

# 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.<sup>1</sup> This chronic form is suspected when there is a pain in the right lower quadrant for more than three weeks,<sup>2</sup> and its existence is corroborated based on histopathological findings showing chronic inflammation.<sup>3,4</sup> 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.<sup>1-3,5-7</sup> Some authors have pointed out that chronic appendicitis is a misnomer for recurrent acute appendicitis.<sup>8</sup> However, other authors use chronic recurrent appendicitis framing in a single entity of these two clinical manifestations.<sup>7</sup>

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

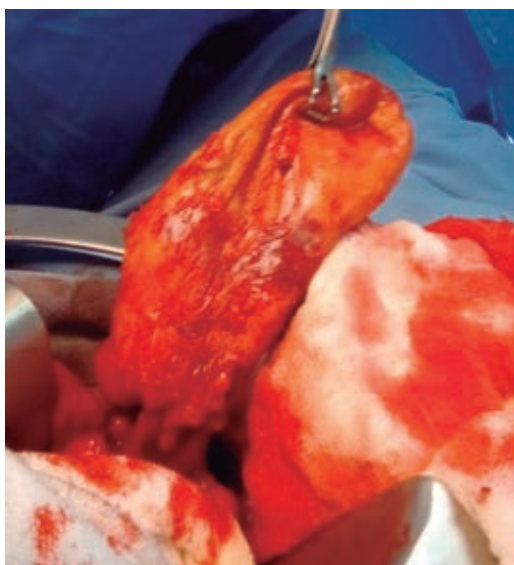
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**Figure 1:** Removal of the appendix through the surgical incision.

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.

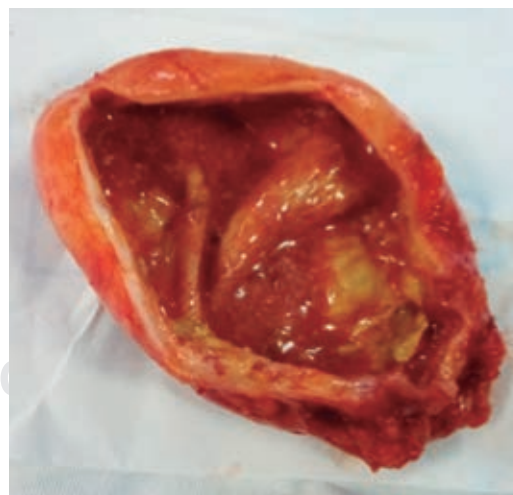
Emergency surgery was performed where a subcecal appendix was found adhered to the posterior wall of the peritoneal cavity, highly distended and with thickened walls, without fluid inside (Figure 1). The measurements recorded for the specimen were  $10 \times 4 \times 4$  cm, with a base of 2 cm. There 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.<sup>9</sup> 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.<sup>10</sup> 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.<sup>1</sup> 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.<sup>7,8</sup>

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

The pathophysiology of chronic appendicitis is thought to begin with partial, transient, or recurrent obstruction of the appendiceal lumen,<sup>1,5,8</sup> or excessive production of mucus,<sup>13</sup> with subsequent accumulation of appendiceal secretion and progressive dilatation of the appendix, which causes the intraluminal pressure to increase and eventually release the obstruction.<sup>5,8</sup> 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;<sup>12</sup> with it, there is partial or complete relief.<sup>5,8</sup> It has been suggested that copro stasis, rather than coproliths, may significantly contribute to acute exacerbations of chronic appendicitis.<sup>13</sup> Mild local inflammation after resolution of the acute appendicitis attack could lead to chronic right lower quadrant discomfort.<sup>5,8</sup> 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),<sup>4</sup> cystic fibrosis, and Crohn's disease.<sup>14</sup>

The clinical features of chronic appendicitis are similar to those with acute appendicitis but with a longer duration,<sup>8,15</sup> less intensity, and less pain.<sup>1,7,15</sup> 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.<sup>4</sup> On several occasions, the clinical manifestations may extend for weeks, months, or years,<sup>5</sup> with episodic and recurrent pain.<sup>1,3</sup> The most prolonged reported duration of chronic abdominal pain associated with recurrent appendicitis was 18 years.<sup>2</sup> The clinical picture may or may not present with fever or associated with systemic symptoms.<sup>1</sup> 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.<sup>15</sup>

Laboratory tests will show leukocyte levels that may be normal or slightly increased, with no deviation of the white formula to the left.<sup>1,15</sup> 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.<sup>1,3,8,14</sup> 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.<sup>1</sup>

No laboratory or imaging test can establish suspicion of chronic appendicitis,<sup>8</sup>

so the diagnosis is often based on chronic inflammatory changes seen on histopathology.<sup>1</sup> Histopathological findings of chronic appendicitis include inflammatory infiltration consisting of lymphocytes, histiocytes, and eosinophils associated with fibrosis of the appendiceal wall.<sup>3,4,8,12</sup> 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.<sup>13</sup> There may be a proliferation of neural cells.<sup>12</sup> 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.<sup>7</sup> The presence of recurrent attacks of pain histologically associated with acute inflammation may define recurrent appendicitis.<sup>12</sup> 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.<sup>3</sup>

Although not considered a surgical emergency, most patients have a resolution of pain with appendectomy.<sup>6</sup> That is why, as in acute appendicitis, the treatment for chronic appendicitis is appendectomy.<sup>7</sup> When a normal appendix is identified, this organ should be removed to rule out appendicitis in future pain episodes.<sup>3</sup> 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.<sup>1</sup>

## 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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