Obstructive Jaundice as Initial Presentation of Acute Myeloid Leukemia

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Abstract

Introduction: Myeloid sarcoma is a rare extramedullary manifestation of Acute myeloid leukemia (AML). Primary involvement of the biliary tract with myeloid sarcoma is very rare.

Case Presentation: A 29 year old man presented with obstructive jaundice. Magnetic Resonance cholangiopancreatography showed intrahepatic biliary radicle dilatation involving both lobes of liver. There was a mass lesion involving the common hepatic duct, cystic duct and proximal common bile duct. He underwent laparotomy and excision of the mass, cholecystectomy and hepatojjunostomy for a mistaken diagnosis of cholangiocarcinoma. The histopathology was suggestive of myeloid sarcoma. Subsequent bone marrow examination showed AML. He received chemotherapy for AML and continues to be in remission at 2 years.

Conclusion: Isolated biliary involvement by myeloid sarcoma is extremely rare and may be misdiagnosed as cholangitis or cholecystitis or as cholangiocarcinoma. Biliary myeloid sarcoma should also be included in the differential diagnosis of patients with obstructive jaundice and investigated for AML.

Keywords: Myeloid sarcoma; AML; Obstructive jaundice; IHBRD

Peer Reviewers: Shuijun Zhang, MD, PHD, The First Affiliated Hospital of Zhengzhou University, China

Received: June 2, 2013; Accepted: September 10, 2013; Published: October 10, 2013

Competing Interests: The authors have declared that no competing interests exist.

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Introduction

Primary hematological malignancies of the extrahepatic biliary tracts are rare. Myeloid sarcoma (MS) also known as granulocytic sarcoma or chloroma is a rare extramedullary tumor composed of myeloid progenitor cells. Primary involvement of the biliary tract with MS is very rare. We present the case of a 29 year old man with Acute myeloid leukemia (AML) who presented with obstructive jaundice caused by myeloid sarcoma of biliary ducts.

Case presentation

A 29 year old man presented to us following laparotomy for suspected cholangiocarcinoma causing obstructive jaundice. Earlier he had presented to the local hospital with abdominal pain since 5 months, jaundice, pruritis, and white stools since 2 weeks. On examination he was having icterus and hepatomegaly. His Haemoglobin(Hb) was 14.3gm%, Total White cell count (TC) was 6680/mm³, platelet count was 3,03,000/ mm³. His total bilirubin was 22.5mg/dl, (direct bilirubin 10.8gm/dl), serum glutamic oxaloacetic transaminase (SGOT) was 86 U/L, serum glutamic-pyruvic transaminase (SGPT) was 54 U/L, serum alkaline phosphatase (SAP) was 342 U/L. Viral markers were negative.

Ultrasonogram of the abdomen showed hepatomegaly with thickened gall bladder and dilated proximal biliary duct. Computerised tomogram of abdomen showed intrahepatic biliary radical dilatation. Gall Bladder was filled with hyperdense bile/ sludge. Magnetic Resonance cholangiopancreatography (MRCP) showed intrahepatic biliary radicle dilatation (IHBRD) involving both lobes of liver and a mass lesion involving the gall bladder, cystic duct, common hepatic duct (CHD) and proximal common bile duct (CBD) (Fig 1 & 2). Pancreas, spleen and kidneys were normal. The radiological picture was suggestive of cholangiocarcinoma involving CHD, cystic duct and proximal CBD.

Figure 1 3D MRCP showing bilateral IHBRD and an abrupt cut off at the proximal common hepatic duct. CBD, Gall Bladder and cystic duct not visualized.
Figure 2 Coronal FIESTA FAT SAT showing the hyperintense lesion extending to cystic duct, common hepatic duct and CBD from gall bladder with proximal ductal dilatation.

Patient underwent laparotomy and excision of the mass, cholecystectomy and ROUX en Y anastomosis and hepatojejunostomy. The tumor was 4x2 cm involving cystic duct, CHD, proximal CBD. Lymphnodes were present in hepatoduodenal ligament. Post operatively his bilirubin dropped to 6.8mg/dl, direct bilirubin to 3.3mg/dl.

Subsequently he presented to our institute where his Hb was 10.1 gm%, TC was 5600/mm³, and platelet count was 2,44,000/mm³. His S.Bilirubin was 2mg/dl, SGOT 38U/dl, SGPT 24U/dl, SAP 115/dl, and lactate dehydrogenase 512U/dl. Viral markers were negative. Peripheral smear showed normocytic normochromic red cells, white cells were predominantly blasts (68%), which were peroxidase positive. Bone marrow showed sheets of blasts which were positive for CD 33 and MPO. Flow cytometry of peripheral blood showed the blasts to be positive for CD13, CD33, CD64 and CD117 and negative for CD10, CD19, CD20, CD3, CD5,CD7, CD34 and HLA DR suggestive of Acute myeloid leukemia M1/M2.

The histopathology from the resected specimen of bile duct and gall bladder showed a neoplasm composed of cells in sheets with moderate cytoplasm, round to indented nucleus and immature chromatin (Fig.3). Neoplastic cells were seen to infiltrate into serosa. These cells were also positive for CD33 and MPO suggestive of AML infiltrating gall bladder (Fig.4 & 5). Bone marrow cytogenetics was normal. He received induction chemotherapy with cytosine arabinoside and daunomycin and achieved bone marrow remission. He was consolidated with high dose cytosine arabinoside. He continues to be asymptomatic and in remission at 2 years.
Figure 3  H&Ex400 Section from gall bladder shows an infiltrating neoplasm. Tumour cells have moderate cytoplasm.

Figure 4  CD33x400 Tumour cells are CD33 positive.
Extramedullary involvement by acute leukemia is a rare, but clinically significant finding that often produces difficulty in diagnosis and therapy. Cholestasis as the initial manifestations of acute myeloid leukemia is very rare and carries a bad prognosis [1]. Isolated biliary involvement by myeloid sarcoma is extremely rare and may be misdiagnosed as cholangitis or cholecystitis or as cholangiocarcinoma. Therefore, biliary myeloid sarcoma should be included in the differential diagnosis of patients with obstructive jaundice. This disease usually arises during the course of AML, and less frequently in chronic myelogeneous leukemia and other myeloproliferative disorders [2]. The most common sites of involvement are the periosteum, soft tissue, bone, lymph nodes, and skin, but numerous sites have been described [3]. Males and females are equally affected, with a mean age of 48 years. Myeloid sarcoma occurs in only 2 to 8% of AML cases, which are mainly of the M2 morphology, although the disease has also been associated with other FAB types [4]. It occurs either concurrently, following or rarely prior to the onset of AML. Cytogenetic abnormalities such as t(8;21), blast differentiation, cell-surface markers, lack of Auer rods, FAB classification (M2, M4 and M5), high presenting leukocyte count, and cellular immune dysfunction have been associated with a higher incidence of extramedullary leukemia [5].

Neiman et al. reported 61 patients with granulocytic sarcoma of which 22% occurred as the initial presentation or during the course of AML. The most common sites of involvement of granulocytic sarcoma were the periosteum, soft tissue and bone followed by the lymph nodes and skin. However granulocytic sarcoma in the biliary tract was rare. Only 4 out of 61 cases had gastrointestinal tract involvement [2]. A case of isolated biliary granulocytic
sarcoma in a 30-yr-old man who presented with jaundice, fever, and chill without any evidence of leukemia was reported by Chang Ohk Sung et al [6]. However, five months after the diagnosis, he developed acute myelogenous leukemia with multilineage dysplasia and chromosomal abnormality. A case of an extramedullary myeloid tumor of the gallbladder in 33 year old man without leukaemia is also reported [7]. He also presented with obstructive jaundice and underwent hepatopancreatoduodenectomy like our patient. A 34 year old man presented with the simultaneous appearance of both blast cells in bone marrow and obstructive jaundice [1]. Joo Young Lee et al described a patient who presented with obstructive jaundice resulting from leukemic infiltration of extrahaepatic bile duct, which improved after endoscopic biliary drainage combined with chemotherapy [5]. Another patient underwent a right hepatectomy for stenosis of extrahaepatic bile ducts mimicking the presentation of Klatskin tumor [8]. Our patient underwent surgery for a mistaken diagnosis of cholangiocarcinoma and the diagnosis of MS was postoperative. He received conventional chemotherapy and is alive in remission at 2 years.

Data on the prognostic significance of MS is limited. Byrd et al analysed 84 AML patients with t(8:21) and reported that those with extramedullary disease had worse survival [9]. In a later study of 20 patients with isolated MS the presence of cytogenetic abnormalities especially in chromosome 8 appeared to confer a worse outcome [10]. Although the presence of MS is associated with a poor prognosis, the 5 year survival ranges from 20-30%. Because leukemia is a rapidly progressive disease, contemporary hepatic dysfunction accompanied by jaundice may impair tolerance to a rigorous therapy and lessen the probability of survival.

**Disclosure**

Authors do not have any financial disclosure

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Outcome in patients with nonleukemic granulocytic sarcoma treated with chemotherapy with or without radiotherapy. *Leukemia*. 2003, 17:1100-1103