRP), fibrinogen, calcium, lactate dehydrogenase (LHD), angiotensin-converting enzyme, serum protein electrophoresis, antinuclear antibodies, C4, CH50, CD4+/CD8+ ratio.[14] Pathology findings are similar between cases, regardless of the infiltrating substance:[7,24] "fibrosis and chronic foreign body type inflammation", "granulomas", "numerous clear vacuoles, of different size surrounded by lymph histiocytic infiltrate", "foamy looking histiocytes containing material that refracts with polarized light and causes a vacuolated appearance", "dystrophic calcification". These chronic inflammatory changes result in the formation of foreign body granulomas.[4,9-11,13,16,24] The granulomas show large numbers of macrophages, giant cells, and, to a lesser extent, B and T lymphocytes.[14] "By pathological anatomy, it is impossible to identify the injected substance".[7] Structural damage of the dermis is characterized by thickening with the accumulation of collagen fibers and an increase in the number of fibroblasts and fibrosis of the soft tissues beyond the original area of infiltration.[24]

Shoenfeld's recent description of ASIA includes criteria for its diagnosis shown in *Table 1*.[13,17,19]

Mammary gland modeling disease presents a broad clinical spectrum of affection that, until recently, had not been categorized to facilitate its study and treatment. Priego et al. have proposed a classification of mammary modeler disease, as well as its treatment, according to stage.[24]

Torres and collaborators created an instrument to stage the damage produced by infiltration by modeling substances; they take into account the amount of infiltrated substance, number of infiltrated areas, infiltrated substance, symptomatology, signs, and results of laboratory studies and nuclear magnetic resonance, with which they propose a classification of four stages, shown in *Table 2*.[21]

TREATMENT

Managing these patients is challenging for the physician,[4] since it needs to be standardized[7,8] and, due to the diversity of substances used as fillers, it is complicated to predict their

Table 1: Diagnostic criteria for ASIA.

Major criteria	Minor criteria
Exposure to an external stimulus (injection, vaccines, silicone, adjuvant) prior to clinical manifestations The appearance of typical clinical manifestations: • Myalgia, myositis, or muscle weakness • Arthralgia and arthritis • Chronic fatigue, non-restorative sleep, and sleep disorders • Neurological manifestations (demyelination) • Cognitive impairment, loss of memory • Fever, xerostomia Removal of the initiating agent produces enhancement against the suspected adjuvant	Occurrence of autoantibodies or antibodies against the suspected adjuvant HLA suspected Autoimmune disease

ASIA = Autoimmune/inflammatory Syndrome Induced by Adjuvants. HLA = human leukocyte antigen system.

Table 2: Stages of infiltration damage by modeling substances.

Stage	Forecast	Features
1	Good	Excellent response to rheumatological-pharmacological treatment (combining different substances such as methotrexate, prednisone, colchicine, and folic acid). They respond in less than four months. Most of them do not require surgical treatment. Recurrences can be treated in the same way. An excellent long-term response is expected
2	Reserved	They usually have an excellent response to pharmacological treatment after about six months. After that time, the infiltrated tissues will show favorable changes, making them candidates for scheduled surgical treatment to remove most affected tissues. Reconstructive options for these patients are usually successful
3	Limited	Their response to treatment is limited; they temporarily improve their conditions but have increasingly frequent symptomatic periods, which limits the possibility of receiving repeated pharmacological treatment. As soon as their general conditions improve, they should undergo surgical treatments to remove most of the infiltrated tissues in one or several surgeries and try to improve their quality of life by eliminating most of the infiltrated substances from their body. Reconstructive options in these patients are more limited because they present a higher degree of involvement and have a high incidence of complications related to poor healing and increased tissue friability
4	Poor	Poor short-term prognosis, very severe, and may die of multiple organ failure. In these patients, there is no good response to the usual pharmacological treatment, as it can be aggressive and aggravate the patient's conditions, so they are not candidates for surgical treatment; emergency hospitalization is recommended

behavior.[7] Hence, there is no completely satisfactory treatment. In addition, it is a poorly described pathology,[8] and up to this moment, it is considered incurable since it is impossible to eliminate the substances infiltrated in the tissues.[6,15] World reports, in general, support conservative management.[24]

Coiffman recommends that only very localized and encysted masses should be resected. The skin should be protected with emollient and anti-solar creams,[6] avoiding massages as they do not dissolve the masses and, like corticosteroids, thin the overlying skin. Conventional liposuction, as well as ultrasound or vibratory electric massages, do not help.

Among the most commonly used medical treatments are non-steroidal anti-inflammatory drugs,[5,8,12,25] intralesional[2], and systemic steroids,[4,13,14,25] such as prednisone at variable doses;[8] colchicine at doses of 1-2 mg/day,[2,13] antibiotics,[5,12] the most frequent being minocycline; cytotoxic drugs, cyclosporine;[4] immunomodulators such as imiquimod cream[16] and etanercept.[4,5,8,16,25] They are managed with methotrexate at variable doses (7-10 mg/week) together with folic acid for four months, evaluating the evolution of these patients and continuing their treatment, decreasing or increasing the doses according to the individualized response.[8,13] Other drugs used are cyclophosphamide, chloroquine, and D-penicillamine.[13,14]

Once the Rheumatology Service assesses a favorable evolution or response with pharmacological treatment, observing the decrease of local and general signs and symptoms, the Plastic Surgery Service reevaluates the patient to propose surgical reconstruction, provided that the quality of skin and tissues is manageable and reliable for a surgical procedure and that the patient has understood his disease not only in a physical scope.[8]

Part of the integral management is the assessment of psychological treatment since this disease has a self-induced origin due to dissatisfaction with the aesthetic aspect of their own body or distortion of the self-

image.[8] It is also desirable that they get support because managing complications can lead to results opposite to what they initially sought, with a more significant self-esteem deterioration and guilt.

Some surgeons specialize in removing the injected material using different surgical techniques, with which most show clinical improvement. However, there needs to be more experience. Due to the migration they usually present, they can only be partially removed when applied in large quantities because they require a complex mutilation and repair process.[2,4,5,12,16] When ulceration occurs at the application site, antibiotics and other drugs are additionally administered, reducing the inflammatory symptoms but not the clinical picture.[2,13]

If the mass is small and deeply embedded, it is preferable to leave it under observation; if they are huge and infiltrating masses, it is advisable not to treat them, as reconstruction would leave severe deformities,[2,7] as it requires extensive resections, since, in general, the substances affect the entire anatomical region involved and are very disseminated, because, with time, gravity and pressure cause the material to migrate. In addition, the resection generates important skin covering defects, requiring grafts or flaps of various sizes and, generally, with poor and disappointing esthetic results for both patient and surgeon.[8]

In patients infiltrated in the breast and presented complications, the most commonly used treatment was subcutaneous mastectomy with immediate or delayed reconstruction using silicone prostheses. However, they had a limited esthetic result. They presented a considerable number of complications,[9,12] and even so, none of the procedures has been able to eliminate the compromised tissues and definitively solve their effects.[23] All patients with breast disease due to modeling agents in the study by Priego et al. were managed in conjunction with the Rheumatology Service for the medical treatment of human disease due to modeling agents.[24]

In pelvic limb cases, immunosuppressants, non-steroidal analgesics, and the controlled sub-atmospheric pressure system are used to avoid extensive debridement that leaves bloody areas that are difficult to manage due to bleeding and chronic multidrug-resistant infections that can cost the patient's life.[1]

Iatrogenic allogenesis does not physically kill the patient but destroys the patient's psyche, self-esteem, and quality of life,[7] of which are also complications.

DISCUSSION

There is medical literature endorsed by prestigious publishers in which the use of these substances in mice is mentioned, in which no elevation of immune response was found after application of the substance. An example of this literature is *Almir Moojen Nácul's Bioplasty, the Interactive Plastic*, where reference is made to using PMMA (polymethyl methacrylate) to carry out this type of procedure.

Suppose a substance is capable of providing volume and contour in various body areas. In that case, it must be chemically and physically inert, non-allergenic, non-carcinogenic, not cause inflammatory or foreign body reactions, not migrate from the site where it is applied and be affordable. For this reason, various materials have been used, such as liquid silicone, collagen, methyl methacrylate, and polyacrylamide gel, which, after some time, have not proven to be effective because they cause complications. All these products also create an autoimmune reaction that produces histological changes consisting of the appearance of macrophages containing vacuoles of oily material in their cytoplasm in the initial stages and later the formation of granulomas. The undesirable effects can appear up to several decades after application, causing them to be used in patients without fully knowing whether undesirable effects will appear. When studying what has happened with this type of substance, clinical trials should have a duration of 50 years before declaring the material under study innocuous. Unfortunately, not every laboratory will recover the money invested in research before that long. Such was the case with Bio-Alcamid.

There are already reports that silicone breast implants can trigger autoimmune reactions,

with the advantage that, if present, they can be removed.

History shows that not even the substances created and elaborated by pharmaceutical laboratories have been innocuous, let alone those not for medical use, used clandestinely. The idealization of the figure, as well as its value, causes a strong demand for substances for this use and those who apply them. The excess demand and scarce supply push prices upwards, making them attractive to professionals and non-professionals alike. Even for professionals, it will be difficult to distinguish the formal literature and the serious laboratories, and because they are well-remunerated, decisions will be biased.

The simplest thing to conclude would be that, except for autologous fat, there are no innocuous substances to be applied in the body, so if a patient persists in the idea of having them applied, he/she should only resort to certified plastic surgeons, who have already been established for some time, and that only autologous fat or substances that can be removed in their entirety if necessary, with a prior signature of informed consent, which should be kept indefinitely, taking into account that undesirable reactions can occur decades later.

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Chronic appendicitis, a case of an unresolved dilemma

Apendicitis crónica, un caso de un dilema no resuelto

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Keywords:
chronic abdominal pain, appendicitis, recurrent abdominal pain.

Palabras clave:
dolor abdominal crónico, apendicitis, dolor abdominal recurrente.

ABSTRACT

Introduction: acute appendicitis is one of the most frequent surgical emergencies in the world; however, there is also an entity known as chronic appendicitis, which has been studied over time to establish criteria for its diagnostic approach. **Clinical case:** we present the case of a patient with symptoms of 18 months of evolution, who underwent surgery, a histopathological report compatible with a chronic inflammatory process. **Conclusions:** the term chronic appendicitis is a diagnostic challenge that health professionals should be aware of and consider as a diagnostic suspicion to avoid complications.

RESUMEN

Introducción: *la apendicitis aguda es una de las urgencias quirúrgicas más frecuentes en el mundo; sin embargo, existe también una entidad conocida como apendicitis crónica, que a lo largo del tiempo se ha estudiado con el fin de establecer criterios para su abordaje diagnóstico.* ***Caso clínico:*** *se presenta el caso de un paciente con cuadro de 18 meses de evolución, intervenido quirúrgicamente, reporte histopatológico compatible con proceso inflamatorio crónico.* ***Conclusiones:*** *el término de apendicitis crónica es hoy en día un desafío diagnóstico que los profesionales de la salud deben conocer y considerar como sospecha diagnóstica, para así evitar complicaciones.*

INTRODUCTION

Acute appendicitis is one of the most common surgical emergencies worldwide, with an estimated lifetime risk of 7-8% and an incidence of 90-100 patients per 100,000 inhabitants per year in developed countries. Chronic appendicitis is a rare condition demonstrated in several recent reports.[1] This chronic form is suspected when there is a pain in the right lower quadrant for more than three weeks,[2] and its existence is corroborated based on histopathological findings showing chronic inflammation.[3,4] A third related term is recurrent appendicitis, which refers to different episodes of similar abdominal pain in the right lower quadrant. Recurrent appendicitis and chronic appendicitis have been said to account for 10% and 1 to 1.5% of patients with appendicitis, respectively.[1-3,5-7] Some authors have pointed out that chronic appendicitis is a misnomer for recurrent acute appendicitis.[8] However, other authors use chronic recurrent appendicitis framing in a single entity of these two clinical manifestations.[7]

This article presents a case histologically compatible with chronic appendicitis, with recurrent attacks of pain, in addition to a review of the subject.

PRESENTATION OF THE CASE

This is a 62-year-old male patient with a single history of recurrent abdominal pain in the lower quadrant and right flank, of low intensity, stabbing and without triggering factors; in addition, the patient occasionally used oral analgesics to control the pain. These pain

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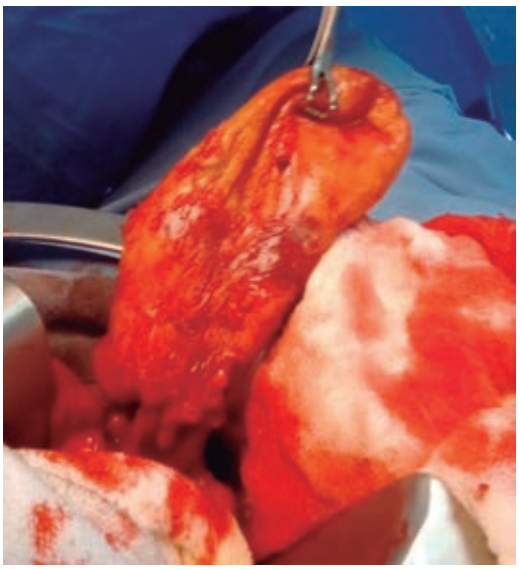

Figure 1: *Removal of the appendix through the surgical incision.*

symptoms had started 18 months prior to his current condition, presented a periodicity of one attack every two months and, sporadically, were accompanied only by nausea without vomiting.

He started two days earlier with the presence of severe stabbing pain in the right iliac fossa, accompanied by nausea and vomiting, without fever, in addition to a feeling of abdominal distension. Physical examination revealed the presence of induration in the right lower quadrant, hypersensitivity and peritoneal irritation. Laboratory results showed no elevation in the leukocyte count or left shift. Ultrasound was performed and found abundant gas in intestinal loops, as well as a highly distended blind loop with gaseous content.

Emergency surgery was performed where a subcecal appendix was found adhered to the posterior wall of the peritoneal cavity, highly distended and with thickened walls, without fluid inside *(Figure 1)*. The measurements recorded for the specimen were 10 × 4 × 4 cm, with a base of 2 cm. There was no evidence of free intra-abdominal fluid, nor alterations in adjacent organs. Open appendectomy was performed with management of the appendiceal stump with Parker-Kerr technique, without complications and without the use of drainage *(Figure 2)*. The immediate postoperative evolution tended to improve, with adequate oral tolerance; finally, the patient was discharged in the first 24 postoperative hours.

The histopathologic report identifies the presence of a mixed inflammatory infiltrate with the presence of reactive mature lymphocytes, plasma cells, foamy histiocytes and abundant polymorphonuclear cells. There is microabscess formation. No neoplastic cells are identified. Six months after surgery, no post-surgical complications were observed and the remission of symptoms was complete.

DISCUSSION

It was in 1886 when Reginald Fitz described the importance of appendectomy for treating acute appendicitis in his famous text *Perforating inflammation of the vermiform appendix with particular reference to its early diagnosis and treatment*. In the same document, he used the term chronic appendicitis for the first time.[9] It was in 1949 when Crymble PT and Forsythe I pointed out chronic appendicitis as one or more mild attacks of appendicitis in a sequence that may include more severe

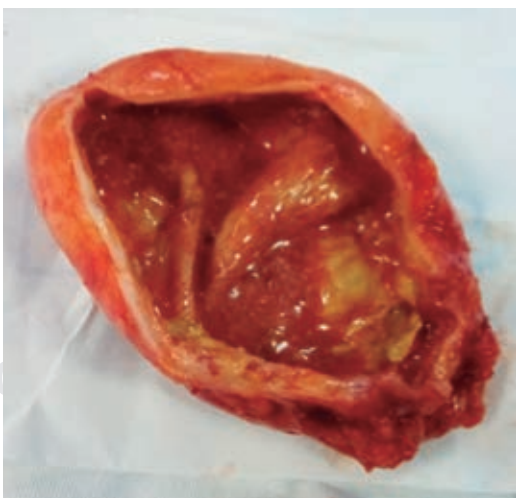

Figure 2: *Incision along the length of the removed appendix, showing the distension of its lumen, its thickened wall, and the absence of contents.*

attacks.[10] To this day, the definition of chronic appendicitis has yet to reach a consensus, so different definitions very similar can be found. Some authors define it as a long-standing inflammation or fibrosis of the appendix, which clinically presents as prolonged (more than 48 hours) or intermittent abdominal pain.[1] Others have proposed the following criteria for chronic appendicitis: 1) persistence of symptoms for more than two weeks, 2) confirmation of chronic inflammation on pathological examination, and 3) relief of symptoms after appendectomy.[7,8]

Chronic appendicitis seems controversial among physicians,[5] although it has slowly gained acceptance in the medical community in recent years.[2] This entity is a diagnostic challenge because it is frequently misdiagnosed and does not present with typical appendicular symptoms.[1,6] Chronic appendicitis represents 1 to 1.5% of patients with appendicitis.[1,2,5-7] Some series have found a 7.9% incidence of chronic appendicitis and a 2.8% incidence of recurrent appendicitis in histopathologic studies of specimens removed for appendicitis.[11] It is likely that the extensive use of appendectomy has displaced the more frequent occurrence of chronic or recurrent appendicitis.[7,8] There is no sex predilection for chronic appendicitis.[7,11,12]

The pathophysiology of chronic appendicitis is thought to begin with partial, transient, or recurrent obstruction of the appendiceal lumen,[1,5,8] or excessive production of mucus,[13] with subsequent accumulation of appendiceal secretion and progressive dilatation of the appendix, which causes the intraluminal pressure to increase and eventually release the obstruction.[5,8] For example, a small appendicolith may produce such partial obstruction and cause mild symptoms; once the appendicolith increases in volume, the symptoms become more intense;[12] with it, there is partial or complete relief.[5,8] It has been suggested that copro stasis, rather than coproliths, may significantly contribute to acute exacerbations of chronic appendicitis.[13] Mild local inflammation after resolution of the acute appendicitis attack could lead to chronic right lower quadrant discomfort.[5,8] Possible causes of chronic appendicitis may be infections (e.g., actinomycosis), inflammation of neighboring organs, lymphomas, intestinal tuberculosis, appendiceal neoplasia, peritoneal carcinomatosis, parasitic diseases (e.g., helminthiasis, amebiasis),[4] cystic fibrosis, and Crohn's disease.[14]

The clinical features of chronic appendicitis are similar to those with acute appendicitis but with a longer duration,[8,15] less intensity, and less pain.[1,7,15] They usually persist for a more extended period than the typical 1-2 days in acute appendicitis, especially for more than seven days of evolution, even without significant clinical, laboratory, or imaging data of inflammation.[4] On several occasions, the clinical manifestations may extend for weeks, months, or years,[5] with episodic and recurrent pain.[1,3] The most prolonged reported duration of chronic abdominal pain associated with recurrent appendicitis was 18 years.[2] The clinical picture may or may not present with fever or associated with systemic symptoms.[1] The diagnosis of recurrent or chronic appendicitis should be considered in all cases of long-standing abdominal pain, although it is often made by exclusion.[15]

Laboratory tests will show leukocyte levels that may be normal or slightly increased, with no deviation of the white formula to the left.[1,15] On CT study, chronic appendicitis will show many of the signs seen in acute appendicitis; these include increased appendiceal diameter (greater than 5-7 mm), thickened appendiceal wall (with a target or halo sign), periappendicular fat enhancement, lymphadenopathy, cecal mass effect, focal cecal thickening, calcified appendicoliths, arrowhead sign, phlegmon, and fluid.[1,3,8,14] In the case of an appendix with a diameter greater than 9 mm, in a patient without peritoneal irritation or leukocytosis, chronic appendicitis should be suspected. These data can be associated with the presence of an appendicolith. In the case of pediatric patients, MRI may be used if available. Increased use of imaging studies may reveal that chronic appendicitis is more common than previously thought.[1]

No laboratory or imaging test can establish suspicion of chronic appendicitis,[8]

so the diagnosis is often based on chronic inflammatory changes seen on histopathology.[1] Histopathological findings of chronic appendicitis include inflammatory infiltration consisting of lymphocytes, histiocytes, and eosinophils associated with fibrosis of the appendiceal wall.[3,4,8,12] There is also a replacement of submucosal fat by fibrous tissue and periappendicular plastron. Perforation and gangrene of the appendix are not associated with chronic appendicitis, according to Sgourakis G et al.[13] There may be a proliferation of neural cells.[12] The protein gene product 9.5 (PGP9.5) has also been found to be a neutral factor in the pathophysiology of pain in the disease.[7] The presence of recurrent attacks of pain histologically associated with acute inflammation may define recurrent appendicitis.[12] The differential diagnosis of chronic appendicitis is established with ureteral colic, diverticulitis of the ascending colon, parasitosis in the cecum, gynecological conditions, adhesions, hernias, regional ileitis, pancreatitis, inflammatory bowel disease, tuberculosis, lymphoma, and mesenteric panniculitis.[3]

Although not considered a surgical emergency, most patients have a resolution of pain with appendectomy.[6] That is why, as in acute appendicitis, the treatment for chronic appendicitis is appendectomy.[7] When a normal appendix is identified, this organ should be removed to rule out appendicitis in future pain episodes.[3] Finally, complications of chronic appendicitis, when not suspected and not promptly resolved, may include intra-abdominal infections, intestinal obstruction or perforation, bladder perforation, fistulas, pylephlebitis, liver abscess, and sepsis.[1]

CONCLUSIONS

Chronic appendicitis represents a condition that has been controversial and even questioned throughout history. However, clinical data and documented histopathological findings have supported this pathology over the years. It is essential to mention and consider the different presentations, which are considered atypical, so the physician can keep this in mind when establishing the diagnostic suspicion and thus avoid possible complications that may result in a poor prognosis.

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Breast cancer in men. Case report

Cáncer de mama en hombre. Reporte de caso

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Keywords:
breast cancer, mastectomy, male, BI-RADS, tamoxifen.

Palabras clave:
cáncer de mama, mastectomía, masculino, BI-RADS, tamoxifeno.

ABSTRACT

Breast cancer in men is a relatively rare entity that occurs in low proportion; however, its importance in men should not be ignored due to the poor prognosis since its diagnosis in late stages and its high mortality rate; paradoxically, more men have died from breast cancer than from testicular cancer. We present the case of a male patient with no previous history of importance, who went to the general surgery office for presenting retro areolar tumor and was referred to the oncological surgery office, where he underwent ultrasound, which was classified as a BI-RADS 5, so it was scheduled for surgical treatment. Due to the infrequency of this pathology, it was decided to report this case.

RESUMEN

El cáncer de mama en hombres es una entidad relativamente poco frecuente que se presenta en muy baja proporción, sin embargo, su importancia en hombres no debe ser ignorada debido al pobre pronóstico desde su diagnóstico en últimos estadios y a su alta tasa de mortalidad; paradójicamente más hombres han muerto por cáncer de mama que de cáncer testicular. Se presenta el caso de un paciente del sexo masculino sin antecedentes de importancia, quien acudió a la consulta de cirugía general por presentar tumor retroareolar, fue referido a la consulta de cirugía oncológica donde se le realizó ultrasonido, en el cual se catalogó como un BI-RADS 5, por lo que se programó para tratamiento quirúrgico. Por lo poco frecuente de esta patología se decide realizar el reporte de caso.

INTRODUCTION

Breast cancer is common in women but relatively rare in men, accounting for approximately less than 1% of all diagnosed cases.[1] According to epidemiological figures, between 1975 and 2015, its incidence was 40%, exceeding that of women by 25%.[2] It is usually observed in the last decades of life (60-70 years).

The most critical risk factor is a positive family history of breast cancer: the risk doubles if the history is positive for first-degree relatives and quintuples if other first-degree relatives are affected.[3] Breast cancer in men occurs more frequently in estrogen receptor (ER)-positive patients.[4] Neoadjuvant tamoxifen-based endocrine therapy has now been added as a treatment option for breast cancer in men.[5]

CLINICAL CASE

A 63-year-old female patient with a history of appendectomy seven years ago, fracture of the proximal humerus due to a gunshot wound, diabetes mellitus of seven years of evolution in treatment with biguanides and sulfonylureas, systemic arterial hypertension of seven years of evolution in treatment with ARA II, with no significant family history, who came to the consultation for an increase in breast volume of seven years of evolution, which was increasing progressively.

Physical examination revealed a painless mass measuring 4 × 5 cm, mobile, thickening and erythema of the skin, and negative axilla and supraclavicular fossa for adenopathy. Ultrasound was performed, which described a retro areolar lesion with an ovoid image

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antiparallel to the skin, hypoechoic with internal calcifications and lobulated margins; Doppler showed increased vascularity measuring 45.4 × 45.8 × 46.6 mm, with an approximate volume of 50.7 cm^3; axillary region level 1 with 15 × 10 mm Doppler lymph node with peripheral vascularity, so it was classified as a BI-RADS 5.

According to the clinical picture and the findings during the ultrasound, it was decided to schedule a modified radical mastectomy of the Madden type; subsequently, a transoperative histopathological study was performed with a report of a fungating lesion suspicious for malignancy.

The histopathologic diagnosis was infiltrating ductal carcinoma without a specific pattern with areas of intraductal carcinoma of the comedocarcinoma type, high-grade central necrosis. The lymph node dissection of the right axilla was positive for ductal carcinoma metastasis in two of the 18 lymph nodes dissected.

DISCUSSION

In most males, cancer presents between 60 and 70 years of age (five to 10 years earlier than in women) with an average age of 62 years and is usually diagnosed in more advanced stages due to a delay in diagnosis.[6] Some of the risk factors for the development of breast cancer in men are age, history of breast cancer in first-degree relatives (either male or female), hyperestrogenism, history of mediastinal radiation, history of exogenous estrogen use, genetic predisposition (BRCA1 or BRCA2 mutations, CHEK2, PALB2) and Klinefelter's syndrome.[7] Studies have shown that hormone replacement therapy increases the risk of breast cancer, especially in the transgender population, especially in transgender women (male sex at birth and female gender identification), with a mean age of onset of 52 years.[8]

Infiltrating ductal carcinoma is the most common subtype of breast cancer in men; it usually presents unilaterally, fixed, and as a painless subareolar tumor mass, which may be the only symptomatology presented by the patient. It appears spiculated with irregular borders and, in up to 15% of cases, as a dense nodular mass with defined borders.[7]

At present, there is no prevention program. However, ultrasound should be considered the first-line imaging study due to its low cost and easy accessibility.[9] In the ultrasound study, microcalcifications that are smaller in number, non-linear and thicker, compared to that of women, are present in up to 30% of cases. In the transgender population who have not undergone a mastectomy, they should be protocolized with mastography as preventive studies from the age of 50 if they have used hormone replacement therapy for more than five years.[8]

It has been observed that men with breast cancer have a survival disadvantage compared to women with breast cancer of up to 5 to 10 years due to their diagnosis in more advanced stages and to the primary site of the tumor, since in men, it occurs in the central area below the nipple, in addition to the fact that the histology of the tumor contributes to a worse prognosis than tumors located in the upper quadrant.

Today, it has been demonstrated that neoadjuvant endocrine therapy with tamoxifen should be the first choice and should be administered for an initial period of five years. Tamoxifen was considered the standard of treatment in premenopausal women with ER+ receptor-positive breast cancer and aromatase inhibitors in postmenopausal women, and given the similarity between breast cancer in men and cancer in postmenopausal women, aromatase inhibitors were used as a treatment for breast cancer in men; However, recent studies have shown a reduction in mortality in those who received tamoxifen compared to aromatase inhibitors, since the production of testicular estrogens is not abolished by the inhibitors, which leaves tamoxifen as the first treatment option. Unfortunately, there are side effects with the use of tamoxifen, which include reduced libido, weight gain, hot flashes, and mood alterations, as well as deep vein thrombosis, leading to a high dropout rate from treatment due to these side effects.

Another aspect to highlight is the scarce data on the psychological consequences of this pathology in the male population. Patients with breast cancer have an increased risk of obesity, comorbidities, reduced physical activity, poor quality of life, and deterioration

in health associated with depression or anxiety.[5] The recommended study for follow-up and cancer detection in patients already undergoing curative therapy is ipsilateral mastography in patients with lumpectomy and annual contralateral mastography in patients with a history of breast cancer or genetic predisposition; genetic counseling should also be offered.[10]

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A rare coexistence of cholecystobiliary and cholecystoenteric fistula with pyogenic abscesses. Report of a case

Fístula colecistobiliar y colecistoentérica con abscesos hepáticos piógenos, una rara coexistencia. Informe de un caso

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Keywords:
Mirizzi syndrome, pyogenic liver abscess, cholecystobiliary fistulas, cholecystoenteric fistulas.

Palabras clave:
síndrome de Mirizzi, absceso hepático piógeno, fístulas colecistobiliares, fístulas colecistoentéricas.

ABSTRACT

In October 2019, we attended the rare association of pyogenic liver abscess with Mirizzi syndrome type V in a 49-year-old female patient with abdominal pain and icteric syndrome. The clinical laboratory detected her endoscopic and radiological studies, biliary obstruction secondary to 2 cm common hepatic litho, pneumobilia, fever, leukocytosis, and severe systemic inflammatory response, which required surgery. During the intervention, there were findings of a scleroatrophic gallbladder and double fistulas to the common hepatic and duodenum. The case was solved with cholecystectomy, cholecystoduodenal fistula closure, and biliodigestive hepatic-jejunal bypass with Hepp technique. The abscesses of the right lobe of the liver were documented and drained by interventional radiology guided by ultrasound and computed tomography. She required intensive care, antibiotics, and total parenteral nutrition. She remained for 50 days in two hospitals and was discharged to the outpatient clinic for an ultrasound follow-up of the abscesses and continued antibiotics according to the cultures. No malignancy was reported in the scleroatrophic gallbladder. **Conclusion:** Mirizzi syndrome is classified into five types according to Csendes and Beltran; type V is the least common and is divided into Va and Vb depending on the presence or not of some cholecystoenteric fistula with or without biliary ileus, respectively. We propose adding a Vc classification when, in addition to the above, there is hepatic involvement due to abscesses or other associated pathology in the liver since the obstruction and cholangitis caused by this disease are responsible for this specific picture.

RESUMEN

En octubre de 2019 atendimos la rara asociación de abscesos hepáticos piógenos con síndrome de Mirizzi tipo V en una paciente de 49 años con dolor abdominal y síndrome ictérico. Se le detectó, mediante estudios clínicos de laboratorio, endoscópico y radiológico, una obstrucción biliar secundaria a lito de 2 cm en el hepático común, neumobilia, fiebre, leucocitosis y una severa respuesta inflamatoria sistémica, por lo que requirió cirugía. Durante la intervención se tuvieron hallazgos de vesícula escleroatrófica, fístulas dobles al hepático común y duodeno. El caso fue solucionado con colecistectomía, cierre de fístula colecistoduodenal y derivación biliodigestiva hepático-yeyuno con técnica de Hepp. Los abscesos del lóbulo derecho del hígado fueron documentados y drenados por radiología intervencionista guiada por ultrasonido y tomografía computarizada. Se requirió de cuidados intensivos, antibióticos y nutrición parenteral total, permaneció 50 días en dos hospitales y egresó a consulta externa para seguimiento mediante ultrasonido de los abscesos y continuación de antibióticos de acuerdo a los cultivos. No se reportó malignidad en la vesícula biliar escleroatrófica. ***Conclusión:*** *el síndrome de Mirizzi se clasifica en cinco tipos de acuerdo con Csendes y Beltrán, el tipo V es el menos común y se divide en Va y Vb dependiendo de la presencia o no de algún tipo de fístula colecistoentérica con o sin íleo biliar, respectivamente. Proponemos agregar una clasificación Vc, cuando además de lo anterior exista afección hepática por abscesos u otra patología asociada en el hígado, ya que la obstrucción y colangitis que provoca esta enfermedad es la responsable de este cuadro específico.*

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INTRODUCTION

In 1948, Pablo Luis Mirizzi described a syndrome that bears his name, Mirizzi's syndrome (MS), consisting of obstructive jaundice due to mild extrinsic compression of the common hepatic duct, which he named: hepatic duct syndrome.[1] This MS results from acute and chronic inflammation caused by an impacted stone in the Hartmann's pouch or the cystic duct, with partial or complete obstruction of the main bile duct (PBC), which presents a problematic preoperative diagnosis and controversial therapeutic management. As the inflammatory process progresses, necrosis and even internal biliary fistula with the PBC or digestive tract may occur; the prevalence of this pathology varies from 0.05 to 5%; however, in Latin countries, the prevalence is estimated at 4.7 to 5.7%. There is a strong association between gallbladder cancer and this syndrome, with an estimated prevalence of 5-28%. Likewise, it is found in an age range of 60 ± 12.4 years. The different classifications have been based on the presence or absence of fistulous erosion between the gallbladder and the PBC and the extent of destruction of the latter. Mc Sherry and coworkers in 1982 classified SM into two types; in turn, reclassified in 1989 by Csendes into four types, and finally into five types by Beltrán MA and Csendes A.[2-6]

Mirizzi syndrome is currently classified as follows *(Figure 1)*:[2]

Type I (11%): extrinsic compression of the common hepatic by impacted lithium in the neck/infundibulum or cystic duct of the gallbladder.

Type II (41%): the fistula involves less than one-third of the circumference of the common hepatic.

Type III (44%): involves 1/3 to 2/3 of the circumference of the common bile duct.

Type IV (4%): the destruction of the common bile duct wall.

Type V (0.9%): any cholecystoenteric fistula.

Type Va: with biliary ileus.

Type Vb: without biliary ileus.

Fistula to the hepatic duct without fistula to the gastrointestinal tract but with atrophy of the left hepatic lobe has been reported.[7]

A high association of gallbladder cancer (27%) is also known in Mirizzi syndrome. Elevated CA 19-9 levels indicate a coincident malignant gallbladder tumor in these cases. Because of this high coincidence of Mirizzi syndrome and gallbladder cancer, a trans-operative gallbladder biopsy is recommended in all patients.[8]

Ultrasonography, magnetic resonance cholangiopancreatography

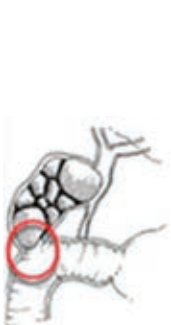
	Chronic cholecystitis	Extrinsic compression of main biliary tract	Cholecystocholedocal fistula			Cholecystoenteric fistula
Stages						
Mc Sherry and others	1982	Type I	Type II			
Csendes and others	1989	Type I	Type II	Type III	Type IV	
Csendes and other	2007	Type I	Type II	Type III	Type IV	Type V

Figure 1: *Evolution of the current classification of Mirizzi syndrome.*[2]

(MRCP), and endoscopic retrograde cholangiopancreatography (ERCP) could have a diagnostic suspicion rate in 77.8, and 82.3% of cases, and the combination with choledochoscopy procedure could improve the diagnostic sensitivity of MS. Intraoperative choledochoscopy is effective in confirming SM during operation. Open surgery is the current standard for the management of patients with SM. Laparoscopic surgery should be limited to type I MS, and patients should be selected very strictly.[9]

Hepatic abscesses are the most common type of visceral abscesses; however, they continue to be potentially fatal, with a mortality of between 2 and 12%. It presents an incidence of 2.3 cases per 100,000 and is more frequent in women with a ratio of 3.3:1; on the other hand, the incidence changes in Asia, increasing to 11 to 18 cases per 100,000 inhabitants. Risk factors include diabetes, hepatobiliary or pancreatic pathology, liver transplant, history of pulque intake, acute appendicitis, sepsis, diverticulitis, and colorectal neoplasia. Among the most associated pathogens, we find *E. coli*, *K. pneumoniae*, anaerobes, *S. milleri*, *S. aureus*, and *Candida* spp. and *Pseudomonas aeruginosa*, being these agents infrequent causes and can be found only in specific contexts. Pathogens may vary depending on the geographical region.[10,11]

The pyogenic liver abscess should be considered as a sequel of repeated episodes of cholangitis caused by biliary lithiasis (up to 40% of the cases), connections between the intestine and the biliary tract, papillotomies, and biliary *stents*. Its diagnosis and treatment continue to be problematic issues. Ultrasound (USG) and tomography (CT) are currently used to identify this pathology adequately. For diagnosis, patients must meet at least one of the following criteria image-guided drainage of abscesses in one or more intrahepatic cavities,[12] one or more abscesses found during the surgical event,[13] and one or more inflammatory lesions or abscesses demonstrated by imaging, together with symptoms and signs of infection, as well as blood cultures or liver biopsies compatible with inflammatory foci and resolution of the lesions after administration of antibiotic therapy.[14]

Within the clinical picture, the main symptoms are fever and abdominal pain in 90% of the cases. Abdominal pain is localized in the right hypochondrium, accompanied by rebound and tenderness, followed by nausea, vomiting, anorexia, general malaise, and weight loss in up to 50-75% of cases. Laboratorially, patients present elevated bilirubin, liver enzymes, and alkaline phosphatase in 67-90%; we also find leukocytosis, hypoalbuminemia, and anemia in a third of the cases.[15]

Treatment is based on percutaneous drainage guided by ultrasound or CT, laparoscopically or ERCP, accompanied by antimicrobial treatment, the carbapenems being the carbapenems group of choice. Percutaneous drainage guided by interventional radiology has a success rate of 80 to 87% and is currently considered the gold standard; however, in those abscesses with thickened and septated walls that cannot be adequately evacuated, the laparoscopic approach is preferred.[12,16-18]

PRESENTATION OF THE CASE

49-year-old woman sent from a second-level hospital with a history of right tibia fracture in 1999, left pelvic limb thrombosis (LPM) requiring arterial bypass in 2013; smoking for three years, currently suspended—repetitive episodes of vesicular colic of 10 years of evolution only with medical management.

She started her current condition on October 2, 2019, with abdominal pain in the epigastrium, general condition attack, diaphoresis, unquantified fever, dizziness, nausea, and vomiting on several occasions, adding jaundice and choluria after seven days–a weight loss of 15 kg in the last six years.

On physical examination on admission, cardiopulmonary without compromise. Non-painful soft depressible abdomen, left lower extremity slightly hypotrophic. Laboratory on admission 2-X-2019 with glucose 242 mg/dl, urea 20 mg/dl, Cr 40 mg/dl, GGT 167 U/l, BD 0.53 mg/dl, BI 0.35 mg/dl, BT 0.88 mg/dl, FA 446 U/l, AST 48 U/l, ALT 55 U/l, DHL 138 U/l, Na 138 mmol/l, K 3.5 mmol/l, Cl 104 mmol/l, leukocytes 14.8 $\times$ $10^3/\mu$l, neutrophils 80.6%, Hb 9.1 g/dl, Ht 26.3%, platelets 72,000 $\times$ 10^3 /μl, EGO: blood 1,000 erythrocytes/field, Prot 10 mg/dl, white blood cells (WBC) 0-3/field, scanty bacteria, TP 14.8 sec, PTT 39.4 sec, INR

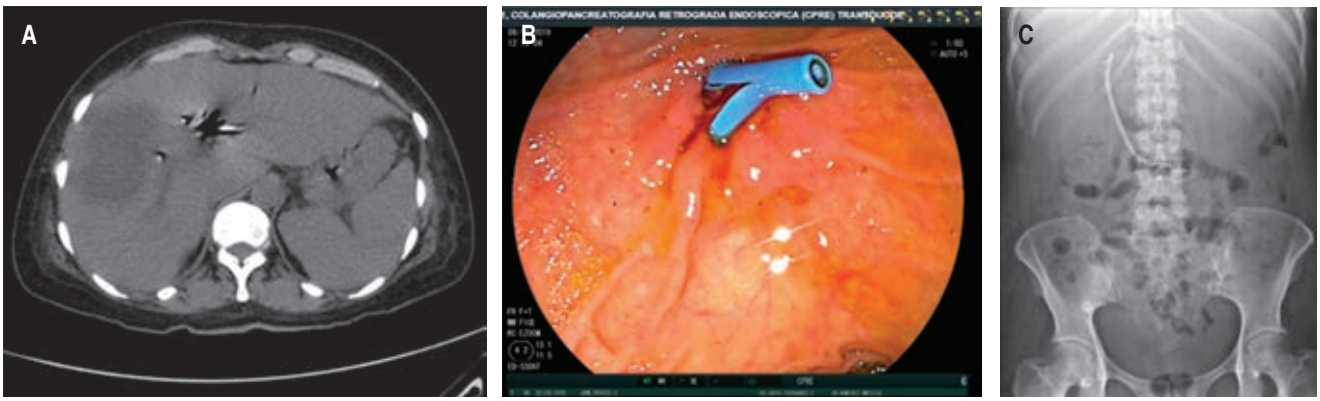


Figure 2: ***A)*** *Tomographic section with abscesses in segments VI-VII and pneumobilia.* ***B)*** *Endoscopic image with Amsterdam prosthesis in an ampulla.* ***C)*** *Plain abdominal X-ray with Amsterdam prosthesis in the common bile duct.*

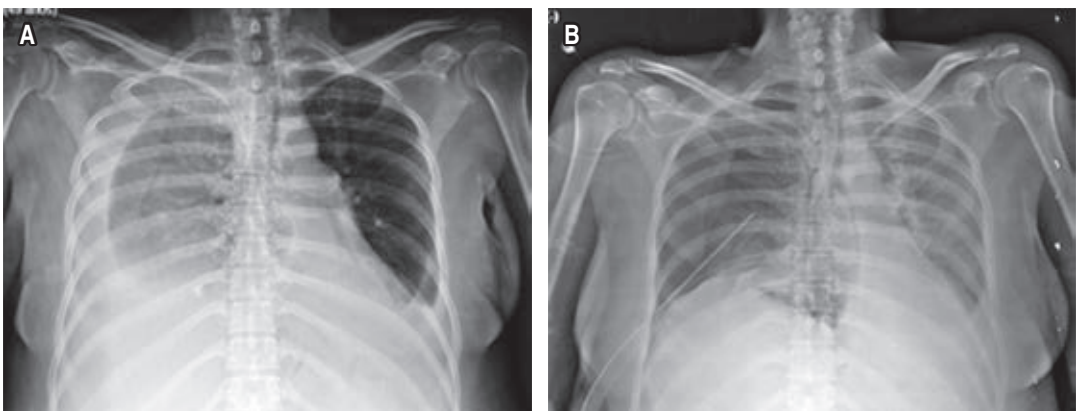


Figure 3:

A) *Chest teleradiography with right pleural effusion.* ***B)*** *Control chest teleradiography with the probe in a good position.*

1.08, tumor markers: CEA 4.4 ng/ml, CA 19.9 < 0.8 U/ml, CA 125 26.8 U/ml, AFP 1.5 ng/ml and Ca 19.9 0.8 U/ml.

USG of the liver and biliary tract was performed on admission, reporting a heterogeneous parenchymal liver gland with hypoechoic image, poorly defined borders, diameters of 6.37 × 5.23 cm located in segment VI, heterogeneous, with poor vascularity suggestive of hepatic abscess vs. hepatocarcinoma, preserved portal vessels, intrahepatic ducts with air inside suggestive of pneumobilia, common bile duct and portal vein of normal caliber. Laboratory one day after admission with glucose 86 mg/dl, urea 17 mg/dl, BUN 7.9 mg/dl, Ca 6.9 mg/dl, GGT 349 U/l, BD 3.34 mg/dl, BI 1.29 mg/dl, BT 4.63 mg/dl, FA 410 U/l, AST 37 U/l, ALT 28 U/l, DHL 131 U/l, Na 134 mmol/l, K 3.7 mmol/l, CL 108 mmol/l, leukocytes 13.3 × $10^3/\mu l$, neutrophils 85.1%, HB 10.4 g/dl, OHT 30.2%, PLT 220 × $10^3/\mu l$, PT 15.6 sec, PTT 34.7 sec, INR 1.16.

An abdominal CT scan was performed on 10/02/19, which reported findings of a hypodense image of 80 × 53 mm with 23 HU in segments VI and VII concerning liver abscess on the right side, hepatomegaly at the expense of the same lobe, presence of pneumobilia, which is observed in communication with the anterior wall of the gallbladder, little free fluid in the pelvic cavity, bilateral pleural effusion and passive atelectasis. Similarly, ERCP was requested on 10-09-19, which reported a common bile duct of 10 mm, a circular filling defect of approximately 20 mm, which delays emptying the contrast medium from the biliary tract, reporting probable Mirizzi syndrome type IV, and bilioenteric fistula of a site to be determined. Sphincterotomy is performed,

sweeping with a lithotripsy cannula and placing a 10 × 10 cm Amsterdam-type stent *(Figure 2)*.

She was sent to our service on 10-27-19, receiving 85% oximetry and anasarca; a chest teleradiography was performed on admission, showing evidence of right pleural effusion of approximately 40%, placing a water seal in the sixth intercostal space with right axillary midline and verifying its placement with a control chest X-ray that ensures the placement of the probe, proposing an exploratory laparotomy on 10-29-19 *(Figure 3)*.

A right subcostal incision was made with findings of cholecystobiliary fistulas to the common hepatic and cholecystoduodenal to the first portion *(Figure 4)*.

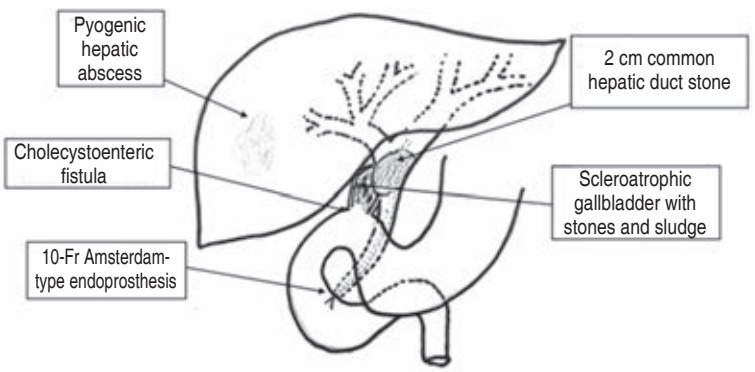


Figure 4: *Transoperative findings (drawing authored by JBB).*

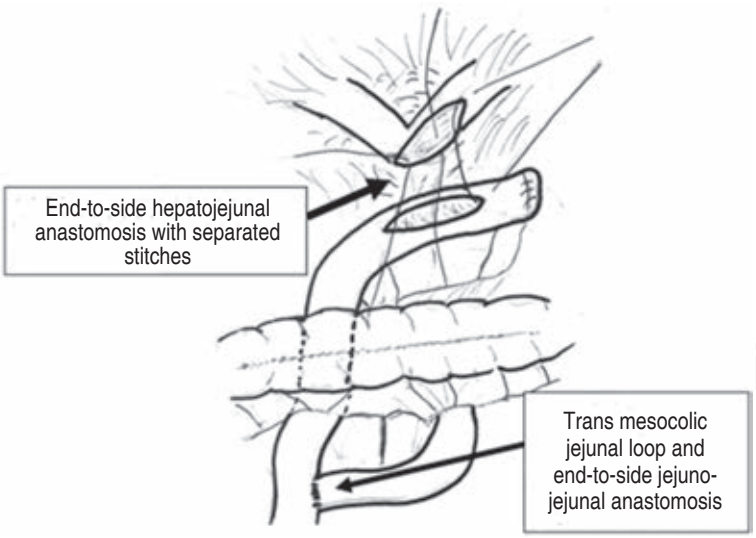


Figure 5: *Hepatojejunal hepatojejunal anastomosis Hepp type (drawing authored by JBB).*

When dissecting the plastron, the scleroatrophic gallbladder is opened over the palpated litho; the Amsterdam prosthesis is extracted from the interior of the main biliary tract, together with a 2 cm litho embedded in the common hepatic, resulting in a 2 cm defect involving the common hepatic and partially the left hepatic duct, A 3 mm fistulous orifice from the vesicular remnant to the duodenal knee, it was decided to close the cholecystoduodenal fistula with a 2-0 polypropylene loop and three separate polypropylene stitches on top of the loop, curative biliodigestive bypass from the jejunum to the common hepatic in a single mouth with the left hepatic (Hepp's technique) in "golf club" with separate stitches and 10 ml of fibrin sealant around the anastomosis, ending the jejunum-jejunal Roux-en-Y at 40 cm from the biliodigestive bypass in a transmesocolic way, fixing the jejunal loop to the mesocolon with separate 3-0 polypropylene stitches *(Figure 5)*.

Subsequently, the liver was punctured for drainage of the unsuccessful liver abscess leaving a 1/2 inch Penrose type drainage to the site near the anastomoses, closing the abdominal aponeurosis by planes with polypropylene 1 with continuous suture and five separate stitches reinforcing the suture, skin with Sarnoff 2-0 separate stitches and a new puncture was programmed utilizing interventional radiology guided by USG in his intensive care bed.

She was evaluated by the angiology service on 30-10-2019 for her history of vascular *bypass* of the left pelvis extremity (LPE) due to the presence of an increased volume of both limbs, being more significant on the left side, reported with edema +++, femoral pulse grade I, popliteal and distal not palpable and delayed capillary filling. Doppler USG of both pelvic limbs was performed with adequate venous flow in the superficial and deep system, without observing the obstructive process by this means, an arterial tree without occlusion and triphasic flows to distal vessels in both extremities. Antithrombotic prophylaxis with fraxiparine 1 mg/kg/day is continued.

In intensive care, a new abdominal USG was performed (1-XI-19) and then mobilized to the Radiology Department to perform a simple

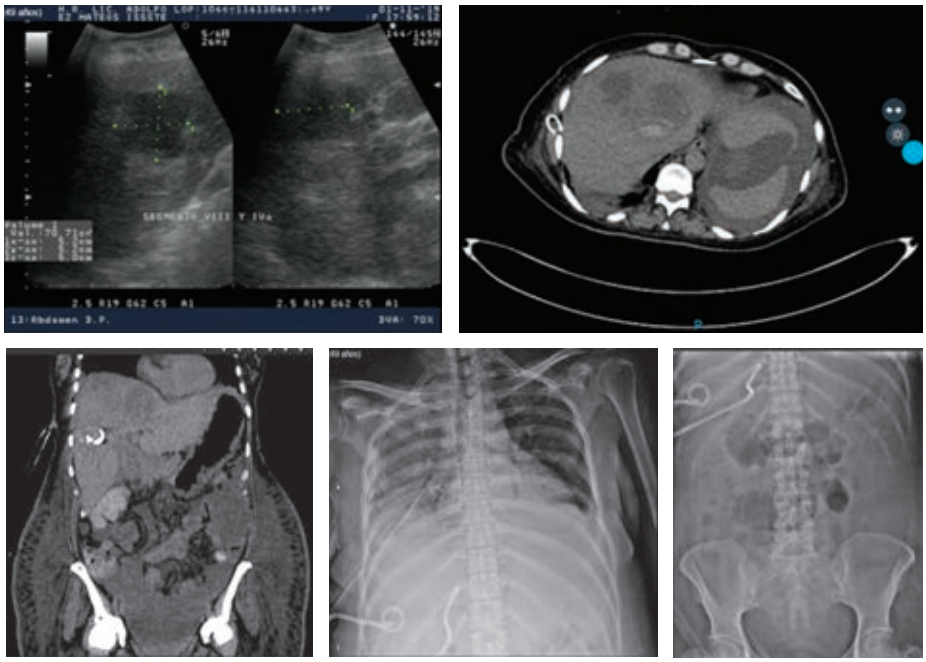


Figure 6: *Ultrasonography showing a right lobe hepatic abscess. A CT scan depicting the two collections, free fluid in a cavity, and soft tissue edema. Each was punctured and drained with a pigtail catheter and sent for culture, which reported E. coli.*

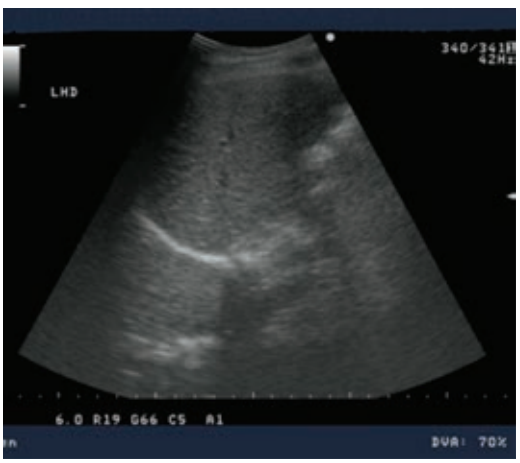


Figure 7: *Hepatic abscesses resolved five months later.*

and contrasted CT of the abdomen, performing a first puncture that same day and due to the lack of drainage and no decrease in the collection, a second puncture was performed on November 7, 2019, leaving two pigtails with 8 Fr catheters in two of the major collections *(Figure 6)*.

The oral route was restarted with a liquid diet and porridges, gradually withdrawing total parenteral nutrition and having ceded fever, improved her body fluid redistribution, and hepatic drains expenses decreased to less than 40 cm^3 in 24 hours; the patient was discharged home on 20-11-2019 with cephalexin 500 mg c/6 hours, orally for 15 more days and monitoring of the remaining small hepatic collections with monthly USG for three months in the outpatient clinic *(Figure 7)*.

DISCUSSION

Drainage disorders of the biliary tree, grouped under the denomination of Mirizzi syndrome (MS), resulting from alterations of the cystic-cholecystic junction due to inflammatory processes secondary to gallstones. Anatomical changes may facilitate bile duct injuries during cholecystectomy or involve neighboring organs such as the stomach, duodenum, and colon, including the liver, as in the present case. MS is a rare complication (-1%) of chronic cholecystitis and cholelithiasis. Kehr's first descriptions of this

syndrome were made in 1905, and Ruge's in 1908. It was characterized by stone impaction in the cystic duct or the neck of the gallbladder, resulting in mechanical compression or erosion of the common bile duct.[1]

MS continues to be a fascinating topic of study because of its challenging and unexpected presentation, which complicates a supposedly simple surgery. The approach to patients with suspected MS should be prudent and sound. Every effort should be made to establish a correct preoperative diagnosis. If found during surgery, every effort should be made to perform an accurate and cautious surgery, identifying the type of Mirizzi and performing the most appropriate treatment for each case.[7]

Clinical or laboratory findings specific to MS include jaundice, abdominal pain, and alterations during serum liver function tests. These symptoms of MS are seen in approximately 80% of cases.[2] The patient we report here had a significant clinical picture, even with the availability of modern imaging techniques, although in most cases, they still need to be identified preoperatively.

The presence of pyogenic hepatic abscesses secondary to the cholangitis that the patient developed due to the obstruction of the biliary tree due to the migrated liths from a scleroatrophic vesicle and duodenal fistula is noteworthy. Punctual treatment required combined medical, radiological, endoscopic, and surgical procedures for the solution of SM type V and hepatic abscesses, involving a Hepp-type biliodigestive shunt and USG and CT guided punctures for the drainage of the abscesses in addition to antibiotic therapy according to culture reports, to achieve the therapeutic goal.

The different classifications of MS have been based on the findings reported, either by the presence or absence of fistulous erosion between the gallbladder, the main biliary tract, and the digestive tract. Thus Mc Sherry and collaborators[4] in 1982 classified MS into two types; which, in turn, due to the more profound knowledge of this disease, were reclassified in 1989 by Csendes[5] into four types, and later in 2008, Beltrán and Csendes added a type V that they subdivided into Va and Vb.[6]

Considering the above and derived from the fact that this disease during its natural history can, according to reports, also affect the liver with atrophy of some lobe,[7] as well as cause liver abscesses as in our case, we propose the addition of a Vc classification for Mirizzi syndromes associated with liver involvement since no current classification considers the potential risk that this disease causes at intrahepatic level, which makes the treatment and evolution of these patients even more complex.

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Intestinal malrotation and cecal volvulus. Case presentation and literature review

Malrotación intestinal y vólvulo de ciego. Presentación de caso y revisión bibliográfica

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Keywords:
volvulus, cecum, intestinal malrotation, intestinal occlusion.

Palabras clave:
vólvulo, ciego, malrotación intestinal, oclusión intestinal.

ABSTRACT

Introduction: intestinal malrotation is the result of an alteration during embryonic development. The absence of the ligament of Treitz, together with mesenteric fixation failures, causes a displacement of the small intestine to the right side of the abdomen, accompanied by a cecum located on the left side, remaining attached to the abdominal wall by fibrous peritoneal bands "Ladd's bands", associated with cecal volvulus and intestinal obstruction. **Clinical case:** we present a 61-year-old female patient who comes to the emergency department presenting acute abdomen secondary to cecal volvulus and intestinal obstruction associated with intestinal malrotation. **Conclusions:** there should be a high index of suspicion in cases with acute abdomen since most patients spend their adult life asymptomatic or with non-specific gastrointestinal symptoms.

RESUMEN

Introducción: *la malrotación intestinal es el resultado de una alteración durante el desarrollo embrionario. La ausencia del ligamento de Treitz aunado a las fallas de fijación mesentéricas provoca un desplazamiento del intestino delgado hacia el lado derecho del abdomen, acompañado de un ciego localizado del lado izquierdo, permaneciendo unido a la pared abdominal por bandas peritoneales fibrosas "bandas de Ladd", asociándose a vólvulo cecal y obstrucción intestinal.* ***Caso clínico:*** *presentamos el caso clínico de un paciente femenino de 61 años quien acude a urgencias presentando abdomen agudo secundario a vólvulo cecal y obstrucción intestinal asociado a malrotación intestinal.* ***Conclusiones:*** *se debe tener un alto índice de sospecha en casos con abdomen agudo, puesto que la mayoría de los pacientes cursan su vida adulta asintomáticos o con síntomas gastrointestinales no específicos.*

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INTRODUCTION

Intestinal malrotation results from an alteration during embryonic development, frequently occurring between 10 to 12 weeks of gestation. It describes a lack of the normal oblique junction of the mesentery of the small intestine and a lack of the normal junction of the mesentery of the ascending colon. The complications associated with this pathology are potentially catastrophic, so it is essential to have anatomical knowledge, diagnostic criteria, therapeutic knowledge, and the acquisition of a high index of suspicion.[1,2]

The incidence is approximately 1 in 500 newborns affected and frequently presents within the first month of life in 64 to 80% of patients; however, in some cases, it presents in adulthood. Some patients may be asymptomatic throughout their lives. In contrast, others

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may present with symptoms in adulthood, such as intermittent postprandial biliary vomiting (30%), intermittent postprandial abdominal pain (20%), oral intolerance, chronic diarrhea, and malabsorption. Most symptoms present about six months before diagnosis. In asymptomatic patients who go unnoticed, intestinal malrotation often presents as cecal volvulus or intestinal obstruction. Isolated intestinal malposition is not considered a predisposing factor for volvulus, but the lack of fixation in these structures. Approximately 10 to 15% of cases present acute abdomen secondary to volvulus.[3,4] These patients present with severe abdominal pain and evidence of intestinal obstruction, hematemesis, hematochezia, or hemodynamic instability.[5,6]

CASE REPORT

We present the case of a 65-year-old female patient with a history of long-standing rheumatoid arthritis treated with prednisone, postherpetic neuralgia treated with the placement of an analgesic infusion pump for five years, and uncomplicated ventral epigastric hernia of two years of evolution. The patient presented to the Emergency Department with colicky abdominal pain of sudden onset and intensity 8/10 on the visual analog scale (VAS); abdominal distension, obstipation, and vomiting of intestinal characteristics on multiple occasions.

Physical examination revealed an abdomen with generalized distension, absent peristaltic sounds, tympanic on percussion, and pain on superficial palpation, mainly in the right hemiabdomen. Peritoneal irritation was excluded, but a 5 × 5 cm mass was found in the epigastrium, with non-reducible contents and no evidence of strangulation.

Laboratory studies were requested, which reported 12,000 leukocytes per cubic millimeter, seven-band forms, and serum lactate levels of 2.8 mmol/l. Subsequently, an abdominal tomography with double contrast was performed, finding significant cecal dilatation, the ascending colon and the proximal portion of the transverse colon, and a transition zone towards the distal third located in the left iliac fossa. Likewise, a supraumbilical abdominal wall hernia is found in the midline with scarce fatty tissue and omentum *(Figures 1 to 4)*.

We decided to perform a surgical exploration of the abdominal cavity by mid-laparotomy, with dissection of the contents and hernial sac at the epigastric level. Subsequently, we accessed the abdominal cavity, where we found cecum volvulus accompanied by distension of up to 12 cm from the cecum to the middle third of the transverse colon. Intestinal malrotation was found from the angle of Treitz secondary to the presence of congenital adhesions to the abdominal wall, called Ladd bands. The right hemicolon was found with an extensive area of necrosis, so a right hemicolectomy was performed with subsequent latero-lateral ileo-transverse mechanical anastomosis with a GIA 60 mm blue cartridge stapler *(Figure 5)*. After thoroughly washing the abdominal cavity, two 19 Fr Blake drains were placed. The abdominal wall was closed in planes, facing the aponeurosis with Prolene 1 suture in the continuous suture.

The postoperative period was uneventful, with antibiotic management with ceftriaxone 1 g intravenous (iv) every 12 hours and metronidazole 500 mg iv every eight hours for six days. The patient was started orally on the second postoperative day and was discharged home on the sixth day. Outpatient evolution was satisfactory, with no eventualities.

DISCUSSION

In 1936, William Edwards Ladd described intestinal malrotation as a congenital anomaly in the period of intestinal rotation and fixation during fetal development. Alterations in the normal oblique junction of the mesentery of the small intestine and the normal junction of the mesentery of the ascending colon characterize this anomaly. The intestinal embryological development can suffer alterations in any of its phases and, in the same way, they can be grouped according to the corresponding developmental stage.[2,7]

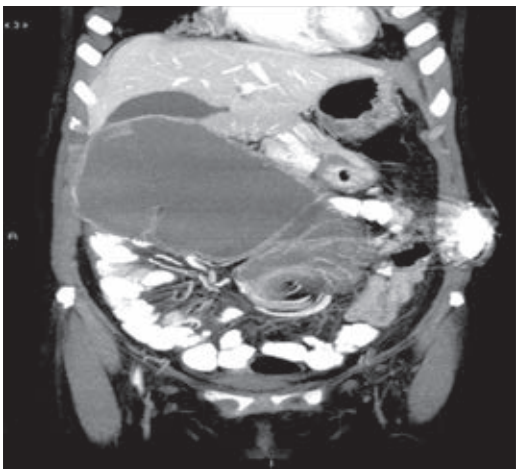

Figure 1: *Coronal reconstruction with a maximum intensity of double-contrast abdominal tomography projection showing the mesenteric vasculature of circular trajectory, known as whirlpool sign and dilatation of the cecum.*

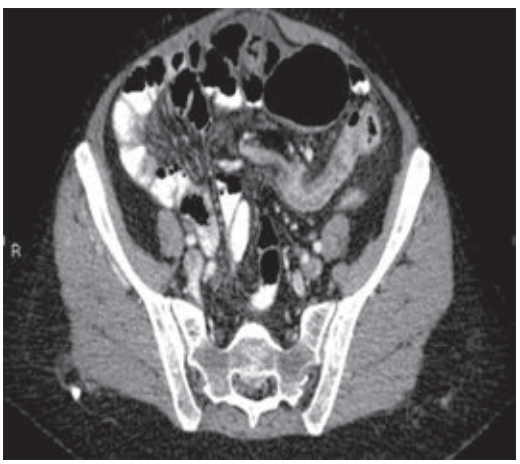

Figure 2*: Axial slices of double-contrast abdominal CT scan at the infraumbilical level, showing completely collapsed colon loops with leftward displacement and small bowel to the right.*

The herniation phase, better known as the first phase, occurs during the first ten weeks of gestation and is characterized by intestinal protrusion through the yolk sac. When failure of the first phase occurs, an omphalocele may develop.[1,7]

The second phase, the abdominal return phase, occurs during the 10th and 11th weeks. The intestine undergoes a retraction of the umbilical cord and returns to the abdomen, with the duodenojejunal loop being the first to return to the abdominal cavity. Subsequently, it rotates counterclockwise 270 degrees about the axis of the superior mesenteric artery. During this phase, three

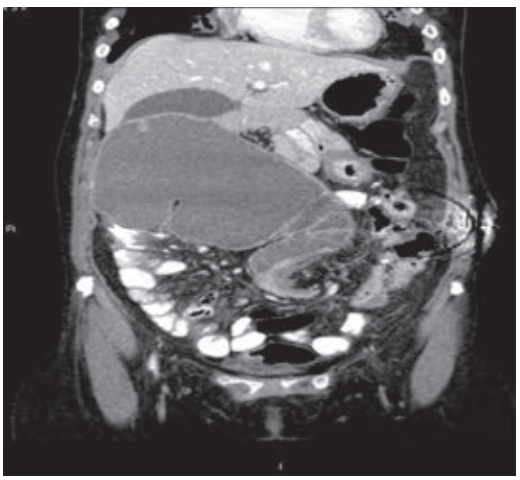

Figure 3: *Coronal reconstruction of double contrast abdominal tomography showing cecum in the right upper quadrant and projected transition zone in the center at the site of the mesenteric gyrus. The stomach is seen in the usual location.*

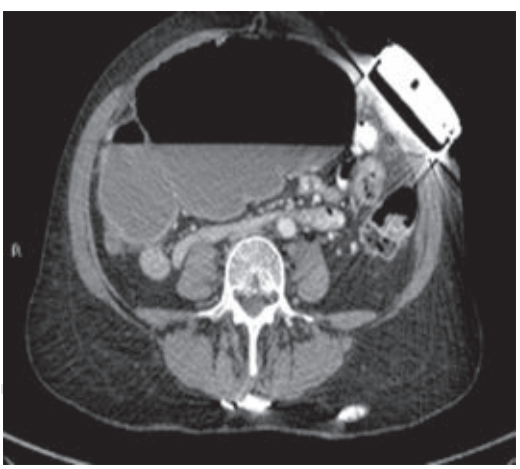

Figure 4: *Axial double-contrast abdominal CT scan at the level of the umbilical scar. Significant distension of the cecum and material in the left flank are observed.*

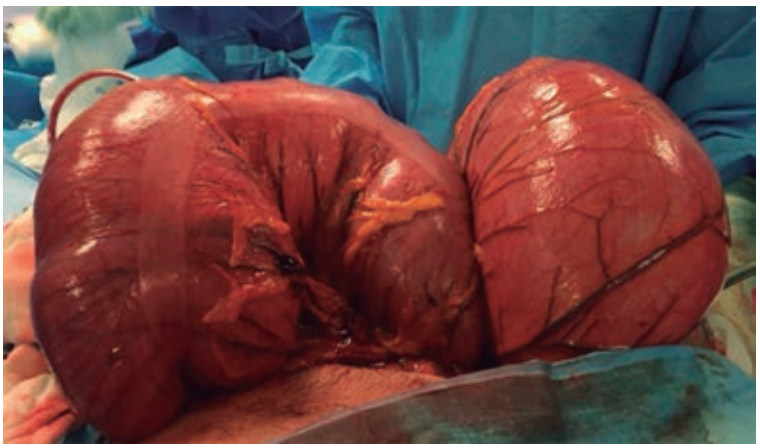

Figure 5: *Right and transverse colon with significant dilatation secondary to cecum volvulus.*

alterations are described: non-rotation, incomplete rotation, and reverse rotation, non-rotation being the more frequent.[1,7] In intestinal non-rotation, a duodenum descending towards the right side of the superior mesenteric artery is described, resulting in a small intestine displaced towards the right hemiabdomen and a colon located in the left hemiabdomen. The absence of the development of the ligament of Treitz causes the cecum to remain in the left hemiabdomen. Instead, it remains attached to the right abdominal wall by peritoneal fibrous bands, the bands of Ladd. This type causes the small bowel to be highly mobile, increasing the risk of developing volvulus. These bands usually encircle the duodenum, causing symptoms of intermittent intestinal obstruction.[1,3,7] In incomplete rotation or malrotation, alterations are described as intestinal obstruction by Ladd's bands or volvulus caused by a duodenal rotation of only 180 degrees and a colonic-cecal loop that lacks 180 degrees of its regular rotation.[1,3]

Third-stage failure, known as the fixation stage, occurs from week 12 until birth. It may result in a mobile cecum, subhepatic cecum, or retrocecal appendix. In other cases, mesenteric intestinal fixation failure may occur, which leads to an increased risk of developing volvulus.[1]

Intestinal malrotation should be suspected in adult patients presenting with the previously mentioned clinical picture or similarly abnormal findings in imaging studies performed for other reasons. The upper gastrointestinal series is considered the gold standard study for pediatric and adult patients, thanks to its ability to visualize the normal course of the duodenum, where the contrast medium is detected in its second portion or the classic corkscrew appearance in the first loops of the jejunum.[8] Nowadays, the use of computed axial tomography for diagnosis has increased. Nevertheless, patients presenting with acute abdomen secondary to intestinal malrotation with evidence of intestinal ischemia should undergo emergency laparotomy without needing prior imaging studies.[8]

Computed axial tomography proves to be a useful alternative diagnostic tool; it can identify rotation patterns associated with particular complications.[9] Similarly, the superior mesenteric artery can be inverted with the superior mesenteric vein positioned to the left or rotated around the artery. However, in more recent series, it has come to demonstrate the same sensitivity and specificity as the upper gastrointestinal series.[10]

Abdominal ultrasonography is not very useful for diagnosis since its negative result does not exclude the presence of intestinal malrotation. Likewise, in some cases, it is possible to reach the diagnosis incidentally for other reasons.[11]

Therapeutics in patients with intestinal malrotation depend on the initial presentation. In asymptomatic cases, without evidence of volvulus, intestinal ischemia, or with non-life threatening gastrointestinal manifestations, a Ladd procedure can be performed electively. The Ladd procedure can be performed open or laparoscopically due to significant differences in complication rates, need for reoperation, or persistence of symptoms.[6]

In 1936, William Edwards Ladd described a procedure that is still the therapeutic technique used today. It is described as a procedure designed to treat acute problems and, at the same time,

reduce the risk of developing volvulus later on. The Ladd procedure consists of five steps: identification and counterclockwise detorsion of the volvulus, division of the Ladd bands, division of the inter-mesenteric bands (fibrous bands located between the non-cecal bowel loops and the duodenum), and finally, appendectomy. Once all five steps have been performed, the bowel is placed in its normal anatomic position. Historically a laparotomy approach was preferred. Today the benefits of performing the procedure laparoscopically have been studied and proven. It is possible to be confronted with a case in which there is a suspicion of the viability of the intestinal loops, so it is recommended to perform an exploration within 24 to 48 hours.[12]

Emergency laparotomy is required in case of acute abdomen secondary to intestinal volvulus and ischemia. It is worth mentioning that adequate volume resuscitation is needed during the preoperative period, a nasogastric tube should be placed, and a broad-spectrum antibiotic should be started, which was performed in the case presented. Preoperative measures should not delay the start of surgery and should be carried out while the patient is transferred to the operating room. Even so, it is more common for patients undergoing laparotomy to have an increased risk of developing adhesions and other complications. In the above case, the patient evolved satisfactorily, with no complications developing. In most cases, such as the one mentioned, the diagnosis is made in the transoperative period since they present with hemodynamic instability, and therefore their surgical management is immediate.

CONCLUSIONS

Malrotation is a pathology that can go unnoticed since most patients are asymptomatic; however, others present variable gastrointestinal alterations before the diagnosis can be approached. Acute abdominal presentation requires emergency surgical intervention. The procedure of choice is the Ladd procedure, characterized by detorsion of the volvulus, division of the intermesenteric bands, appendectomy, and anatomical bowel repositioning.

Considering the potentially catastrophic outcome, it is imperative to have a high index of suspicion in patients with the characteristics mentioned above to employ the best therapy in a timely and appropriate manner.

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Pseudopapillary solid tumor of the pancreas or "Frantz tumor". Presentation of two clinical cases

Tumor sólido pseudopapilar de páncreas o "tumor de Frantz". Presentación de dos casos clínicos

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Keywords:
Frantz tumor, pseudopapillary pancreatic tumor, metastasis, spleen, splenectomy, partial pancreatectomy.

Palabras clave:
tumor de Frantz, tumor pseudopapilar de páncreas, metástasis, bazo, esplenectomía, pancreatectomía parcial.

ABSTRACT

Introduction: pseudopapillary solid tumor of the pancreas, or "Frantz's tumor", was first described in 1959 and is one of the least frequent neoplasms representing 1-2% of pancreatic tumors. It predominates in young female patients. Most of the diagnoses are incidental by imaging tests; these tumors cause slight symptomatology; however, abdominal pain in the epigastrium, nausea, vomiting, early satiety, abdominal distension, weight loss, and jaundice predominate. Computed axial tomography is the study of choice. Histological study confirms the diagnosis. The main site of metastasis occurs in the liver and spleen. Treatment in all cases is surgical. When resection is complete, the prognosis is excellent, with a five-year survival of 95%. Two clinical cases are presented in female patients aged 16 and 25, evaluated in consultation for clinical symptoms characterized by non-specific abdominal pain, gastric fullness, and vomiting. The complementary studies of both cases utilizing simple and contrasted computerized tomography scans of the entire abdomen and pelvis concluded that in the first case, a tumor depended on the body and tail of the pancreas; in the second case, a mass was dependent on the splenic hilum. In both cases, surgical management performed distal in bloc pancreatectomy and splenectomy, respectively. The pathology study confirmed the diagnosis in both cases.

RESUMEN

Introducción: *el tumor sólido pseudopapilar de páncreas o "tumor de Frantz" fue descrito por primera vez en 1959, es una de las neoplasias menos frecuentes y representa 1 a 2% de los tumores pancreáticos; predomina en pacientes jóvenes del sexo femenino. La mayoría de los diagnósticos son incidentales por pruebas de imagen, estos tumores causan poca sintomatología; sin embargo, predominan el dolor abdominal en epigastrio, náuseas, vómito, saciedad precoz, distensión abdominal, pérdida de peso e ictericia. La tomografía axial computarizada es el estudio de elección. El estudio histológico confirma el diagnóstico. El principal sitio de metástasis ocurre en hígado y bazo. El tratamiento en todos los casos es quirúrgico. Cuando la resección es completa el pronóstico es excelente con una supervivencia de 95% a cinco años. Se presentan dos casos clínicos en pacientes del sexo femenino de 16 y 25 años, respectivamente, evaluadas en consulta debido a un cuadro clínico caracterizado por dolor abdominal inespecífico, plenitud gástrica y vómitos. Los estudios complementarios de ambos casos mediante tomografía axial computarizada simple y contrastada de abdomen total y pelvis concluyeron, en el primer caso, tumoración dependiente de cuerpo y cola de páncreas, en el segundo, masa dependiente del hilio esplénico. Se efectuó manejo quirúrgico en ambos casos, al realizar pancreatectomía distal en bloque y esplenectomía, respectivamente. El estudio de patología confirmó el diagnóstico de ambos.*

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INTRODUCTION

Frantz tumor was first mentioned in 1959 by Virginia Kneeland Frantz.[1-3] Solid pseudopapillary tumor of the pancreas (SPT) is one of the least frequent neoplasms, accounting for 0.2 to 2% of all pancreatic tumors and 1-2% of exocrine tumors. The tumor was

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given several names for its macroscopic and microscopic features until it was defined as a "solid pseudopapillary tumor of the pancreas" by the World Health Organization (WHO) as a single tumor in 1996.[1,2,4,5]

Most patients with solid pseudopapillary tumors of the pancreas are female (female: male ratio of 10:1), in the second or third decade of life with an average age of 22 years; about 20-25% are seen in pediatric ages, and only 6% of cases occur in patients older than 50 years.[1-4,6]

CLINICAL CASE 1

The first case corresponds to a female patient, 16 years old, with no familial or personal pathological history of relevance to the current condition. She presented with clinical symptoms of two months of evolution, characterized by intermittent episodes of abdominal pain in the epigastrium of variable intensity, with irradiation to the flank and lumbosacral fossa on the left side, without other added symptomatology. Physical examination showed abdominal distention, mild pain in the epigastrium, and no palpable masses.

Computed axial tomography (CT) of the upper abdomen was performed with single and double contrast in axial sections, showing a pancreas with a severe increase in size in body and tail secondary to a large lesion of regular edges, with significant mass effect on retroperitoneal structures, isodense

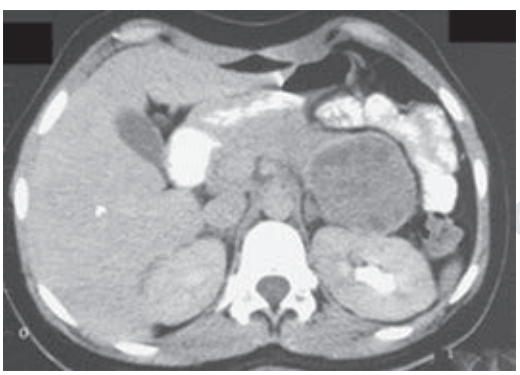

Figure 1: *Computerized tomography scan with double contrast.*

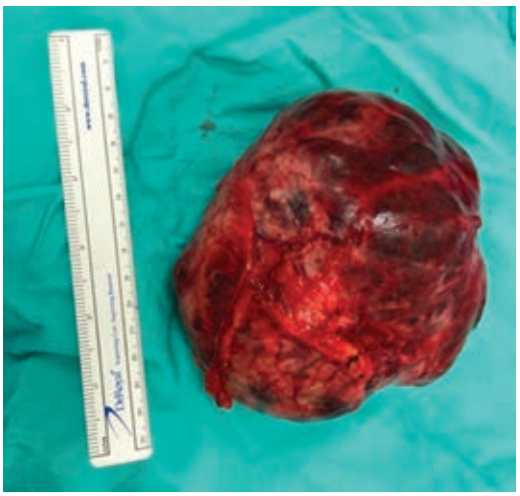

Figure 2: *Solid pancreatic tail tumor.*

to the parenchyma, with hypodense areas not reinforced by intravenous contrast, without calcifications or cystic areas, measuring 102 × 107 × 115 mm *(Figure 1)*, head and uncinate process without alterations, the rest of the study without alterations.

Laboratory studies (blood biometry, liver function tests, amylase, lipase, prothrombin time (PT), partial thromboplastin time (PTT), international normalized ratio (INR), serum electrolytes, general urine test) were within normal parameters. An approach protocol was initiated with suspicion of neuroblastoma as the first diagnostic possibility; total and fractionated catecholamines were requested in 24-hour urine, which was within normal parameters.

A laparotomy is scheduled, and the following findings are reported: Chevron incision approach, the peritoneal cavity is opened, protocol exploration is performed, Balfour type automatic retractor is placed, and the gastrocolic space is opened in order to enter the omentum transcavity. A tumor dependent on the tail of the pancreas is identified, and resection of the same is performed to complete the removal of the tumor and ligate the neoformation vessels with a harmonic scalpel. We apply a 2-0 poliglecaprone 25 running suture in the distal segment of the pancreas, with total

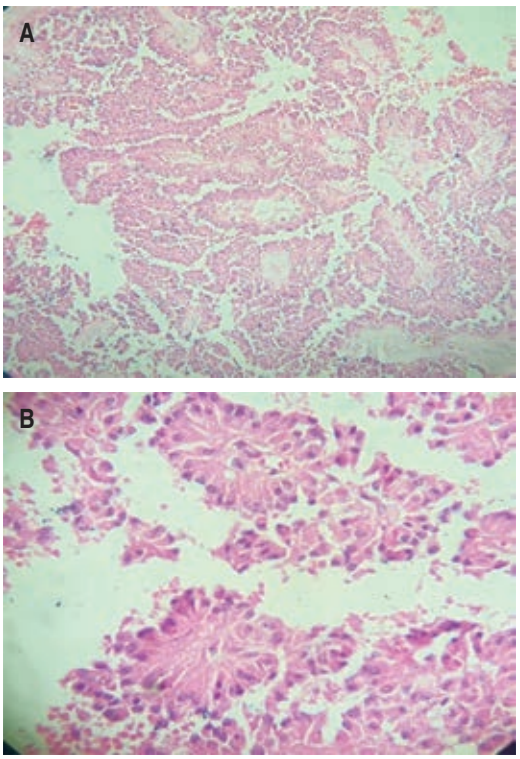

Figure 3: *Pseudo papillae covered by layers of epithelial cells.*

bleeding of approximately 200 cm^3, with a surgical time of 100 minutes.

He tolerated the oral route for a three-day hospital stay with favorable evolution, with complete laboratory studies where only grade 2 normocytic normochromic anemia stands out. She was discharged four days later thanks to antibiotic treatment with ceftriaxone 1 g IV every 12 hours for seven days, and analgesic management with parecoxib 40 mg IV, paracetamol 1 g IV every eight hours and tramadol 50 mg IV for five days, with an external appointment with the result of pathology study.

Pathology study reports, at the macroscopic examination, a solid 13 × 11.5 × 8 cm tumor *(Figure 2)*; and, at the microscopic examination, the presence of pseudo papillae covered by several layers of epithelial cells *(Figure 3)*. Intact capsule, not involved by neoplasia. Monthly follow-up with laboratory and imaging controls, without alterations.

CLINICAL CASE 2

The second case was that of a 25-year-old female patient with no significant familial or personal pathological history, consulted for a three-month history of postprandial fullness, vomiting of gastric contents without significant weight loss, referred abdominal pain in the epigastrium and left hypochondrium, mild to moderate urgency, intensity without irradiation, exacerbated by any food intake.

Physical examination revealed mild abdominal distension, preserved peristalsis with pain on mid and deep palpation in the epigastrium and left hypochondrium with a palpable mass in the same area, without adenomegaly or peritoneal irritation.

Laboratory and imaging paraclinical studies were performed, and blood laboratories (blood cytology, blood chemistry, liver function tests, PT, PTT, serum electrolytes, amylase, lipase) were found without alterations, as well as the chest X-ray; However, CT of the upper, lower abdomen and pelvic simple and with biphasic contrast not contrasted with diagnostic approach was requested, and as the only finding it was reported "spleen of normal size; however, there is a mass with 40 Hounsfield units with calcifications in the wall, well delimited, located in the splenic hilum measuring approximately 8.2 cm by 6.6 cm" *(Figure 4)*. It was decided to perform surgery.

With the Chevron approach, the abdominal cavity is opened, which begins with exploratory

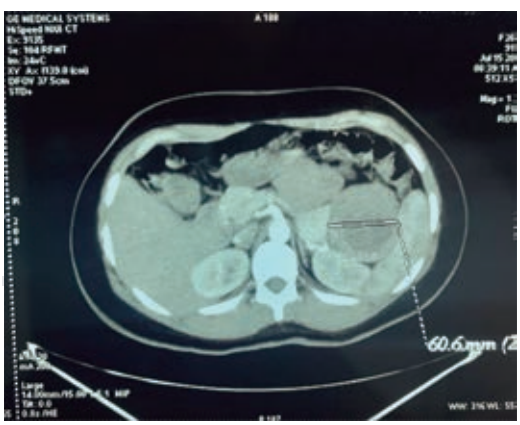

Figure 4: *Tumor with calcifications in the wall, located in the splenic hilum.*

Content

laparotomy protocol focused on the gastrocolic space and enters the transcavity of the omentum, where a tumor of the tail of the pancreas is found extending to the splenic hilum and respecting the retroperitoneum, which could be resected with the tail of the pancreas together with the spleen, by traction of the stomach to expose the gastrosplenic ligament in order to find the omentum transcavity directly. Vessels were cut and ligated in the gastrosplenic ligament to give us good visualization of the splenic artery. Peritoneum was cut over the spleen to facilitate ligation of the splenic artery and vein with polyglactin 910 2-0 thread without leaving any drainage. The bleeding was of 300 cm^3 approximately, and there was no need for blood transfusions; the surgical time was 120 min.

In the postoperative evolution, the patient tended to improve. After four days of fasting, due to amylase elevation secondary to manipulation and suture of the pancreas, he presented tolerance to the oral route. She was discharged with normal amylase levels, and an appointment was scheduled after one month to continue clinical surveillance and to know his histopathological results.

The diagnostic histopathologic report was conclusive and reported a 9.1 × 7.6 × 7.2 cm, smooth external surface, gray with a visible vascular network and increased consistency with cystic appearance *(Figure 5)*; histological image of solid pseudopapillary tumor of the pancreas (papillary cystic tumor-Frantz tumor) *(Figure 6)*, located in the tail of the pancreas without observing tumor activity in the outer face of the capsule of the neoplastic lesion, spleen with sinusoidal congestion.

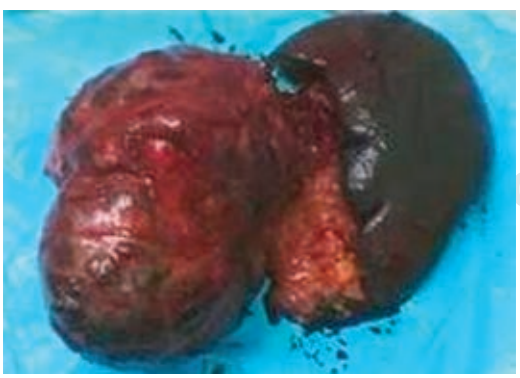

Figure 5: *Cystic tumor and spleen.*

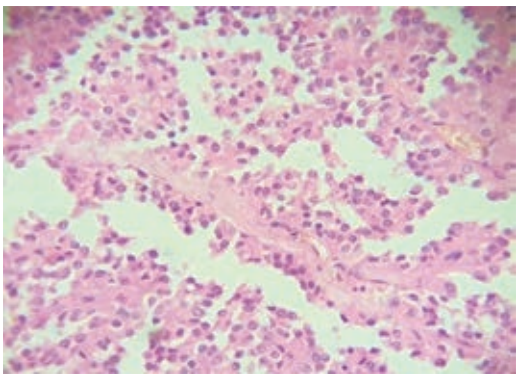

Figure 6: *Pseudo papillae and epithelial cells.*

DISCUSSION

Frantz tumor is an enigmatic tumor regarding its cellular origin and genotype. Its predominance in young female patients indicates the possibility of a hormonal influence in its development, only progesterone receptors have been demonstrated in these tumors, and some reports suggest the presence of beta forms of estrogen receptors. Patients infected with the hepatitis B virus have been reported, which can induce overexpression of β-catenin in tumor cells, suggesting this virus's participation in the pathogenesis of this tumor.[4,7,8]

Solid pseudopapillary tumor of the pancreas is genetically characterized by the activation of β-catenin and its white cells. Alterations of the colon adenomatous polyposis colon polyposis (APC) β-catenin and cyclin-D1 gene pathways, with activating mutations in exon 3 of the β-catenin gene, leading to nuclear accumulation and positive staining for β-catenin, are shown in 95% of cases in most of these tumors. Unlike ductal adenocarcinoma of the pancreas, the Frantz tumor is not associated with alterations in the K-ras, p53, or DPC4 genes.[4]

Most Frantz tumor diagnoses are made incidentally as a finding within imaging studies performed for other reasons. These tumors cause slight symptomatology until they reach significant dimensions; they sometimes present with abdominal pain,

bloating, early satiety, anorexia, nausea, weight loss, pancreatitis, and jaundice. Rare cases of intra-abdominal hemorrhage due to tumor rupture have been reported. The main site of metastasis occurs in the liver and spleen.[3,4,9] Extra pancreatic tumors are rare, and sometimes no ectopic pancreatic tissue is demonstrated.[4]

Computed tomography is the study of choice for the detection of pancreatic tumors; in Frantz's tumor, its most relevant tomographic features are an isolated location frequently in the head of the pancreas, a mixed location more frequently in the body and tail of the pancreas, predominantly solid content, mostly without calcifications, predominant size of 5-10 cm and mainly rounded shape with defined borders.[10,11]

Histologically they are encapsulated lesions with solid and cystic areas. The pseudopapillary appearance is found around a fibrovascular stalk. Polygonal tumor cells form solid areas or cluster in pseudo rosettes. The stroma may be myxoid or hyaline but is often inconspicuous. The foamy macrophages are periodic acid Schiff (PAS) positive.[7,10,11] These tumors are of low-grade malignancy. Tumor resection is recommended in all patients.[1,2,4,7,9,12] Oncologic resection with negative surgical margins should be performed to achieve local disease control, prevent recurrence and metastases, relieve symptoms, and ensure an excellent long-term prognosis.[4]

Eighty-five percent of patients present local disease at diagnosis, and 15% present disseminated disease. The long-term prognosis is excellent when resection is complete, with a five-year survival of 95%. Follow-up with postoperative imaging is recommended every six months for two years and then annually for life.[4,10]

Similar results are maintained in relation to what has been reviewed and in the experience of the reported cases, finding only gastrointestinal symptoms related to the clinic. As the main diagnostic aid, the tendency of CT as a diagnostic method continues; however, the incidental transoperative finding is a variable that, in our experience, should be considered.

Surgical treatment is the treatment of choice for a complete resolution of the pathology.

CONCLUSION

Frantz tumor is an infrequent neoplasm, usually incidentally diagnosed and with a low degree of malignancy. It was found to have a higher incidence in females between 15 and 30 with no identified history. With clinical and laboratory data, it is complicated to diagnose, leaving a CT scan as the primary imaging method of choice for identifying these pancreatic tumors.

The definitive treatment is complete surgical resection of the pancreatic tumor, which provides an excellent long-term prognosis, even without reporting treatment-related complications.

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Dr. Ricardo Suárez Gamboa, innovative surgeon and promoter of uterine cancer management in the 19th century

Dr. Ricardo Suárez Gamboa, cirujano innovador y promotor del manejo del cáncer uterino en el siglo XIX

Carlos Agustín Rodríguez-Paz,* Rolando Neri-Vela‡

Keywords:
surgery, history, cervical, wire, suture, military.

Palabras clave:
cirugía, historia, cervicouterino, alambre, sutura, militar.

ABSTRACT

Dr. Ricardo Suárez Gamboa (1872-1915) was a surgeon of the late 19th century who studied medicine at the then National School of Medicine in Porfirio's Mexico; he studied in France with Pozzi and Routier. Upon his return, he edited the book *Monografías de clínica quirúrgica* in 1899, where he suggested using a four-grade classification of cervical cancer. He was the first promoter of the fight against this disease. He was a member of the National Academy of Medicine, publishing articles supporting metal sutures, asepsis, and approaches with radical lymphatic repair and emptying in cancer cases. He was among the first to use Walter Reed's theories to control yellow fever in the battle of Ebony, where he died.

RESUMEN

El Dr. Ricardo Suárez Gamboa (1872-1915) fue un cirujano de finales del siglo XIX que estudió medicina en la entonces Escuela Nacional de Medicina en el México porfirista; estudió en Francia al lado de Pozzi y Routier. A su regreso editó el libro Monografías de clínica quirúrgica en 1899, donde sugirió el uso de una clasificación en cuatro grados del cáncer cervicouterino, y fue el primer promotor en el mundo de la lucha contra este mal. Fue miembro de la Academia Nacional de Medicina, publicando artículos que apoyaban la sutura de metal, la asepsia y los abordajes con reparación y vaciamiento linfático radicales en los casos de cáncer. Fue de los primeros en usar las teorías de Walter Reed para el control de la fiebre amarilla en la batalla de El Ébano, donde murió.

INTRODUCTION

According to Jürgen Thorwald, the 19th century was called the era of surgeons due to the extraordinary achievements in this branch of medicine, mainly thanks to the beginning of anesthesiology, as well as asepsis and antisepsis;[1] in Mexico, thanks to the contributions of the anatomists from the Royal School of Surgery of Mexico, as well as to the knowledge of Spanish, German and French surgery, a first generation of surgeons was forged in the country that responded to the current needs.[2,3] The next generation, after the war against the United States in 1847, modified and incorporated the new knowledge and began to generate ideas and proposals independent of the European continent.[4] One of these physicians who realized the phenomena that afflicted a large part of the population, especially women, was Dr. Ricardo Suarez Gamboa, who, thanks to his surgical mentors, developed not only a surgical skill but a facility and sensitivity in the area of gynecology, in which he would be part of the founders of that specialty, with an unfortunate but heroic premature death.

We aim to highlight the surgical and editorial achievements of this late 19th and early 20th-

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century physician who also participated in the Mexican Revolution.

PREPARATION AND PROFESSIONAL LIFE

He was a military doctor of the XIX century born in 1872 and was wounded in the battle of El Ébano, in San Luis Potosí, in 1915.[5] He entered the National School of Medicine in 1886 *(Figure 1)*. When he finished, he traveled to Europe to perfect his studies with Dr. Samuel J. de Pozzi (1846-1918), from whom he inherited his taste for gynecology, and with Dr. Routier at Necker Hospital.[6] Upon returning to his homeland, he competed for and won the Chair of Operative Medicine at the National School of Medicine in Mexico.[7]

On April 30, 1900, he participated in a competitive examination for a professor of medicine, summoned by the Ministry of Public Instruction, competing, among others, with Aureliano Urrutia (1872-1975), Rafael Norma, and Julián Villarreal (1869-1934), the president of the jury being Dr. Francisco de P. Chacón (1840-1904).[8] According to his file from the then National School of Medicine, he entered, supported by Dr. Francisco P. Chacón (mentor during all his undergraduate studies) to the National Academy of Medicine, and it is interesting that he mentions suffering from asthma in his documents.

Figure 1: *Dr. Ricardo Suárez Gamboa. Existing photo in his monograph.*
Taken from: Suárez-Gamboa R, p. 25.[12]

CONTRIBUTIONS TO GYNECOLOGY

Dr. Suarez Gamboa was one of the first to practice hysterectomy in our country;[9] and according to Dr. Uribe-Elias, he is one of the surgeons who gave the transition between the old management of gynecology of the nineteenth century to that of the twentieth century.[10] In his book, he describes the history of how this procedure evolved in Europe from the "amputation" of the uterus that was resected when it presented a type IV prolapse, with the clamping of the entire block above the fundus of the uterus and suturing, assigning this technique to Francois Rousset (1525-1598), also attempted by other means by Halscher, Bernhard Rudolf Konrad von Langenbeck (1810-1887), Van Heer and Sauter de Constance (French surgeon at the beginning of the 19th century).[11] Of the latter surgeon, Suarez Gamboa describes (without giving the date) that he attempted dissection of the uterus with a three-stage resection with dissection of the lateral structures, clamping of the adnexa, and dissection of the so-called vaginal insertion, which he describes as being more complex. Suarez Gamboa gives the priority of successful resection of the uterus to Oslander and Urisberg by formalizing the so-called "amputation of the womb", but with few successes between 1828 and 1851, in which an abdominal hysterectomy with ligation was performed, but we do not find mention of the suture of the vaginal vault or the suture of the parametric, an intravaginal sponge was placed; Our author describes how surgeons in that era found bleeding from the abdominal cavity at autopsy; he comments that the breaking point was with Keimball in 1855, Koeberlé in 1863 and of course with Pean in 1869, who treated the pedicle with metallic ligature instead of ligature with threads. In Mexico, he laments the obscure and scarce medical articles to support it; he only mentions as national antecedents

his teachers Rafael Lavista (he introduced hysterectomy on March 22, 1878, based on Dr. Pean), Francisco P. Chacón and Nicolás San Juan (first vaginal hysterectomy in our country on February 13, 1873).[12]

PUBLISHED WORKS

Suárez Gamboa published in the *Gaceta Médica de México* about several topics: 1) Tropical medicine, in which he commented on the control of the military doctors headed by Dr. Walter Reed (1851-1902) in Havana to control yellow fever (he asked for a commission to see how this control was done in that Cuban city so that it could be implemented in Veracruz);[13] 15 years later he would implement the epidemiological and logistical measures of control in the battle of El Ébano.[5] 2) History of algology, making a historical compilation of the methods used from Pliny to the 19th century.[14,15] 3) General surgery, an example of this topic, is an interesting work in which he reaffirms the use of metal sutures (silver and aluminum bronze), emphasizing its low risk of infection (he comments that in the market at that time, there was only metal wire, Florentine horsehair [made from the sericogenous glands of the silkworm, monofilament], braided silk and *catgut*);[6] in another paper he describes preoperative psychiatric states, emphasizing that not only infections are adverse sequelae of an operative act, which, although he discusses them within the preoperative preparation in each case in his book on hysterectomy, he emphasizes in this article on such perioperative problem, calling it psycho-neurosis-surgical.[16] His last surgical article described a technique for approaching and closing the thorax in the face of a drained pleural abscess, with flap closure and rib repair when facing and aligning these processes with wire.[17]

Suárez Gamboa was one of the young surgeons who modernized gynecology and obstetrics practice at the end of the Porfiriato period; in 1899, he published a study on hysterectomy,[12] incorporating steel as a suture to the Mexican surgical arsenal.[10] In that writing, his teacher Joaquin Vertiz made the introduction, noting that it was an important work by *"how little Mexican doctors do to transmit their experience, removing selfishness, being so little the public that reads and so grown in the proportion that criticizes and hurts"*; another introduction was written by Dr. Francisco de P. Chacon who qualifies it as original work, which gives contributions to the world surgery regarding uterine surgery. The same author, in his preamble, describes that he was helped by surgeons Numa Torrea, Arcadio T. Ojeda, Carlos Manuel García, Manuel M. Macias (from Veracruz), German Díaz Lombardo, Antonio A. Loaeza, Ricardo Tapia Fernández, Francisco Carral, Marcos E. Juarez, Jesus Valdes Sanchez, Calixto Vargas, Manuel Ortiz, Alfonso Montenegro, Felipe Ruiz Esparza and Reinaldo Deffis (surgeons of whom we do not know more data, but it would be interesting to explore their achievements around our character). Mr. Alberto Fernández made illustrations of oncological pieces.[18] The work *Monografías de clínica quirúrgica* even reached Merida, Oaxaca and Monterrey, where it was preserved in their respective medical school libraries.[19] When reviewing the book and the illustrations, one can appreciate the perfection of the technique when resecting the uterus with fibrosarcomas *(Figure 2)*, cervical

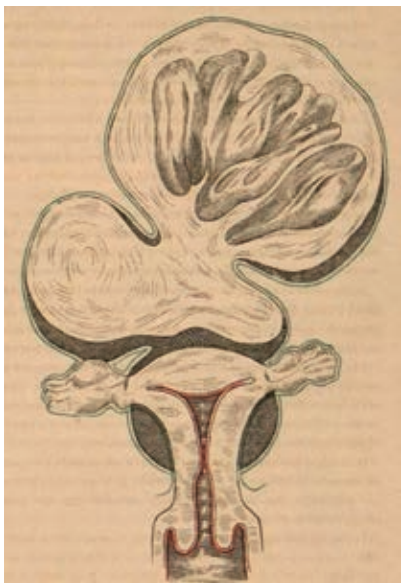

Figure 2: *Pathological specimen described as fibrosarcoma of the uterus.*
Taken from: Suárez-Gamboa R, p. 77.[12]

Figure 3: *Pathological specimen described as cervical and parenchymal cancer.*
Taken from: Suárez-Gamboa R, p. 121.[12]

and parenchymal cancer *(Figure 3)*, cervical and medullary cancer *(Figure 4)*, in general physically gathered in his anatomopathological museum, located in the study of his private home *(Figure 5)*.

From page 106 onwards of his book, he described how the changes of uterine cancer are "essentially limited to the uterine cervix, preferably starting from the paracervical mucosa, from there it passes to the perimetric tissue, bladder, rectum and connective tissue of the pelvis", a masterful description of an extensive invasion of the pelvis. The thought of Suárez Gamboa that carcinoma is a secondary process to a chronic cellular process (which could not be proved in that era), but that, at the end of the 19th century, it was located by a parasitic origin with greater frequency in women of 40 years of age according to Gusserow, is another of his contributions.[20] He emphasizes, at several points in his book, the probability that the uterus, in the presence of cancer, is free to be resected from the bladder and rectum, criteria for which he does not proceed to perform a hysterectomy. In his thesis, Hernández Cornejo emphasizes how Suárez Gamboa is the first Mexican surgeon to establish defined behaviors in the face of cervical cancer,[21] establishing a classification, which covers pages 128 to 129 *(Table 1)*, *which* places him very close to evidence-based medicine, as well as perhaps being the first surgeon in the world to make such a proposal, as stated by Conrado Zuckermann.[22]

In the same monograph, he describes that he operated in the then-private hospitals

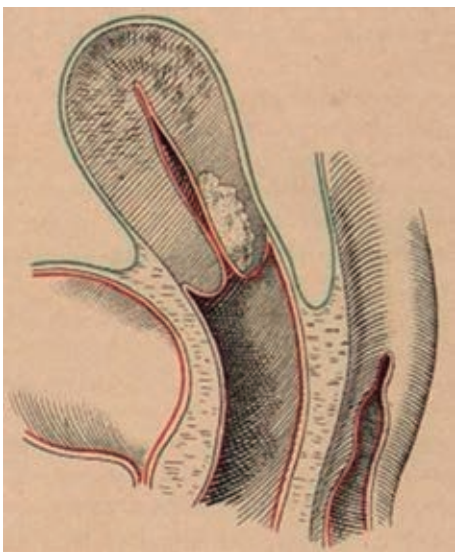

Figure 4: *Pathologic specimen described as medullary uterine cancer.*
Taken from: Suárez-Gamboa R, p. 137.[12]

Figure 5: *Personal anatomopathological museum, existing in Dr. Suárez Gamboa's house at the time.*
Taken from: Suárez-Gamboa R, p. 16.[12]

Table 1: Classification Dr. Ricardo García Gamboa proposed for managing cervical cancer in 1899.

Category	Anatomical criteria	Technique	Remarks
1ª	Limited to the neck	Supravaginal amputation	He does not advocate the transvaginal resection method
2ª	Destruction of the cervical os, cervical vagina hard and thick, healthy fundus	Abdominal hysterectomy	Trendelenburg position and wide laparotomy preferred
3ª	Uterus fully grasped but mobile; broad ligaments, bladder, and rectum free	Abdominal hysterectomy plus pelvic node emptying	Lymph nodes are palpated in the pelvis
4ª	Immotile uterus, vaginal wall invasion, bladder, or rectum taken	If inoperable, do not perform resections	Palliative management

Concepción Beistegui (directed by Dr. Javier Hoyo) and Hospital Morelos, where an "aseptic operating room" was opened (directed by Dr. Ramón Macias).[18]

MILITARY LIFE

He was discharged from the Mexican Army, and in his book *Monografías de clínica quirúrgica,* he appears in the presentation as Ex-Mayor Médico-Cirujano del Ejército Nacional, indicating that by the year 1899, he was no longer incorporated to the Health Service.[18] In his second period as a military doctor, Suárez Gamboa helped to organize the Military Health Service of the Constitutionalist Army of Venustiano Carranza; together with Jesús Alemán Pérez,[23] Suárez Gamboa accompanied in the second part of the revolution, the troops of General Pablo González and his division (Army Corps) of the northeast, as well as in the battles where Piedras Negras, Coahuila, was lost around September 29, 1913;[24] In November 1914 he was chief of the Carranza's Medical Corps that moved to Jiménez, Tamaulipas, to organize a Blood Hospital[25] until his last act of arms in the battle of El Ébano,[5] where he died attending the wounded in the line of fire;[26] should not surprise us, since the rear line in El Chijol, Dr. Salvador Aguirre López also died because of his outstanding work in the battle of El Chijol. Salvador Aguirre López was also killed by a grenade that exploded beside him.[27] As an additional note, his widow Mrs. Isabel Torres, was pensioned on December 28, 1934, with five pesos daily.[28]

CONCLUSIONS

Our previous experience regarding the hospital trains of the Mexican Revolution and the battle of El Ébano allowed us to approach the existence of Dr. Ricardo Suárez-Gamboa, who passed away tragically. Ricardo Suárez-Gamboa, who died tragically, without forgetting his value as one of the initiators of the specialty of gynecology in our country,[10] is considered a surgeon who gave the turn to surgical modernity for being the first Mexican doctor to propose a classification of cervical cancer, in order to take a criterion of operative conduct, and initiating the use of metal sutures in our country, among other contributions.

For all of the above, he remains a medical hero of the Mexican Revolution and an indispensable character who gave scientific elements of the transcendence of cancer of the reproductive system in women. This campaign would be formalized more than 90 years after his death.

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Ethical considerations and responsibility: data privacy. Following the protocols established in our work center, we declare that we have followed the protocols on patient data privacy and preserved their anonymity.

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