

Case series

A Case series on Mucocele of the Appendix**Mithun Vinod Barot¹, Jayeshkumar Bagada², Utkarsh Shah³,
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Abstract

Appendicular mucocele is a very uncommon condition. It can be discovered by chance or be mistaken for acute appendicitis, depending on the situation. To minimize postoperative and intraoperative complications, it is critical to have an accurate diagnosis before the surgery in order to select the most appropriate surgical therapy. To achieve this goal, Ultrasonography, and in particular computed tomography, must be widely utilized. A disease known as pseudoxoma peritonei that is characterized by malignant process can occur if mucocele is not treated properly.

We studied four cases. First Case, 51-year-old man came to Out-patient department (OPD) with signs of acute appendicitis. Second case is 56-year-old female patient came to OPD as Right Iliac Fossa (RIF) lump. A third case 30-year male patient came to emergency surgical department with signs and symptoms of acute appendicitis. Fourth case 60-year old female came to OPD with sign of acute appendicitis.

We admitted all patients, did necessary investigations and open surgery had been conducted. Case 1: During surgery, an intraoperative result indicated that a cystic mass of the appendix having 7 x 3 x 4 Centimeters (Cms) dimensions, with inflamed walls, even without perforation, had been detected in the RIF.

Case 2: An intraoperative finding was a cystic mass of the appendix with 8 x 6 x 5 cm dimensions and an inflammatory wall but without perforation had been detected in the right iliac fossa. The peritoneal cavity of both cases were free of discharge.

Case 3 Intraoperative finding was suggestive of a 12cm long with 4cm width inflamed appendix with normal base, retrocecal in position with no periappendicular fluid and adhesion, rest of abdomen normal.

Case 4 Intraoperatively, a 5.7cm long with 1cm width inflamed appendix found in retrocecal position. In all cases a mucocele of the appendix had been suspected on intraoperative diagnosis. There by spillage-free open appendectomy had been accomplished since no additional pathologic condition was discovered at the appendix's base as well as size of lymph nodes were also not enlarged. Histopathological diagnosis of all first three cases was mucinous cystadenoma with fourth case was low grade Appendiceal mucinous neoplasm. All patient were followed up for 3-6 months, post-operative course was uneventful.

Key words: mucinous cystadenoma, appendicular mucocele, Spillage free appendicectomy, RIF

Key message: We believe that every patient over the age of 50 who was in emergency department or in routine OPD having clinical signs of acute appendicitis should undergo CT abdomen with pelvis. Therefore open surgery must be preferred over laparoscopic surgery in order to avoid intraoperative complications such as spillage of mucocele content, which can lead to pseudomyxoma peritonei, which is difficult to treat and has a high mortality rate.

Introduction

Cervical insufficiency is a major cause of preterm delivery and pregnancy loss in the second trimester. Obstructive dilation of the appendix due to the accumulation of mucoid materials within the appendix is known as appendicitis^[1]. It is a disease that is really hard to find. 0.2 percent to 0.7 percent of all appendectomy's specimens had this disorder^[2, 3, 4]. Appendiceal mucocele has four distinct histology subtypes: mucinous cystadenocarcinoma, mucinous cystadenoma, mucosa hyperplasia, and retention cyst^[5, 6]. There is no similar clinical picture for this condition. Surgery can be misdiagnosed as acute appendicitis when a patient complains of discomfort in the right lower abdominal quadrant. Without any doubts, this is the most frequently found surgical disorders.^[3, 7-9] Before surgery, it is critical to distinguish between all these disorders and choose the appropriate surgical strategies for each one. If the mucocele of appendix is not treated effectively, it may grow and epithelial cells may also escape out into the peritoneal cavity, following in the growth of pseudomyxoma peritonei that has a very high mortality rate^[8]. I present four cases in which it was difficult to diagnose the conditions prior to surgery, and in which an Appendiceal mucocele was discovered intraoperatively and confirmed histological.

Case report 1:

A 51-year-old male patient comes to OPD surgery department. His symptoms included discomfort in the right side lower quadrant of abdomen with abdominal distention, constipation, vomiting, fever, and nausea. The symptoms began four days before. On per abdomen examination there was tenderness at RIF with rebound tenderness with raised temperature. The laboratory results revealed 16,000 White Blood Cells(WBC). Ultrasonography (USG) revealed dilated intestinal loops with gases in the right lower quadrant of the abdomen, also a cystic lesion 6x5cm with varying internal echogenicity noted in RIF. With minimal interbowel free fluid. We took a x-ray of the abdomen. It has a number of air fluid levels. Intestinal obstruction with acute appendicitis was diagnosed and midline laparotomy was done. On per-operative findings, RIF of the patient had an appendix cyst of (7x3 cm) with inflammatory walls but no perforation. Rest of abdominal organs were normal. We suspected mucocele of appendix. In this case, just an appendicectomy with minimal spillage has been performed as no pathological process could be seen at the appendix's base, and the rest of the abdomen was normal. Histopathological diagnosis was mucinous cystadenoma. There was excellent patient's recovery. On the eighth day, the patient was discharged from hospital. The patient is feeling well after a follow-up of 6-7 months.

Case report 2:

A 56 year old woman came to surgery OPD department. Her complaints were RIF pain, reduced appetite, nausea, RIF swelling. On palpation lump is palpated in RIF region soft on consistency with smooth margins. Routine blood Investigations were within normal limits. Ultrasonography S/o cystic lesion 7x4 cm size present in RIF region, status of appendix could not be commented upon. Then we did CECT abdomen pelvic report suggestive of cystic lesion present near caecum of 8x5x4cm size ? Ovarian cyst or mesenteric cyst. Through lower right paramedian incision laparotomy was performed. Intraoperative finding was suggestive of 8x6x5 cm cystic lesion arising from appendix with wall inflammation without any perforation. (**figure1**). Rest of the abdomen was normal. Spillage free appendicectomy was performed. Histopathological diagnosis was mucinous cystadenoma. In the immediate aftermath of surgery, no complications were found. Therefore on the fifth day patient was discharged from hospital. The patient is all well after a follow-up of 4 months.



Figure 1: CECT Image specimen image, intraoperative appendix

Case report 3:

A 30-year-old man presented to surgical emergency department. He complains of pain in abdomen at RIF region with nausea, vomiting, anorexia, with mild fever. On examination patient was in tachycardia, with RIF tenderness with rebound tenderness with lump is palpated in RIF. Investigation suggests raised WBC count. Rest of investigation were normal. Abdomen x-ray was suggestive of few dilated loops in RIF region. USG was suggestive of 10 cm long and 3cm width acutely inflamed appendix with no free fluid in abdomen. Decision of emergency open appendicectomy through Mcburney incision was taken. Intraoperatively 12cm long with 4cm width with inflamed appendix with base normal, retrocecal in position with no periappendicular fluid and adhesion, rest of the abdomen was normal. Thus spillage free appendicectomy was done. Histopathological diagnosis was mucinous cystadenoma. There were no complications in post operative period. Patient was discharge on 4th day. After 4 month follow patient was felling well.

Case report 4

A 60 year female came to OPD with chief complains of abdominal pain, vomiting no fever has taken conservative treatment for acute appendicitis for 15 days. Her laboratory investigation was normal. We did USG suggestive of multiple sigmoid diverticula with minimally enlarge appendix. There by we plan to do CT abdomen-pelvis which was suggestive of multiple sigmoid diverticulosis, no evidence diverticulitis. Enlarge appendix with minimal periappendicular inflammation. We plan to go for laparoscopic appendicectomy. Histological diagnosis was low grade Appendiceal mucinous neoplasm mainly involving tip. Patient was discharged on 5th day. Patient underwent for colonoscopy. Colonoscopy was normal. Patient is counsel to do regular follow up to go for colonoscopy every 2 year.

Discussion

Rokitansky was the first to describe the appendix mucocele^[10]. It is characterized by dilation of a lumen as consequence of an excessive amount of mucus accumulating with the passage of time. When compared to the colon, the appendix is lined with epithelium that contains a greater number of goblet cells. Therefore, many of appendiceal epithelial cancers are mucinous and begins as mucocele, which is a kind of mucocele^[11]. In this way, it comes within the group of uncommon illnesses. It occurs in 0.2% to 0.7% of all appendices^[2]. Its possible that both benign and malignant processes are present in this situation^[9, 12]. There are four categories of histology, according to current categorization: mucinous cystadenocarcinoma, mucinous cystadenoma, mucosal hyperplasia, and retention cyst^[5, 6] as mentioned previously. There is no clear picture of the disease's clinical course. It frequently happens without any apparent reason. Approximately 50% of the time, it is identified via endoscopic and radiologic exams or during surgery. Patients may have symptoms such as evidence of intestinal intussusceptions, gastrointestinal bleeding, weight loss, vomiting, nausea, a palpable abdominal mass^[3, 9, 13-15]. When diagnose mucocele of appendix prior to surgery, proper surgical technique is critical to preventing peritoneal spread, postoperative complications, and that could need repeat surgery^[13]. For diagnosis please do Colonoscopy, CT (computed tomography), along with USG. For individuals with acute abdominal discomfort, USG is the primary diagnostic process. Acute appendicitis and Mucocele can be distinguished by USG. Acute appendicitis is defined as an appendix with an outer diameter larger than 6 millimeters; mucocele is defined as an appendix with an outside diameter higher than 15 millimeters, with the 92% specificity along with 80% sensitivity^[12]. CT is regarded to be the most effective diagnostic tool. Indicators of mucocele, such as an appendix lumen larger than 1.3 cm, calcification of the appendix wall, and cystic dilatation, can be detected on CT scans. Colonoscopies reveal a yellowish mucous discharge originating from the appendiceal orifice.^[3, 7, 17, 19, 22] Because the USG did offer accurate information in first patient, we assumed it had been acute appendicitis thus did not order a CT scan. If this was a mistake, we would have done a CT scan in the second case instead. This is required for any patient which is over 50 years old come with abdominal pain. Mucocele that are not ruptured do not constitute a hazard to the patient, which is one of the fundamental concepts of surgical therapy of for this condition. As Pseudomyxoma peritonei can develop if it ruptures in peritoneal cavity and that filling is dispersed throughout the cavity.

Treatment for this condition is extremely difficult, and long-term outcomes are bad, with a high death rate^[8, 13]. As a result, the choice of an appropriate surgical procedure is extremely critical to get better results. A few surgeons believe that open surgery must be preferred over laparoscopic surgery in most cases. Whenever a laparoscopic procedure is conducted and it found to be an appendiceal mucocele, the procedure must be switched to a traditionally open operation in order to avoid rupture of cyst and spreading of mucous into the peritoneal cavity. This procedure has two goals: (1) to perform surgery carefully; and (2) to perform a more thorough examination, palpation, as well as direct inspection of the abdominal regions most commonly affected by mucinous tumors than would not be possible with the laparoscopic method. In our fourth case we did laparoscopic appendicectomy with removal of specimen in endobag. Some mucocele of appendix may show low grade malignancy which require regular follow-up colonoscopy ever 3 years to look for ceacal malignancy. In one of our case histology findings shows low grade Appendiceal mucinous neoplasm mainly involving tip. As such it is benign condition; we strongly say that surgery should be performed by open procedure. Several surgeons believe that the surgery may be conducted using a laparoscopic technique if safety precautions are followed, particularly when the mucocele is removed and an endobag is required to prevent spillage in peritoneal cavity^[1].

Sugarbaker and Dhage-Ivatury have given an algorithm to determine variety of the surgery type^[13]. That include (1) whether or not a mucocele is present; (2) whether or not the appendix

base (resection margins) is included in this procedure; along with (3) whether or not positive lymph nodes present in the ileal colon and mesoappendix. Therefore, patients may require a variety of surgical procedures from appendectomy to right colectomy, and some time heated intraperitoneal chemotherapy, cytoreductive surgery during the operation, and early postoperative intraperitoneal chemotherapy if pseudomyxoma peritonei develops [1, 13].

There was no peritoneal discharge in any of our cases with mucocele and no any pathological process was found at the appendix's base (indicative of negative resection margins). As a result, just a spillage-free appendectomy has been conducted, which was main types of procedure to follow. In order to reduce serious problems during and after surgery, it is critical that the patient has an accurate diagnosis performed prior to surgery [13]. The use of USG, particularly CT, is essential for this goal [13].

Conclusion

Patients over the age of 50 who show clinical symptoms and signs of acute appendicitis should receive ultrasound as well as CT abdomen and pelvis, according to our perspective case study. Open surgery must be favored against laparoscopic surgery to prevent intraoperative complication like spillage of mucocele content which later results in pseudomyxoma peritonei that is difficult to treat and has high mortality.

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