Complete laparoscopic resection of giant appendiceal mucinous neoplasm, case report and literature review

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Introduction

Appendiceal mucinous neoplasms (AMNs) represent rare epithelial tumors of the appendix, characterized by mucinous epithelial proliferation accompanied by extracellular mucin These tumors can be categorized as either low-grade appendiceal mucinous neoplasms (LAMNs) or high-grade appendiceal mucinous neoplasms (HAMNs) if they exhibit areas with high-grade cytologic features. Patients frequently remain asymptomatic or experience nonspecific Symptoms. Some cases are initially diagnosed due to appendicitis. We are reporting a case of low-grade appendiceal mucinous neoplasm (LAMN) with a remarkably large size 16cm x 5cm that was successfully and meticulously removed using a completely laparoscopic procedure.

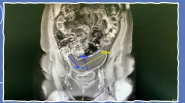
Case Presentation

33-year-old female patient, presented to the emergency department with abdominal pain, tenderness in the right lower quadrant and a palpable mass. Magnetic resonance imaging (MRI) revealed a large, blind-ended tubular structure originating from the cecum. It measured approximately 16 cm x 5 cm.(Figure 1) there was suspicion of LAMN. As a result, an emergency laparoscopic right-hemicolectomy was performed, along with an end-to-end ileocolic anastomosis and lymph node dissection. During the operation, a large appendicular mucocele with an impending risk of perforation was discovered.(Figure 2,3) (video 1). The final pathological diagnosis confirmed LAMN at stage pT3 with no lymph node involvement.(Figure 4,5)

Discussion

LAMN typically displays epithelial villous adenomatous changes without malignancy (5). preoperative diagnosis of appendiceal mucinous neoplasms remains challenging. Timely workup and management are crucial to prevent progression to Pseudomyxoma Peritonei and metastasis (6). diagnosis of LAMN is primarily established through abdominal CT scans (4, 5). MRI has demonstrated superiority to CT in detecting peritoneal disease (3). Surgical resection is the only curative option for LAMN (3-5). Surgical approach and lymph node (LN) dissection remain controversial due to the difficulty of preoperative malignancy diagnosis(5). The use of laparoscopic resection for LAMN has been on the rise (5). To prevent mucocele injury, surgeons should avoid direct tumor handling and ensure margins, especially in invagination cases(5). In our case, laparoscopy-assisted right hemicolectomy with LN dissection was performed due to the difficulty of perioperative diagnosis and the lesion's location. Table 1 revealed 10 different cases of LAMN that treated surgically with different approaches and its size. Surveillance for recurrent disease and PMP after appendectomy is recommended, although there is no established guideline regarding the duration and frequency of surveillance(4, 6).

Figure 1



Magnetic resonance imaging (MRI) revealed a large, blind-ended tubular structure originating from the cecum. It measured approximately 16 cm in length and 5 cm in maximum width. The structure had a thin wall and was filled with fluid. There was no evidence of restricted diffusion or enhancing components.

Figure 2



Figure 3



large appendicular mucocele with an impending risk of perforation

Figure 4

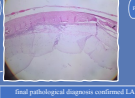
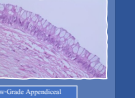


Figure 5



final pathological diagnosis confirmed LAMN (Low-Grade Appendiceal Mucinous Neoplasm) at stage pT3 with no lymph node involvement (N0).

Table 1

Authors	Year Of Publication	Procedure	Size Of The Tumor
Alabbasi, Y. H., Al-Osaibi, L. S., & Salman, A. H. (1)	2022	open appendectomy	P: 16.5 cm × 7 × 6 cm
Yoshizuka M, Ishii T, Yoshikawa K., et(5)	2017	laparoscopy ileocecal resection	P: 10 cm x 4 cm
Wang AS, Ismael HN, Parikh J, Medeiros VL.(6)	2022	Case 1 laparoscopic appendectomy	P: 1.4 cm
		Case 2 Exploratory laparotomy with appendectomy	P: 7 cm x 12.5 cm x 8 cm
		Case 3 open appendectomy	I: 14.4 cm x 5.3 cm
		Case 4 laparoscopic appendectomy	I: 1.8 cm
		Case 5 Surgical excision	P: 5.3 cm x 4.2 cm x 4 cm
Liu G-H, Pu T-W, Lin Y-C, Chang C-Y, Chen Y-C, Kang J-C.(7)	2022	Laparoscopic Right Hemicolectomy	P: 5 cm x 3.5 cm
Grewal JS, Berger E, Garner J, Mayer SL, Beaty JS.(8)	2021	Laparoscopic appendectomy	I: 1 cm x 1cm.
Khagawa T, Yamasaki S, Hamda T, Tamura N, Aotome K, Umetani N(3)	2021	laparoscopic ileocecal resection	I: 3.8 cm

This table revealed 10 different cases of LAMN that treated surgically with different approaches and its size
P: size in the pathology report I : size by CT Scan

Conclusion

The diagnosis of LAMN is typically confirmed through surgical excision. The choice of surgical approach depends on the stage of the disease and the surgeon's experience. We are reporting a rare case of LAMN with an exceptionally large size (16 cm x 5 cm) that was successfully and meticulously removed using a completely laparoscopic procedure, without any postoperative complications. The standardization of postoperative follow-up and surveillance protocols for such cases is still in progress.