



## Case report

## A minilaparoscopic approach for a giant appendiceal mucinous neoplasm

Diego Laurentino Lima <sup>a,\*</sup>, Raquel Nogueira Cordeiro <sup>b</sup>, Gustavo Lopes de Carvalho <sup>c,d,e</sup><sup>a</sup> General Surgery Resident at Department of General Surgery, State Servers Hospital, Recife, Brazil<sup>b</sup> Medical Student at Pernambuco Health College, Recife, Brazil<sup>c</sup> Department of General Surgery, Faculty of Medical Sciences, University of Pernambuco, Recife, Brazil<sup>d</sup> Member of UNIPECLIN (Clinical Research Group of the University of Pernambuco), University of Pernambuco, Recife, Brazil<sup>e</sup> Videolaparoscopic Surgery Clinic Gustavo Carvalho, Recife, Brazil

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## ABSTRACT

Appendiceal tumors are rare neoplasms detected in approximately 1% of appendectomies. A 45-year-old male patient complaining of dysuria for several months, with normal urine analyses and culture, presented to the study clinic. The patient underwent a computed tomography (CT) scan that showed a cystic lesion on medium-distal cecal appendix. The surgical team opted to perform a minilaparoscopic approach. The surgery was uneventful, with a total time of 100 minutes. The patient had no further complications and was discharged 24 hours after the procedure. The minilaparoscopic approach was safe and effective in this case.

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## 1. Introduction

Appendiceal tumors are rare neoplasms detected in approximately 1% of appendectomies.<sup>1</sup> Primary epithelial tumors of the appendix are neuroendocrine tumors, mixed-glandular and endocrine tumors, and mucinous tumors. Mucinous neoplasms of the appendix constitute a heterogeneous group of neoplasms ranging from adenoma to mucinous adenocarcinoma.<sup>2</sup> Some of them are characterized by innocuous appearance but can show an aggressive biologic potential, with poor prognosis.

Most of the published surgical literature suggests that simple appendectomy is sufficient for tumors exhibiting only local disease.<sup>3,4</sup> Minilaparoscopic approach for appendectomies have already been well established and proved to be a safe and feasible technique.<sup>5</sup>

## 2. Case report

A 45-year-old male patient complaining of dysuria for several months, with normal urine analyses and culture, presented to the

study clinic. The patient underwent a computed tomography (CT) scan that showed a cystic lesion on medium-distal cecal appendix (Fig. 1). The surgical team opted to perform a minilaparoscopic approach.

The patient was positioned in the left lateral decubitus. An 11-mm incision for the optics was made in the umbilicus, and the pneumoperitoneum was created by an open, modified Hasson technique.<sup>6</sup> Three low-friction 3-mm trocars were inserted in the hypogastrium, right upper quadrant, and right flank, respectively (Fig. 2).

Surgery started with the ligation of the base of the appendix with two proximal knots and one distal knot using Ethibond 2-0 thread. We also ligated the appendicular artery (Fig. 3A, B, 3C).

The cystic lesion was largely fixed to the bladder. We dissected the peritoneum close to the tumor using a bipolar device to coagulate and scissors to cut it (Figs. 3D and 4A). We dissected all areas around the bladder for a more oncologic procedure (Fig. 4B). The umbilical incision was enlarged, and the cystic lesion was removed using a surgical bag (Fig. 4C). The content of the mucocele was aspirated (Fig. 4D). After removing the tumor, we came back to the abdominal cavity to assess any bleeding.

The surgery was uneventful, with a total time of 100 minutes. The patient had no further complications and was discharged 24 hours after the procedure. The pathologic analyses showed a low-grade appendiceal mucinous neoplasm (LAMN).

\* Corresponding author. Desembargador Joao Paes Street, number 421, apartment 1101, Recife, Pernambuco, Brazil.

E-mail addresses: [dilaurentino@gmail.com](mailto:dilaurentino@gmail.com) (D.L. Lima), [raquelnogueiracordeiro@gmail.com](mailto:raquelnogueiracordeiro@gmail.com) (R.N. Cordeiro), [glcmd1@gmail.com](mailto:glcmd1@gmail.com) (G.L. Carvalho).

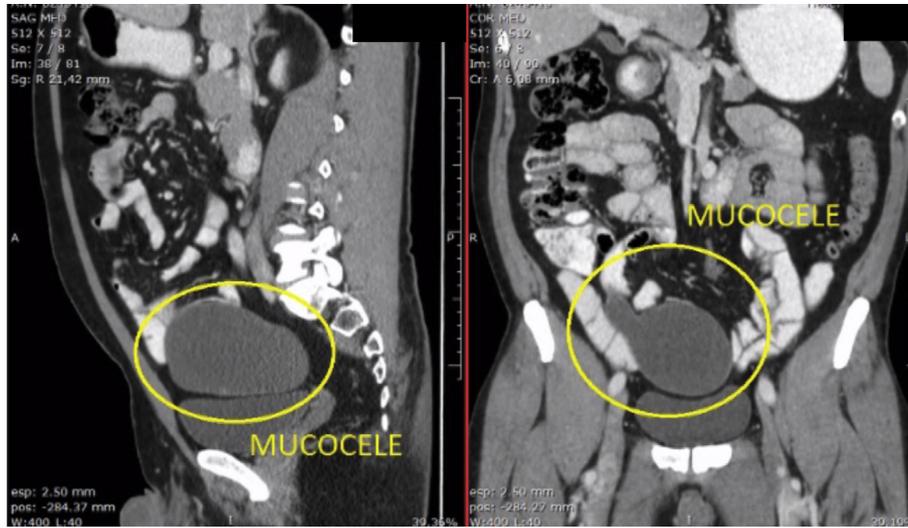


Fig. 1. CT scan showing the giant mucocele in the medial-distal area of the appendix. CT, computed tomography.

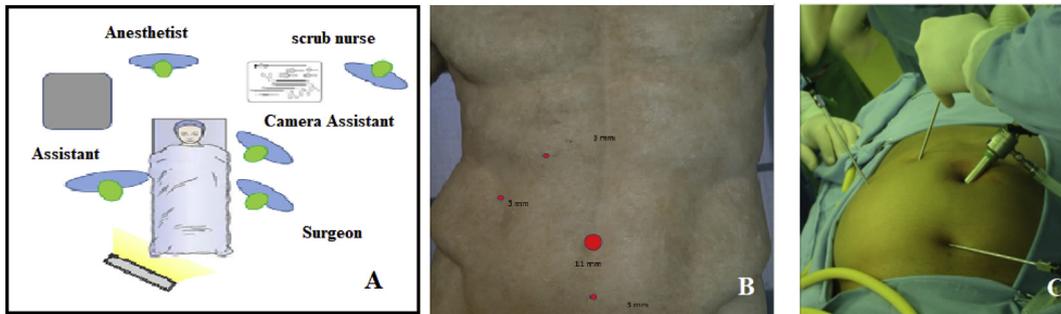


Fig. 2. A. Positioning of the surgical team. B. Positioning of the trocars. C. Low-friction minilaparoscopic instruments.

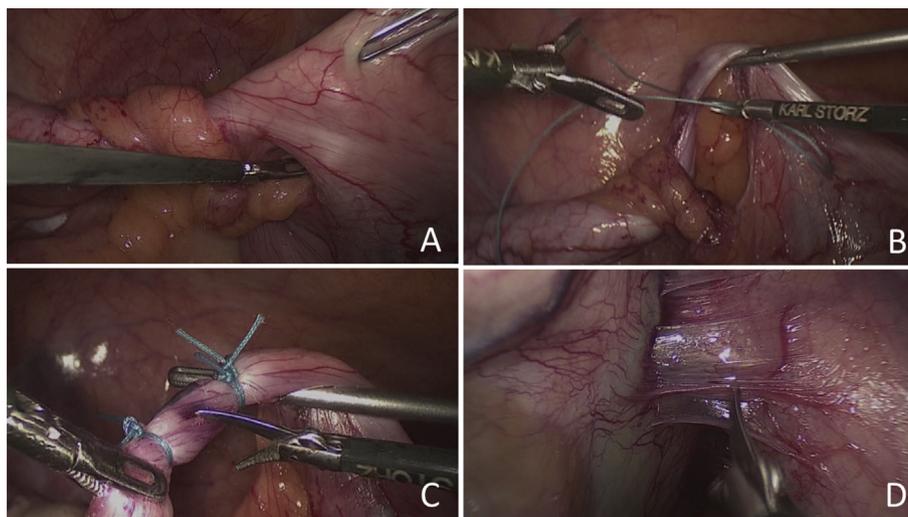


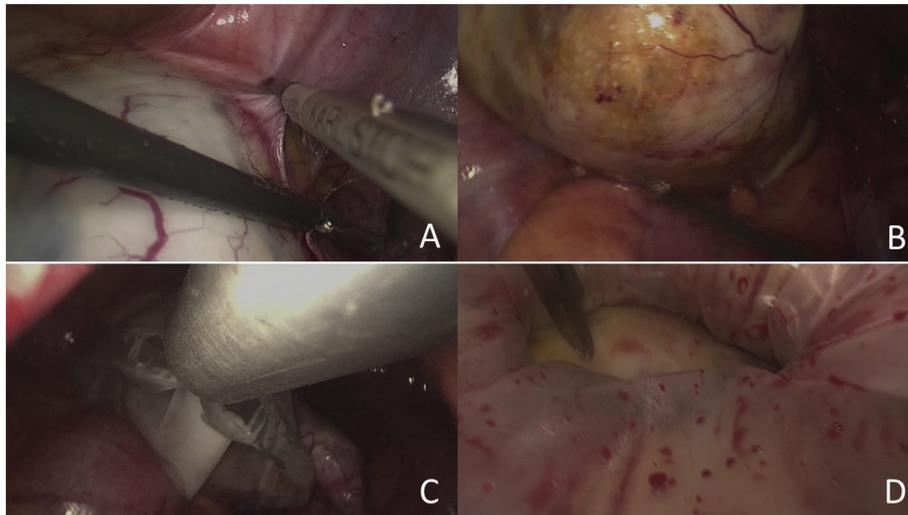
Fig. 3. A. Dissection of the appendix. B. Ligation of the appendix with one distal knot and two proximal knots. C. Resection of the appendix D. Resection of the mucocele from the abdominal wall.

### 3. Discussion

Appendiceal mucocele was first described in 1842 by Rokitsky. The incidence of appendiceal tumors was 0.5–2%. These tumors usually do not have typical clinical presentation, often

asymptomatic, and could be diagnosed incidentally during imaging studies.<sup>7</sup>

Some authors have used different terms to describe appendiceal low-grade mucinous neoplasms with features that were not clearly benign or malignant.<sup>8</sup> There is no clear gender predilection. Some



**Fig. 4.** A. Use of bipolar energy to resect the tumor. B. Big mucocele being manipulated with minilaparoscopic instruments. C. Using a surgical bag to carefully remove the tumor through the enlarged umbilical incision. D. Aspiration of the cyst content.

studies reported that the tumor was more common in women.<sup>9,10</sup> The most common clinical presentation is the presence of a pelvic mass or abdominal pain.<sup>11</sup> In patients undergoing surgery for unrelated conditions, 15–20% of LAMNs present as incidental findings.<sup>11</sup>

We report the case of a young man with an uncommon symptom. The intimate relation of the tumor with the bladder was responsible for the main complaint of the patient. All the tumor markers were negative. Appendices with LAMNs often appeared cystically dilated and filled with mucin. The wall may be thin or fibrotic, hyalinized, or calcified.<sup>11</sup> The treatment of LAMNs is not well defined, with controversies regarding the extent of surgery. Most of the literature suggests that simple appendectomy is sufficient for tumors not locally advanced.<sup>11</sup> The literature suggests a significant prognostic difference. For LAMNs that are confined to the appendix, without extraappendiceal mucin, simple appendectomy is considered sufficient treatment.<sup>3,11</sup>

Because our patient had a tumor confined to the appendix, we opted to perform a minilaparoscopic procedure. Minilaparoscopy is safe, feasible, and effective for appendectomies according to the literature.<sup>5</sup> Minilaparoscopic instruments improve the visualization of the surgical field and the dexterity of the surgeons' movements. Furthermore, 3-mm instruments are better for more precise movements and cause less trauma to the abdominal wall, as showed by Firme et al.<sup>12</sup>

### Compliance with Ethical Standards

#### Funding

This study received no funds.

### Conflict of interest

The authors declare that they have no conflict of interest.

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