Case Report

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Surgery Section

Appendiceal Mucocele Managed with Right Hemicolectomy in a Middle-aged Male: A Case Report

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ABSTRACT

Appendiceal mucocele is a rare but clinically significant entity, defined as mucinous distension of the appendix due to various aetiologies, ranging from benign to malignant. It accounts for fewer than 0.3% of all appendectomies and is often detected incidentally or during the workup of non specific abdominal complaints. A 61-year-old male presented to the surgical clinic with a two-year history of intermittent, dull aching pain in the right lower abdomen. Over the preceding three months, the pain had become more frequent, prompting him to seek medical attention. Radiological evaluation revealed a grossly dilated appendix with internal mucin and mural calcification. Given the suspicion of a low-grade mucinous neoplasm, the patient underwent an open right hemicolectomy. Postoperative histopathology confirmed a Low-grade Appendiceal Mucinous Neoplasm (LAMN) with negative margins and no peritoneal involvement. The patient recovered well and remains on regular follow-up. The present case emphasises the role of early imaging and timely surgical management in preventing disease progression and complications such as pseudomyxoma peritonei.

Keywords: Appendiceal mucinous tumour, Internal mucin, Mural calcification, Right iliac fossa mass

CASE REPORT

A 61-year-old male presented to the surgical clinic with a two-year history of intermittent, dull aching pain in the right lower abdomen. Over the past three months, the pain had become more frequent and he had noticed a vague, localised fullness in the right iliac fossa, which prompted him to seek medical attention. The pain was non radiating, not related to meals or bowel habits and was not associated with fever, vomiting, gastrointestinal bleeding, anorexia, or weight loss.

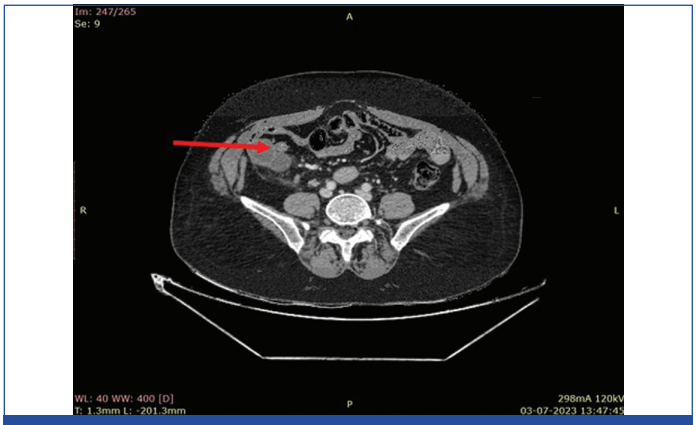
On examination, a soft, non tender, reducible mass was palpable in the right iliac fossa. Incidentally, small, asymptomatic umbilical and left inguinal hernias were also noted. Systemic examination was otherwise normal.

Routine laboratory investigations, including complete blood count, liver and renal function tests, were within normal limits. Serum tumour markers were not elevated {Carcinoembryonic antigen (CEA): 2.1 ng/mL; reference: <5 ng/mL, Cancer antigen 125 (CA-125): 14 U/mL; reference: <35 U/mL}.

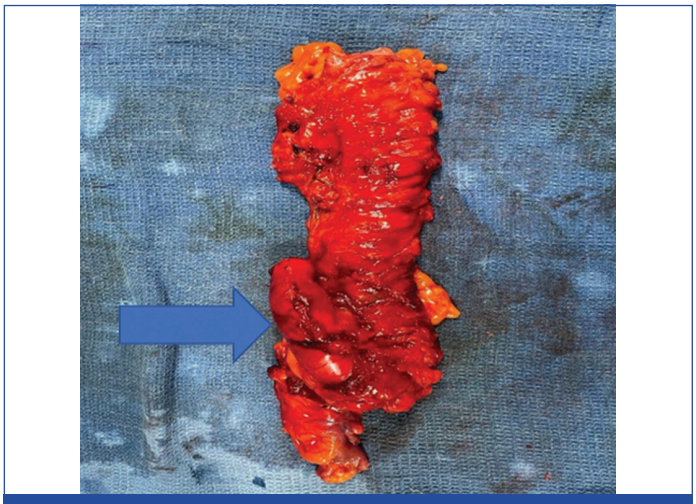
A Computed Tomography (CT) scan of the abdomen revealed a grossly dilated, fluid-filled appendix measuring 3.2 cm in maximum diameter, with mural calcifications and no evidence of rupture, peritoneal deposits, or lymphadenopathy [Table/Fig-1]. Based on these imaging findings, a diagnosis of appendiceal mucocele was considered and in view of involvement of the appendiceal base, an open right hemicolectomy was planned.

Intraoperatively, a markedly distended appendix filled with mucin was found adherent to the caecal wall, without rupture or peritoneal spread. Mucin spillage was avoided by performing adhesiolysis in a gentle, non traumatic manner that preserved the serosal surface of the dilated appendix, without grasping or squeezing the mucocele. The surrounding abdominal cavity was protected using betadine-soaked packs. A standard right hemicolectomy with ileocolic anastomosis was performed.

Gross examination of the right hemicolectomy specimen revealed a markedly dilated appendix with a bulbous configuration filled with gelatinous mucin [Table/Fig-2]. The external surface was smooth and intact, without serosal deposits. Microscopically, the normal appendiceal mucosa was replaced by flat and villiform epithelium displaying low-grade cytological atypia. The wall showed areas of fibrosis and hyalinisation, but there was no evidence of infiltrative invasion into the muscularis propria or serosa [Table/Fig-3].



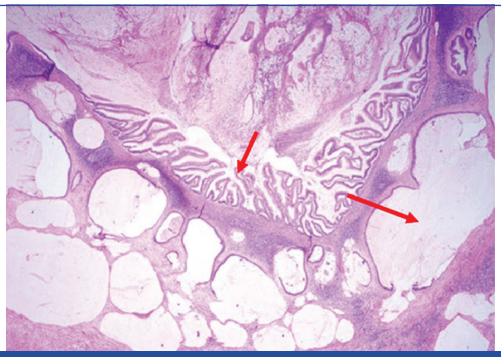
[Table/Fig-1]: CT scan confirmed a markedly dilated, fluid-filled appendix measuring 3.2 cm, with mural calcifications and no signs of rupture, inflammation or lymphadenopathy (red arrow.)



[Table/Fig-2]: Right hemicolectomy specimen showing dilated appendix (marked with arrow).

Pools of mucin were confined to the lumen; no extra-appendiceal mucin or epithelial cells were identified. All 14 retrieved lymph nodes

were free of tumour. Postoperative recovery was uneventful; oral intake was resumed on the second postoperative day and the patient was discharged on the seventh postoperative day. At follow-up visits at one and three months, he remained asymptomatic with no evidence of recurrence.



[Table/Fig-3]: Microscopic analysis confirmed features of a Low-grade Appendiceal Mucinous Neoplasm (LAMN) with villous mucinous epithelium small arrow and pools of acellular mucin (big arrow). (H&E,40x).

DISCUSSION

Appendiceal mucocele is an uncommon lesion but is clinically significant because rupture can seed mucin into the peritoneal cavity, leading to pseudomyxoma peritonei. This complication largely determines long-term outcomes [1,2]. Pathologically, mucoceles encompass a spectrum ranging from retention cysts to mucinous neoplasms. Formation is attributed either to luminal outflow obstruction with progressive mucus retention or to mucin-secreting epithelial proliferation; in LAMN, these processes may coexist, with chronic inflammation and scarring serving as potential contributors to obstruction [2].

Ultrasonography may demonstrate a characteristic concentric "onion-skin" appearance within a cystic, blind-ending tubular structure, which is a supportive sign for mucocele. However, cross-sectional imaging remains central to staging and operative planning [3]. On CT, a well-circumscribed, cystic, blind-ending tubular mass in continuity with the caecum is typical and curvilinear mural calcification, when present, further supports this diagnosis [3].

Subsequent literature has emphasised that CT offers more than recognition; wall characteristics and peri-appendiceal findings help infer biological behaviour and guide the operative approach. Smooth, thin walls without mural nodularity or soft-tissue components and the absence of fat stranding, free fluid, or peritoneal mucin lower concern for invasive disease. In contrast, irregular wall thickening, nodularity and extra-luminal mucin raise suspicion for malignancy and may shift management towards oncologic resection [4,5].

In the present case, CT showed a markedly dilated, fluid-filled appendix with mural calcification, an intact outer contour and no features of peritoneal disease, consistent with a mucocele/LAMN rather than invasive pathology. These findings parallel published case descriptions that used imaging-guided management [6,7], while the absence of wall nodularity or deposits in the present patient supported limited biological aggressiveness.

The differential diagnosis for a cystic right iliac fossa mass includes complicated appendicitis/abscess, mesenteric or duplication cysts, caecal diverticular disease and adnexal lesions. Continuity with the caecum and the presence of mural calcifications helped narrow the diagnosis to a mucinous appendiceal lesion in the present case.

Serum tumour markers were within reference limits in this patient (CEA 2.1 ng/mL; CA-125 14 U/mL). Normal markers are not uncommon in disease confined to the appendix; their principal utility is for baseline documentation and surveillance rather than primary diagnosis and elevated values more often reflect tumour burden or peritoneal dissemination [2,5].

Histopathology remains definitive. The resected specimen fulfilled the 2019 World Health Organisation (WHO) criteria for LAMN—low-grade mucinous epithelium with mural fibrosis/hyalinisation, no destructive invasion and disease confined to the appendiceal wall—and was concordant with the Peritoneal Surface Oncology Group International (PSOGI) consensus framework [8].

CONCLUSION(S)

Appendiceal mucocele is an uncommon but clinically relevant entity that requires early identification and appropriate treatment to avoid serious complications. Surgical excision, guided by the extent of disease and oncologic principles, is the mainstay of therapy. Right hemicolectomy remains the procedure of choice in cases of base involvement or suspected LAMN. With early diagnosis and careful histopathological assessment, the prognosis is excellent. Regular follow-up is essential for the timely detection of recurrence.

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