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Case Report

A Case of Extensive Cholangiocarcinoma Highlighting Challenges in Diagnosis and Treatment

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INTRODUCTION

Cholangiocarcinoma is a rare malignant tumor with intra-hepatic, perihilar and distal hepatic variants.[1,2] Its incidence has gradually been increasing over the past few years and its diagnosis often carries a poor prognosis with an approximate 9% survival rate at five years.[3] Although a rare cancer, cholangiocarcinoma is the most common form of malignant biliary tumors.[1,4] The approach to treatment varies based on tumor type and stage.[5] Typically, treatment is surgical (potentially curative) for resectable disease and chemotherapy for advanced disease.[5,6] Although surgery is the only potentially curative approach, it does carry a high risk of recurrence.[7] Surgical intervention may also necessitate liver transplant.[1] In this article, we discuss a previously healthy patient who was diagnosed with a peculiar case of cholangiocarcinoma, highlighting the challenges faced in obtaining a correct diagnosis, and exploring various therapeutic options.

CASE REPORT

A 58-year-old female, with no prior medical history or primary care physician, arrived at the hospital with severe right upper quadrant abdominal pain radiating to the back for the past four months and progressive jaundice over the last four days. She had also experienced diarrhea, nausea, and vomiting. Notably, she observed a grayish discoloration in her stools but denied the presence of blood. She attempted to alleviate her pain with acetaminophen and ibuprofen without success, and she noticed that eating exacerbated her discomfort.

Upon her arrival, she was hemodynamically stable and had no fever. Laboratory tests (Table 1) revealed elevated white blood cell count (WBC 16.8/uL), low hemoglobin (hgb 9.7 g/dl), increased mean corpuscular volume (MCV 100 fL), as well as elevated liver enzymes [Alanine transaminase (ALT) 65 U/L, Aspartate transaminase (AST) 139 U/L, Alkaline phosphatase (ALP) 421 U/L], total bilirubin (14.0 mg/dl), direct bilirubin (10.6 mg/dl), and indirect bilirubin (3.4 mg/dl). Additionally, she had an elevated international normalized ratio (INR) of 11.0. A computed tomography (CT) scan of her abdomen and pelvis identified a large, lobulated, and infiltrative hypo-enhancing mass that was enveloping the gallbladder, raising concerns of cholangiocarcinoma. This mass also extended into liver segments 4B and 5, encasing the right renal artery and compressing nearby structures, including the inferior vena cava and left renal vein. The patient was promptly initiated on ceftriaxone and metronidazole to address a potential biliary infection.

Table 1. Laboratory findings.

Laboratory Test	Lab Value	Normal Range
White blood count	16.8 /uL	4.8 - 10.8 /uL
INR	11.0	0.9 - 1.2
Calcium	12.6 mg/dL	8.4 - 10.2 mg/dL
ALT	65 U/L	0 - 55 U/L
AST	139 U/L	5 - 34 U/L
ALP	421 U/L	40 - 150 U/L
Bilirubin (total)	14.0 mg/dL	0.2 - 1.2 mg/dL
Bilirubin (direct)	10.6 mg/dL	0.0 - 0.5 mg/dL
Bilirubin (indirect)	3.4 mg/dL	0.0 - 1.0 mg/dL
Ammonia	72 umol/L	18 - 72 umol/L
AFP	1.1 ng/mL	0 - 8.8 ng/mL
CEA	3.5 ng/mL	0 - 5.0 ng/mL
CA 19-9	571 U/mL	0 - 37 U/mL

Subsequent laboratory tests (Table 1) revealed normal levels of alpha fetoprotein (AFP) at 1.1 ng/mL and carcinoembryonic antigen (CEA) at 3.5 ng/mL along with a markedly elevated carbohydrate antigen 19-9 (CA 19-9) level of 571 U/mL. Magnetic resonance imaging (MRI) under sedation disclosed a large, infiltrative hepatobiliary mass highly suspicious for cholangiocarcinoma, measuring 11.0 x 10.6 x 16.9 cm (Figure 1). The mass was primarily located in segments 4B and 5 but extended into the caudate and medial margin of segment 6. It obstructed the common bile duct from the ampulla to the confluence, leading to a sudden cutoff of the right anterior and posterior, as well as left hepatic ducts, and moderate-to-severe intrahepatic biliary dilation. The mass also encased the gallbladder and compressed surrounding structures, including the suprarenal inferior vena cava, the first and second portions of the duodenum, and the colon at the hepatic flexure.

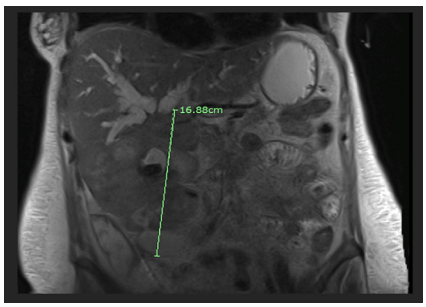

Figure 1. Coronal cross-sectional view of abdominal MRI showing a 16.88 cm mass suspicious of cholangiocarcinoma.

Given the extensive nature of the mass and the patient's persistently elevated bilirubin level, she was not deemed a surgical candidate, and percutaneous transhepatic cholangiogram (PTC) drainage was recommended over endoscopic retrograde cholangiopancreatography (ERCP) as an initial therapeutic option for biliary decompression. Interventional radiology was consulted to discuss PTC drain placement, but the patient and her family opted for hospice care, foregoing any further aggressive diagnostic or therapeutic interventions.

DISCUSSION

Jaundice carries with it a wide range of differential diagnoses, both benign and malignant in nature. The constellation of clinical signs, labs, and pathology specimens can help guide physicians toward a specific diagnosis. Although cholangiocarcinoma is not common, it should be present on the differential diagnosis of patients with jaundice.

Bile ducts consist of intra-hepatic and extra-hepatic portions.[8] Intra-hepatic cholangiocarcinoma occurs within the liver, while perihilar and distal cholangiocarcinomas are located based on their relationship to the cystic duct.[9] Each subtype can present differently. Intra-hepatic cholangiocarcinoma often presents with constitutional symptoms like fatigue and night sweats, while perihilar and distal cholangiocarcinomas can cause signs of biliary obstruction, including jaundice and a cholestatic pattern on liver function tests, as seen in the patient discussed above.[9,10]

Diagnostic options for cholangiocarcinoma include CT and MRI for all subtypes, with magnetic resonance cholangiopancreatography, ERCP, and endoscopic ultrasound as additional modalities that can be used for extra-hepatic variants.[9] Treatment is usually surgical for resectable disease, with other options such as chemotherapy, chemoembolization, and radiofrequency ablation to be considered for unresectable disease depending on anatomic location.[9] Surgical resection has limitations in varying cases due to elevated bilirubin levels. Studies have shown that preoperative hyperbilirubinemia of greater than 6 mg/dL is strongly associated with post-operative complications including post-operative liver failure, intraoperative blood loss, heart failure, and even death.[11] It is worth noting that it can be difficult to distinguish between perihilar cholangiocarcinoma and gallbladder cancer pre-operatively.[12] While overall survival is similar between the two, three-year survival is usually lower for gallbladder cancer than for cholangiocarcinoma.[12] In our patient's case, given the size of the tumor, persistently elevated bilirubin levels, and overall prognosis, surgery was not a feasible option and hospice was the route taken.

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