

# Is Removal of Mucocele of The Appendix By Laparoscopic Appendectomy Contraindicated? Report of a Case

## *Apendiks Mukoselinin Laparoskopik Apendektomi İle Çıkartılması Kontrendike Midir? Bir Olgu Sunumu*

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### ÖZET

**Amaç:** Apendiksin müsinöz içerikli bir madde ile kistik dilatasyonu olarak tanımlanan apendiks mukoseli nadir bir hastalıktır. Altta yatan patoloji büyük farklılıklar göstermekte ve preoperatif tanı çoğu zaman mümkün olmamaktadır. Apendektomi ya da sağ hemikolektomi şeklinde yapılan rezeksiyon kabul edilen cerrahi tedavi şeklidir. Açık yaklaşım ile karşılaştırıldığında, laparoskopik yaklaşımın güvenilirliği ve uygulanabilirliği detaylı bir şekilde gösterilememiştir.

**Materyal ve Metod:** Bu olgu sunumu laparoskopik apendektomi ile tedavi edilen bir apendiks mukoselini tanımlamaktadır.

**Olgu Sunumu:** Otuzüç yaşındaki erkek hasta son 10

### ABSTRACT

**Purpose:** Mucocele of the appendix, as a rare disease, is defined as cystic dilatation filled with mucinous material. Underlying pathology differs in a wide range and preoperative diagnosis is very difficult in most of the time. Surgical resection either by appendectomy or right hemicolectomy is accepted as treatment modality. In comparison to open approach, safety and feasibility of laparoscopic approach has not been shown in detail.

**Material and Method:** This report describes a case of mucocele of the appendix treated by laparoscopic appendectomy.

**Case Report:** A 33-year-old male patient was admitted with a complaint of dull right lower quadrant pain that

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gündür devam eden sağ alt kadrındaki silik karın ağrısı şikayeti ile başvurdu. Radyolojik inceleme ile çekumdan köken alan tübüler bir yapı varlığı tespit edildi. Apendiks mukoseli ön tanısı ile laparoskopik eksplorasyonu takiben laparoskopik apendektomi yapıldı. Postoperatif 2. günde hasta sorunsuz olarak taburcu edildi. Patoloji apendiks müsinöz kistadenom olarak bildirildi.

**Sonuç:** Apendiks kistik tümörler uygun vakalarda, intraperitoneal parçalanma ve yayılmadan kaçınarak laparoskopik yaklaşım ile güvenli bir şekilde çıkartılabilir.

**Anahtar Kelimeler:** Mukosel, Apendiks, Laparoskopi, Apendektomi

### Introduction

Mucocele of the appendix is defined as cystic dilatation filled with mucinous material.<sup>1</sup> It is a very rare disease of the appendix vermiformis seen in 0.2 to 0.3% of the appendectomy cases.<sup>2</sup> Underlying pathology differs in a wide range from appendiceal retention cysts and mucosal hyperplasia to mucinous cystadenomas and cystadenocarcinomas.<sup>3</sup> Preoperative diagnosis is usually difficult because of its insidious presentation.<sup>4,5</sup> Although surgical resection is accepted as the treatment modality, the approach either by laparoscopy or open is not defined clearly.<sup>1,2,5</sup> There were some opinions in the literature in which laparoscopy was regarded as a contraindication for surgery,<sup>6</sup> but most of the case series or case reports were treated via laparoscopic route, if there was no need for extensive surgery or spillage of the mucinous material due to inadvertent handling.<sup>1,3,7</sup>

In this paper, we aim to present a case in which mucocele of the appendix treated by laparoscopic appendectomy.

### Case Report

A 33-year-old male patient was admitted to Umraniye Education and Research Hospital Department of General Surgery with a complaint of dull right lower quadrant pain that had persisted for 10 days. His clinical and past history was unremarkable. Physical exam was significant only for a diffusely tender abdomen upon palpation without peritoneal signs. Laboratory analyses including complete blood count, biochemical analysis of the biliary and urinary systems were all normal. Sonographic examination showed a non-compressible, tubular-cystic structure arising from the cecum with a thin, echogenic

had persisted for 10 days. Imaging evaluation revealed a tubular-cystic structure arising from the cecum. With a diagnosis of mucocele of the appendix, laparoscopic exploration followed by appendectomy was performed. He was discharged at the second postoperative day without any complaint. Pathology showed an appendiceal mucinous cystadenoma.

**Conclusion:** Appendiceal cystic tumors can be removed safely in appropriate cases via laparoscopic approach avoiding intraperitoneal rupture and dissemination.

**Key words:** Mucocele, Appendix, Laparoscopy, Appendectomy

wall and a hypo-echogenic lumen. Computed tomography confirmed a mucocele of the appendix without ascites, inflammatory changes, peritoneal thickening or lymph nodes (Figure 1).



**Figure 1.** Axial CT appearance of mucocele of the appendix (arrow).

With the diagnosis of mucocele of the appendix, laparoscopic exploration was performed. During the exploration, an appendiceal cystic mass with a diameter of 3 cm was found. There was no free fluid or adhesion to the neighboring organs. Therefore, laparoscopic appendectomy was performed and the specimen removed from the abdomen using an endobag (Ethicon Endosurgery, USA). On gross examination, the resected mucocele proved to be macroscopically an intact mass with a thin wall and full of white gelatinous material (Figure 2).



*Figure 2. Gross appearance of the resected appendix.*

He was discharged at the second postoperative day without any complaint. Pathology showed an appendiceal mucinous cystadenoma with a diameter of 3 cm. He was full recovery without any abdominal complaint at the fifth postoperative month.

Written and signed consent of the patient was taken by the authors.

### Discussion

Appendiceal cystic tumors or mucocele of the appendix have some issues with regard to their surgical treatment. Although their malignant potential cannot be evaluated exactly during preoperative period, diagnostic imaging and intraoperative findings help to surgeons to perform an appropriate surgery considering adequacy of resection in most of the time. Type of the surgery and approach are still controversial. Appendectomy or right hemicolectomy are the choices which should be based on the preoperative imaging and intraoperative findings. If the pathology is shown to be benign and the stump of the appendix is free of the lesion, appendectomy can be applied in a safe manner<sup>1,3,8,9</sup> but more extensive surgery such as right hemicolectomy using open or laparoscopic approaches should be used in presence of the tumors

with unknown malignancy potential involving the appendiceal stump or out of the appendix.<sup>2,4,5</sup> In the present case, it was seen that the cystic mass at the appendix was free of adhesions with the other organs, and the tumor was away from the appendiceal stump. Therefore, laparoscopic appendectomy could be performed in a safe manner.

Laparoscopic surgery for appendiceal cystic tumors is also another concern, as inadvertent rupture of the lesion due to improper handling will cause pseudomyxoma peritonei.<sup>4,6,8</sup> In one case report, it was mentioned that laparoscopy was contraindicated in the presence mucinous appendiceal tumors.<sup>6</sup> But, this study has some specific features that the patient was operated with preoperative diagnosis of acute appendicitis, and four days later right hemicolectomy was performed due to the pathology report of the mucinous cystadenocarcinoma arising in a villous adenoma. Eleven months later, diffuse peritoneal mucous recurrences were developed. There was no perforation of the tumor during the previous operation which was performed due to an abdominal emergency, but formation of a phlegmon between a retrocecal appendix and the right colon in an emergent operation might be clues for an advanced tumor. So, we cannot conclude that laparoscopy is a contraindication in the presence of appendiceal cystic tumors only based on this study.

It should be kept in mind that appropriate precautionary measures such as minimal laparoscopic dissection, non-traumatic grasping of the appendix, or transport of the specimen through the abdominal wall using a protective barrier to avoid rupture in the peritoneal cavity and dissemination of mucin containing cells are very important for preventing possible recurrences.<sup>8,9</sup> In conclusion, appendiceal cystic tumors can be removed via laparoscopic approach avoiding intraperitoneal rupture and dissemination, unless presence of the tumors spreading out of the appendix and intraoperative finding of pseudomyxoma peritonei.

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