

Right Colon and Cecal Adenocarcinoma Miss Diagnosed as Complicated Appendicitis in Young Patients: Two Reported Cases

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Abstract

Introduction: The most common surgical diagnosis of right lower abdominal pain in young adult patients that required emergency surgical intervention depending on the clinical pictures and the noninvasive diagnostic modalities is acute appendicitis, although other rare causes such as right colonic and cecal tumor must be concerned specially in old patients. We reported two different cases of different age group and gender, and different presentations diagnosed as acute complicated appendicitis which had been subsequently diagnosed as colonic adenocarcinoma.

Cases Report

Case 1: A 55 years old male diagnosed as perforated appendicitis. Laparoscopic intervention for appendectomy revealed dilated inflamed cecum with catarrhal appendix. Several days after improvement patient came with peritonitis. Laparotomy revealed rupture cecum and proximal colonic ring stricture. The resected hemi colonic segment histology revealed adenocarcinoma.

Case 2: A 28 old female patient presented with history of lower right abdominal mass diagnosed clinically and by computed tomography scan as appendicular mass. Mass didn't respond to conservative treatment. Laparotomy revealed a big infected mass contained cecum terminal ileum, part of right ovary and omentum. The ileocecal resected segment histology revealed adenocarcinoma.

Discussion: The diagnosis of right colonic and cecal tumor is difficult in emergency condition because of appendicitis is the dominant expected diagnosis in adult and young patients, the absence of colonic cancer related emergency complications, and inaccurate scanning study.

Conclusion: Right colonic-cecal adenocarcinoma is rarely presented as cecitis or as palpable mass in young patient, and the improper diagnosis of it may lead to incomplete surgical management and subsequent fatal complications.

Keywords: Acute Appendicitis; Appendicular Mass; Complicated Appendicitis; Adenocarcinoma of the Right Colon; Cecal Mass; Colonic cancer in Young Patients

Abbreviations

RLAQP: Right Lower Quadrant Abdominal Pain; IV: Intravenous; WBC: White Blood Cell; US: Ultrasound; CT: Computed Tomography

Introduction

Right lower quadrant abdominal pain is the responsible of large percentage of all abdominal pain emergencies that physicians and surgical residents can facing in the emergency department.

Acute appendicitis has a yearly incidence of 11/10,000 with a peak incidence of 23/10,000 between the ages of 10 and 20 years. Appendicitis is also a frequent disease in the elderly, accounting for 5% of all abdominal surgical emergencies [1].

The diagnosis of acute appendicitis is predominantly a clinical one; many patients present with a typical history and examination findings. A diagnosis can be more challenging in some groups of patients, including elderly individuals, which contributes to a delayed diagnosis and complicated onset. Complications such as perforation with abscess formation and localized or four quadrant peritonitis occur in about 15% of patients. Appendectomy is the treatment of choice and is increasingly done as a laparoscopic procedure [2-4].

If timely appendectomy is not done, the patients develop a mass in the right iliac fossa (Appendicular mass) as one of the early complications [5].

Colorectal cancer represents the third most common cause of malignancy in men and the fourth most common cause of malignancy in women. Prevalence is estimated at 25 to 100,000 inhabitants. Left colon cancer is more frequent than right colon cancer with half of colorectal cancers being situated at the level of the sigmoid colon [6].

The acute complications of colon cancer include bleeding, obstruction, and perforation, which were among the common acute abdominal surgical conditions [7].

A quarter of caecal carcinomas present with the signs suggestive of appendicitis. Complications like this will obscure the underlying malignancies and cause a delay in diagnosis [8].

Although multi-detector (CT) is an extremely useful noninvasive method for diagnosis and management of not only the most common causes such as appendicitis but also less common conditions, CT changes suggestive of acute appendicitis may be the dominant imaging manifestation of colorectal carcinoma in the right colon, and careful attention should be paid to the cecum and ascending colon when an interpreting radiologist suspects acute appendicitis [9,10].

We reported two rare cases postoperatively diagnosed as right colonic adenocarcinomas, one was male and the other was female, both of them estimated below the expected age of colonic cancer; they had unusual presentation, and clinically diagnosed as acute appendicitis, which had verified by pre-operative scanning.

Cases Reports

The First Case

Adult 55 years old male presented to our emergency unit complaining of RLQAP since five days. Pain started at the epigastric region and after short time shifted to the right lower abdomen, it was colicky in character and associated with nausea and loosen stool. At district center patient had treated as a case of gastritis and gastro enteritis, they gave him some analgesics, antibiotics and antacid solution. Later on pain had increased in intensity, it occupied the lower abdomen with fever and vomiting. On examination patient looked ill, dehydrated, pulse rate was 110/m, febrile, blood pressure was 100/60, and the respiratory rate was 22/m with normal breathing sound. Abdomen was slightly distended, bowel movement was positive, and on palpation it was a general abdominal tenderness with muscle guarding and rebound tenderness was positive specially on the right lower site of the abdomen.

Blood test revealed leukocytosis (WBC count was 15000), and the hemoglobin was 10 g/ dl.

Abdominal US and CT scan revealed a picture of perforated appendicitis and abscess formation with large marginal enhancing right lower abdominal collection of thick content with multiple air bubbles measure about 13 x 8 x 17 cm (according to the radiologist's report). Figure 1 Patient underwent laparoscopic intervention as a case of perforated appendicitis. We found a marked thick yellowish inflamed and distended cecum adhered to the anterior abdominal wall and very few dark brownish thick fluids found at the pelvic cavity.

Figure 2 Careful mobilization of the cecum was done, and a retro cecal inflamed appendix was detected. General laparoscopic inspection not showed any other warning features, and cecitis was a convincing diagnosis for us. Laparoscopic appendectomy was done. Post-operative; during five days of follow up, and IV fluid and antibiotics administration patient improved, he had very good recovery. On discharge we advised oral antibiotics, oral soft diet, surgical outpatient follow up, and preparation for colonoscopy when cecal inflammation subside by CT scan evaluation. After 5 days of discharge patient presented again to our emergency unit complaining of sudden progressive abdominal pain and sudden abdominal distention associated with fever, vomiting and diarrhea. A quick clinical evaluation and the previous patient’s history led us strongly to suspect viscous perforation, that proved by erect position plain abdominal X ray which showed marked bilateral air under diaphragm and bowel distention. Figure 3 emergency laparotomy revealed moderate amount of green yellowish non-offensive intra-abdominal collection, and two perforations on the antero-lateral aspect of the cecum. Complete mobilization of the cecum and the right colon was done and a surprising annular stricture of the right colon proximal to the hepatic flexure was found, and some mesenteric lymph nodes were detected Figure 4. That raised our thought of colonic cancer. Right hemicolectomy, and ileostomy done. Specimen’s histology result was well differentiated adenocarcinoma microscopic grade I/III, (TNM stage: T:3, N:0, M:x) Patient discharged after 6 days in good condition to be followed by oncologist.



Figure 1: Cecal dilation which suspected perforated appendicitis by scanning report.

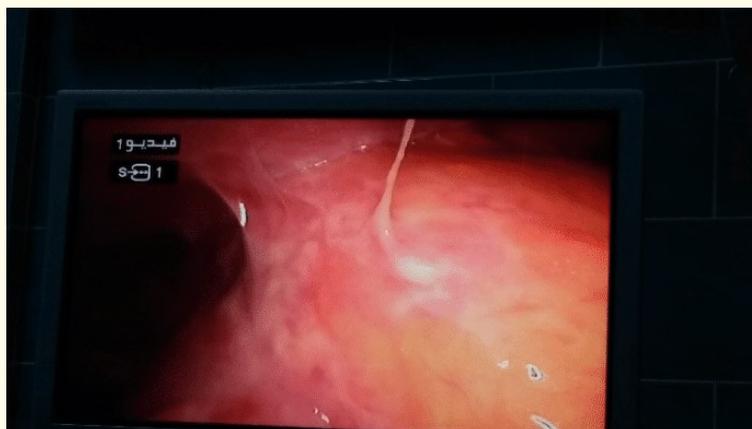


Figure 2: Laparoscopic view of the inflamed cecum.



Figure 3: Plain erect abdominal X-ray showing air under diaphragm.

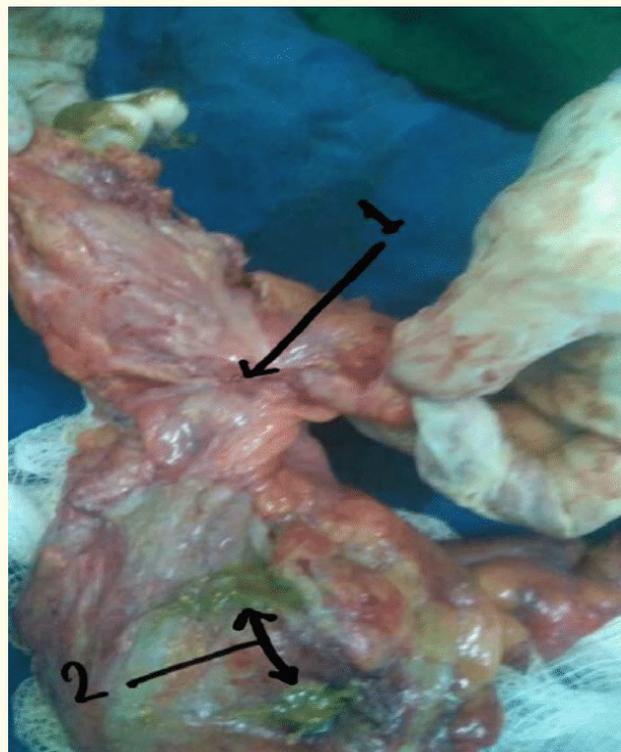


Figure 4: 1-ring stricture colonic mass. 2-two cecal perforations.

The Second Case

A 28 years old female, came to our emergency unit complaining of right lower abdominal painful mass with fever and diarrhea. Her history started before one month as a recurrent attack of RLQAP associated with low grade intermittent fever and diarrhea. Initially treated at suburbs as obstetric case. After several days a right lower abdominal mass gradually appeared. She referred to another hospital in which she treated conservatively by IV fluids and antibiotics as a case of appendicular mass, but without any improvement. On physical examination, patient looked cachexic and pallor, the abdomen was soft and not distended, and it was an obvious tender and remarkable mobile mass palpated at the right lower abdomen (Figure 5).



Figure 5: Visible right lower abdominal mass suspected appendicular mass.

Complete blood count result; hemoglobin was 8,4 gm/dl; the WBC count was 9600.

Abdominal CT scan reported right pelvic heterogeneous mass, closed and inseparable from the cecum and terminal ilium which have thickened wall associated with marked stranding of surrounding fat and multiple regional lymph nodes, mostly suggested appendicular mass, (inquiry inflammatory or neoplastic mass?) Figure 6.



Figure 6: Lower right abdominal mass scan suspected appendicular mass.

After preparation of the patient by IV fluid and blood transfusion patient underwent surgical exploration through a lower midline approach. The operative findings were; hard centrally necrotized infected mass at the right side of the pelvic, it involved the ilio-cecal segment, the cecum, part of the lower ascending colon and part of the right ovary, with minimal thick dark brownish collection in the pelvic cavity. After mobilization of the mass and separation of the right ovary, the ilio-cecal segment was resected, and end to end anastomosis was done. Figure 7 the patient had uneventful post-operative course and discharged after 7 days, to be followed by oncologist.



Figure 7: ileo-cecal resected mass with central necrosis.

The resected specimen histopathological reported well differentiated adenocarcinoma microscopic grade I/III, TNM stage: T:3, N:0, M: x. Gross measures and appearance 7 x 6 cm fungating and infiltrative mass, site of carcinoma is ilio-cecal region, all the layers include pericolonic fat, and 13 resected lymph nodes are free (negative) circumferential margin involved at the site of perforation (positive) surgical ends.

Results and Discussion

Acute RLQAP is a common symptom of acute appendicitis especially in young patients, and in older patients is not uncommon and usually complicated entity. It can lead surgeon to miss diagnosis of other pathologies with poor prognosis. Other causes of right lower quadrant pain beyond appendicitis include inflammatory and infectious conditions involving the ileocecal region; diverticulitis; malignancies; conditions affecting the epiploic appendages, omentum, and mesentery; and miscellaneous conditions [10].

In these reported cases initially the diagnosis of right colonic adenocarcinoma was very difficult and excluded apparently due to certain reasons.

First, both patients came late from areas where emergency medical facilities are so limited. Clinically they presented with manifestations relatively the same as complicated acute appendicitis. The first reported patient; although the patient's age was 55 years, the expectation of perforated acute appendicitis was very high, because he was healthy before, he had classical history of acute appendicitis, and his physical examination indicated localized peritonitis at the right lower abdomen. The second reported patient, her history of lower right abdominal mass was long (more than one month), the diagnosis of refractory appendicular mass was very likely because she was 28 years old female, and colonic malignancies are very rare in this age group. In general, her low hemoglobin considered endemics in females in such areas from which the patient came, this probably ruled out the possibility of cecal neoplasia that usually presented as unexplained anemia in older patients.

There were no strong manifestations suggesting acute complications of right colonic cancer like intestinal obstruction, bleeding, or perforation that can be happened at the site of tumor itself or proximally because of the back pressure of complete distal obstruction.

Second thing, Imaging modalities utilized in the emergency setting to evaluate RLQAP include CT, US, and magnetic resonance imaging (MRI). These modalities may be value-added for patients with nonspecific symptoms [11].

Abdominal US is a useful method and frequently used in the initial evaluation of patients with RLQAP, but it is an operator dependent modality, and it is not superior on abdominal CT scan in evaluating serious and complicated intra-abdominal emergencies.

The sensitivity and specificity of CT in detecting intra-abdominal pathology are between 88% and 82% and 96%, respectively, in experienced centers 98% [1].

Both abdominal US and CT scan results were not so helpful in our reported cases, cecal dilatation with abscess formation and perforated appendicitis in the first case and appendicular mass with sigmoid wall thickness in the second case were interpreted.

All of the clinical presentation, the laboratory result and the imaging study of these two cases gave us a straight clue to come up with the diagnosis of emergency complicated acute appendicitis rather than right colonic or cecal malignancy.

In the first case laparoscopic appendectomy was done as a preferable surgical choice in this setting, and neutropenic cecum (typhilitis) was the obvious finding. This finding add another extra miss direction.

Neutropenic colitis has a similar presentation of acute appendicitis. Mucosal damage secondary to both infection and ischemia is typically confined to the cecum and ascending colon. A prompt diagnosis is necessary due to the high risk of perforation [11].

After laparoscopic surgery, we advised the patient to follow the outpatient and subsequent colonoscopy examination to exclude malignancy that can be a cause of cecal inflammation. Unfortunately, patient came later on with rupture cecum, mostly due to typhilitis and the back pressure of incomplete obstruction of unexpected right colonic ring tumor. We consider this is a very rare and challenging case, in which the preoperative diagnosis and even laparoscopically it was difficult to figure out the real diagnosis, and it required a precise evaluation and interpretation to discovered early and managed properly at time.

In the second case; cecal malignancy mostly not presented as lower abdominal mass in young patient because cecum is wide and stretchable organ, it usually presented as unexplained anemia and usually late discovered in older patients. For this reason, we consider this case is unusual case. Although Infected cecal masses are rare, they are often reported, and many are found unexpectedly at emergency operations as lesions simulating appendicitis. (12) We suggested that this mass became infected because the cecal tumor resulted in complicated acute appendicitis by obstructing the blood supply of the vermiform appendix. As a differential diagnosis according to the pre-operative data and the intra operative findings we thought about some other rare conditions such as Crohn's disease, lymphoma and ileocecal tuberculosis to be a possible cause. Anyhow surgical intervention and excisional biopsy was the eminent decision, and the final result was a surprising unusually infected cecal adenocarcinoma.

Conclusion

Distinguishing between appendicitis and right colon /cecal cancer based on clinical symptoms and imaging study is difficult in emergency situation. Colonic adenocarcinoma can be occurring in unexpected age group patients, and surgeons must pay attention to patients with unusual history and complex presentation of acute appendicitis. Proper radiological scanning interpretation is very important for early detection of the tumor and for prompt treatment and intervention.

Conversion to open surgery is advisable in case of the appearance of unusual findings during laparoscopic appendectomy and when the severity of clinical manifestations of the patient are exceed or not reflect the laparoscopic findings of acute appendicitis.

Conflict of Interest

Authors had no any financial interest or any conflict of interest exists.

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