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Case Report

Oncology Section

A Case Report on Mucocele of Appendix with Tubo-ovarian Complex and Review of Literature

ABHILASHA BHARGAVA[1], CHANDRASHEKHAR MAHAKALKAR[2], SHIVANI KSHIRSAGAR[3]

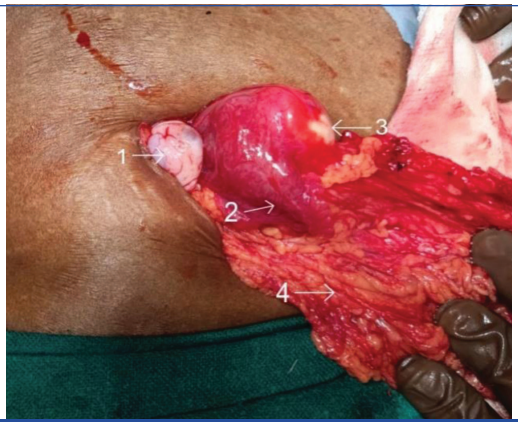
ABSTRACT

Mucocele of the appendix is a rare condition caused by mucus accumulation due to a blocked appendix resulting from inflammation, infection, or faecal matter blockage. It presents as lower abdominal pain, vomiting, nausea, abdominal mass, and distension. It is more common in individuals over 50 years old and is more prevalent in the elderly. Mucocele can be differentiated into mucinous cystadenocarcinoma, mucosal hyperplasia, and mucinous cystadenoma. It is often diagnosed incidentally during radiological, laparoscopic, or surgical interventions. Ultrasound and computed tomography imaging techniques are useful in screening and diagnosing appendiceal mucocele, as they can detect a cystic mass or soft tissue mass and differentiate between a mucocele and other neoplasms. Most cases are reported in older individuals, with few in young adults. In the present case report, the authors present a case of a 34-year-old female with a history of occasional abdominal pain. On investigation, it was found to be an inflamed appendix with a mass in the right iliac fossa for which the patient underwent appendectomy. Due to the involvement of the right adnexa with tubo-ovarian complex and omentum, the present case presents a unique manifestation of an appendix mucocele.

Keywords: Appendicitis, Appendicular mass, Mucus accumulation

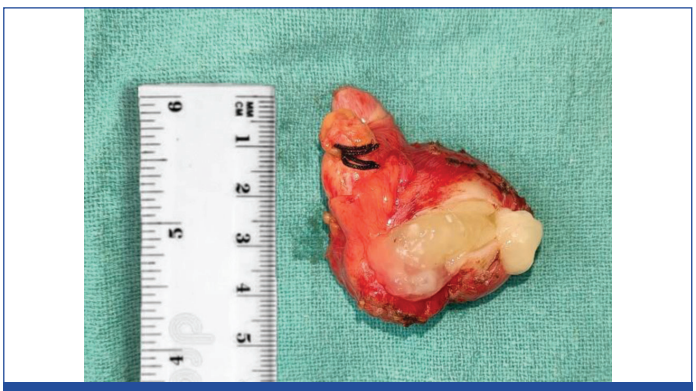
CASE REPORT

A 34-year-old female was referred to the Department of General Surgery at the tertiary care hospital with complaints of occasional abdominal pain in the right iliac fossa for the past 10 months. The pain was described as periumbilical colicky pain, intermittent in nature. The patient did not have any associated fever, nausea, vomiting, or other complaints. No medical history of major illnesses such as diabetes, hypertension, or cardiovascular disease was noted. The patient's vitals on admission were normal, and all routine investigations were within normal limits. An abdominal ultrasound revealed an edematous, dilated appendix measuring 6.5 mm, suggestive of subacute appendicitis, along with a 3×2.5 cm hypoechoic, sealed-off collection, for which the patient underwent surgery. Intraoperatively, evidence of a 3×3 cm cystic sealed collection over the tip of the appendix was found [Table/Fig-1]. The differential diagnosis included appendicitis, leiomyoma, fibroma, neuroma, neuroendocrine tumour, lipoma, and non mucinous adenocarcinoma of the appendix.



[Table/Fig-1]: Intraoperative photo showing the mass formed by the: 1) right ovary; 2) right Fallopian tube with fimbriae; 3) tip of the appendix and sealed-off collection; (4) omentum.

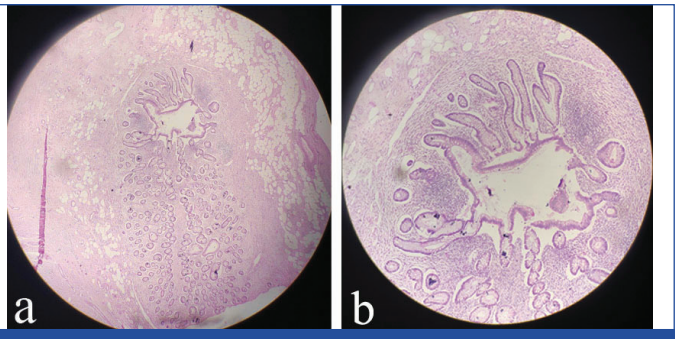
There was adherence of the right ovary, fimbriae, and fallopian tube, along with the omentum, to the appendix. The appendix, along with the sealed collection, was separated from the surrounding structures, excised, and sent for histopathology [Table/Fig-2]. The procedure went uneventfully. The excised appendicectomy specimen, measuring 4.5×4.3 cm, was sent for histopathology. On histopathological examination, there was evidence of jelly-like material oozing out with features suggestive of a mucocele of the appendix [Table/Fig-3]. The scanner view of the Haematoxylin and Eosin (H&E) stained image shows the mucosa, submucosa, and muscular layer with crypts partially maintaining their architecture; a few crypts are cystically dilated without atypia [Table/Fig-3a]. Another histopathological section shows a high-power view of the Haematoxylin and Eosin stain image displaying a few crypts with dilated lumen and thinned-out epithelial lining with the presence of mucin. The section also reveals an acute-on-chronic inflammatory infiltrate [Table/Fig-3b]. No evidence of dysplasia was noted in the sections studied. After histopathological confirmation, the final diagnosis of a mucocele of the appendix was made. The patient was discharged eight days postoperatively. During the follow-up outpatient department visit, the patient presented with a healthy suture line and no new complaints.



[Table/Fig-2]: Excised specimen of appendix with sealed-off collection at the tip of appendix.

DISCUSSION

A mucocele of the appendix is caused by the accumulation of mucus resulting from a blocked appendix due to various reasons such as inflammation, infection, and blockage by faecal matter. Appendiceal



[Table/Fig-3]: Slides of mucocele of appendix: a) Showing mucosa, submucosa and muscular is layer with crypts partially maintaining their architecture, few crypts are cystically dilated without atypia (H&E, 10x); b) Showing shows few crypts with dilated lumen and thinned out epithelial lining with presence of mucin. (H&E, 40x).

mucocele does not have a clear clinical presentation. Clinically, a mucocele of the appendix can present as lower abdominal pain and may be accompanied by complaints of vomiting, nausea, abdominal mass, and distension [1,2]. It has been reported at an incidence rate of 0.2-0.7% of all cases of appendectomy. This condition is a clinically rare observation that may be incidentally detected during radiological screening, laparoscopy, or endoscopic examination [3]. It is more frequently observed in older individuals over the age of 50 years. Based on its histological characteristics, mucocele of the appendix is differentiated into mucinous cystadenocarcinoma, mucosal hyperplasia, and mucinous cystadenoma. Mucinous cystadenoma is a rare presentation [4]. An appendiceal mucocele is described as a dilated appendiceal lumen resulting in the accumulation of mucin [5]. Appendix mucoceles are formed due to distension or epithelial blockage. Although there are higher incidences in the elderly population, some studies have reported a female preponderance [6].

Due to the rarity of mucocele of the appendix and the absence of clear symptomatic presentations, diagnosis can be challenging. It is often diagnosed incidentally during radiological, laparoscopic, or surgical interventions for symptomatic clinical presentations. Timely diagnosis of a mucocele is crucial before surgical intervention to prevent adverse events. Prompt diagnosis of a mucocele can aid in managing surgical approaches and planning related surgeries accordingly [3]. Because of its rarity, a mucocele of the appendix is typically not suspected and is often an incidental finding during exploratory laparoscopy for other suspected clinical conditions [7-9]. Ultrasound and computed tomography imaging techniques have been reported to be useful for effective screening and diagnosing appendiceal mucocele. Ultrasound and computed tomography can detect cystic masses or soft tissue masses, aiding in the detection and differentiation of mucoceles from other types of neoplasms [4]. On computed tomography imaging, mucoceles are observed to have similar Hounsfield values as water-filled appendiceal lumens. The presence of curvilinear calcification of the appendiceal wall has been suggested to indicate a mucocele [5]. The present case is unique due to the evidence of the right tubo-ovarian complex adhered to the mucocele of the appendix along with the omentum. Most of the reported literature on mucocele of the appendix describes cases in females over 50 years of age who have reached menopause [1,3,8,10]. Very few cases are reported in young adults. For instance, a case of a 19-year-old female was reported in 2004 by Pitiakoudis M et al., diagnosed based on leukocytosis and reported to be doing well at a five-year follow-up [4]. A similar case involved a young pregnant female with twins exhibiting right iliac fossa pain and peritoneal dissemination of acellular mucin [11]. Management of a mucocele of the appendix usually involves surgical excision of the appendix specimen along with the encapsulated mucocele. In certain cases of a right pelvic mass with suspected appendicular pathology, excision of the mass with prophylactic removal of the appendix specimen was performed [8,12].

CONCLUSION(S)

Investigating a rapidly growing breast tumour calls for a high level of suspicion due to the rarity and poor prognosis associated with metaplastic cancer. Metaplastic carcinoma should be treated similarly to other invasive carcinomas because there are no specific therapy recommendations at this time. The role of targeted therapy, which is being examined in numerous research studies, may be advantageous to patients in the near future as it is less sensitive to traditional chemotherapy.

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PARTICULARS OF CONTRIBUTORS:
1. Junior Resident, Department of Surgery, Jawaharlal Nehru Medical College and Datta Meghe Institute of Higher Education and Research, Sawangi, Wardha, Maharashtra, India.
2. Professor, Department of Surgery, Jawaharlal Nehru Medical College and Datta Meghe Institute of Higher Education and Research, Sawangi, Wardha, Maharashtra, India.
3. Assistant Professor, Department of Surgery, Jawaharlal Nehru Medical College and Datta Meghe Institute of Higher Education and Research, Sawangi, Wardha, Maharashtra, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Abhilasha Bhargava,
Junior Resident, Department of Surgery, Jawaharlal Nehru Medical College and Datta Meghe Institute of Higher Education and Research, Sawangi (Meghe), Wardha-442107, Maharashtra, India.
E-mail: abhilasha0318@gmail.com

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