

CASE REPORT

Acute myelogenous leukemia and acute leukemic appendicitis: A case report

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INTRODUCTION

Acute myeloid leukemia (AML) affects middle-aged adults. When the disease involves soft tissue, it is called granulocytic sarcoma (GS). GS can present in the gastrointestinal tract but involvement of the appendix is uncommon. Furthermore, infiltration of the appendix by leukemic cells is also a rare manifestation of leukemia relapse. Herein, we report a 75-year-old man with AML-M2 who had been in partial remission for 1 year, and who presented with symptoms mimicking acute appendicitis as the initial manifestation of leukemia relapse. Subsequent pathological examination confirmed the diagnosis.

CASE REPORT

A 75-year-old man was admitted for evaluation of right lower quadrant abdominal pain and fever for 3 d. He had partial remission of AML-M2 for 1 year, after chemotherapy with low dose cytarabine. His past history included hypertensive cardiovascular disease with congestive heart failure, coronary artery disease, and chronic obstructive pulmonary disease. Physical examination showed rebound tenderness over the right lower quadrant. The leukocyte count was $35 \times 10^3/L$, with 15% neutrophils, 26% lymphocytes, 1% monocytes, 2% eosinophils, 0% basophils, and 56% immature cells. Hemoglobin and platelet counts were 9.9 g/dL and $64 \times 10^3/\mu L$, respectively. C-reactive protein was 7.98 mg/dL. Abdominal computed tomography showed thickening of the appendiceal wall and periappendicular fat stranding (Figure 1). The diagnosis of acute appendicitis was made, and appendectomy was performed immediately after admission. Grossly, the appendix was gray in color and soft in consistency. Microscopically, the sections showed transmural infiltrates of myeloblasts, which were positive for myeloperoxidase, CD43 and CD34 immunohistochemical stains (Figure 2). Hence, AML-M2 with involvement of the appendix was diagnosed. Thereafter the patient received chemotherapy with low-

Abstract

Acute myelogenous leukemia (AML) can involve the gastrointestinal tract but rarely involves the appendix. We report a male patient who had 1 year partial remission from AML and who presented with apparent acute appendicitis as the initial manifestation of leukemia relapse. Pathological findings of the appendix revealed transmural infiltrates of myeloblasts, which indicated a diagnosis of leukemia. Unfortunately, the patient died from progression of the disease on the 19th d after admission. Although leukemic cell infiltration of the appendix is uncommon, patients with leukemia relapse can present with symptoms mimicking acute appendicitis.

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Key words: Acute myeloid leukemia; Appendicitis; Appendectomy; Granulocytic sarcoma

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Figure 1 Abdominal computed tomography reveals appendicular wall thickening and periappendicular fat stranding.

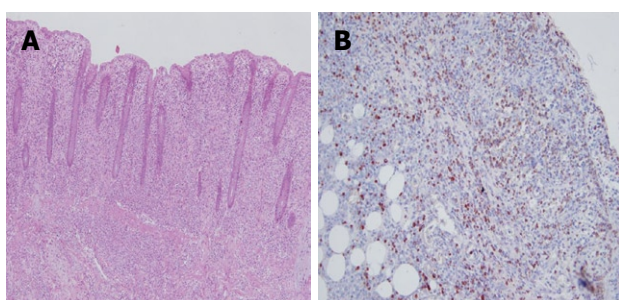


Figure 2 Cross-section of the appendix specimen. A: Leukemia involving the appendix is characterized by transmurals infiltrates of myeloblast cells (HE, ×200); B: These tumor cells are immunoreactive to myeloperoxidase protein (HE, ×200).

dose cytarabine (20 mg/kg for 12 d). However, he died from progressive disease complicated by septic shock and acute respiratory failure on the 19th d after admission.

DISCUSSION

The incidence of GS is estimated to be 3% in living adult patients with AML and 4.7% in children^[1,2]. Rappaport initially introduced the concept of acute lymphoblastic leukemia infiltrating the appendix^[3]. In a review of the literature, AML involving the appendix has been described^[1,3,4]. As a presentation of AML in adults, GS can involve various sites throughout the body but it is rare in the gallbladder and appendix. Bowel infiltration by leukemic cells, described initially in the 19th century, was thought to be a rare condition until autopsy studies in the 1960s and 1970s, which indicated a prevalence of this presentation in 10% to 53.3% of leukemia patients^[5-8]. It has been reported that appendiceal involvement by leukemic cells occurs in approximately 3 of 36 patients (8.3%)^[6]. Seven leukemia patients with involvement of the appendix, including our own, were identified in the literature. The survival time varied as shown in Table 1^[1,4,6].

Surgical management of patients with leukemia and

Table 1 Seven cases of leukemia infiltration of the appendix described in the literature

No.	Sex/age	Type	Treatment	Survival time (d)
1	F/77	M3	Surgery	30
2	M/71	M2	Surgery	49
3-6	NA	NA	3 surgery	Hours to days
7 (Our case)	M/75	M2	Surgery	19

M: Male; F: Female; NA: Not available.

acute abdomen has not been advocated because of the high rate of operative mortality in the past^[4,6]. However, there is some support for surgical management of appendicitis in acute leukemia as the most effective method of therapy^[1,4,9]. Systemic chemotherapy is necessary in this setting for additional radiation or surgery in patients with GS^[10].

In conclusion, we report a rare case of AML who had been in partial remission for 1 year and presented with symptoms of acute appendicitis as the initial manifestation of leukemia relapse. Although leukemic cell infiltration into the appendix is uncommon, our case highlights the importance of differential diagnosis of acute appendicitis including recognition of possible leukemic involvement. The physicians should be aware of these conditions.

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