Distant skeletal muscle metastasis from intrahepatic cholangiocarcinoma presenting as Budd-Chiari syndrome

Oh Sung Kwon, Dae Won Jun, Sang Heum Kim, Mee Yeon Chung, Nam In Kim, Moon Hee Song, Han Hye Lee, Seung Hwan Kim, Yoon Ju Jo, Young Sook Park, Jong Eun Joo

INTRODUCTION

Intrahepatic cholangiocarcinoma is a malignant neoplasm arising from the biliary epithelium and a devastating malignancy that presents late, is notoriously difficult to diagnose, and often invades adjacent organs or metastasizes to other visceral organs such as lungs, bones, adrenals, and brain. Skeletal muscle is one of the most uncommon sites of metastasis from any malignancy. Although direct muscle invasion by primary malignancy is well recognized, few cases of metastasis to skeletal muscle distant from the primary carcinoma have been published[1]. Primary carcinoma sites to distant skeletal muscle metastasis included the stomach, esophagus, lung, colon, and pancreas[2]. However, intrahepatic cholangiocarcinoma has never been mentioned as the primary carcinoma site for skeletal muscle metastases to the best of our knowledge. Budd-Chiari syndrome, which is defined as any pathophysiologic process that results in interruption of the normal flow of blood out of the liver, and is commonly associated with a hypercoagulable state which is often secondary to malignancy. But the Budd-Chiari syndrome secondary to intrahepatic cholangiocarcinoma is so rare that only three cases have been reported in the literature so far.

We report the first case of distant skeletal muscle metastasis of intrahepatic cholangiocarcinoma presenting as Budd-Chiari syndrome and acute thrombus extended down into the bilateral iliac veins and femoral veins.

CASE REPORT

A 44-year-old man visited the gastroenterology department with complaints of abdominal distension, dyspnea, low extremity edema, back pain and anorexia of 30 d’ duration. Computed tomography and ultrasonography-guided percutaneous muscle biopsy established intrahepatic cholangiocarcinoma with disseminated thrombosis from inferior vena cava to bilateral iliac and femoral veins, and multiple skeletal muscle metastases in bilateral buttock and erector spinal muscle. A 44-year-old man admitted to the hospital with complaints of abdominal distension, edema of both legs, back pain and anorexia of 30 d’ duration. Computed tomography and ultrasonography-guided percutaneous muscle biopsy established intrahepatic cholangiocarcinoma with disseminated thrombosis from inferior vena cava to bilateral iliac and femoral veins, and multiple skeletal muscle metastases in bilateral buttock and erector spinal muscle. A 44-year-old man admitted to the hospital with complaints of abdominal distension, edema of both legs, back pain and anorexia of 30 d’ duration. Computed tomography and ultrasonography-guided percutaneous muscle biopsy established intrahepatic cholangiocarcinoma with disseminated thrombosis from inferior vena cava to bilateral iliac and femoral veins, and multiple skeletal muscle metastases in bilateral buttock and erector spinal muscle. A 44-year-old man admitted to the hospital with complaints of abdominal distension, edema of both legs, back pain and anorexia of 30 d’ duration. Computed tomography and ultrasonography-guided percutaneous muscle biopsy established intrahepatic cholangiocarcinoma with disseminated thrombosis from inferior vena cava to bilateral iliac and femoral veins, and multiple skeletal muscle metastases in bilateral buttock and erector spinal muscle. A 44-year-old man admitted to the hospital with complaints of abdominal distension, edema of both legs, back pain and anorexia of 30 d’ duration. Computed tomography and ultrasonography-guided percutaneous muscle biopsy established intrahepatic cholangiocarcinoma with disseminated thrombosis from inferior vena cava to bilateral iliac and femoral veins, and multiple skeletal muscle metastases in bilateral buttock and erector spinal muscle.

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Key words: Intrahepatic Cholangiocarcinoma; Metastasis; Skeletal muscle; Budd-Chiari syndrome

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hematocrit of 35.9%, white blood cell count of 5.8 × 10^9/L, platelet count of 1.18 × 10^{11}/L, prothrombin activity of 75.9%, activated partial thromboplastin time of 30.1 s, aspartate aminotransferase (AST) level of 50 IU/L, alanine aminotransferase (ALT) level of 26 IU/L, alkaline phosphatase level of 813 IU/L, γ-glutamyl transpeptidase level of 144 IU/L, lactate dehydrogenase level of 494 IU/L, total bilirubin level of 0.8 mg/dL, and albumin level of 37 g/L. Renal function tests showed a blood urea nitrogen level of 39.5 mg/dL and a creatinine level of 1.6 mg/dL. HBsAg and anti-HBeAg were positive but anti-HBs antibodies, anti-HBc antibodies, HBeAg, HBV DNA, and anti-hepatitis C virus antibodies were all negative. Peritoneal fluid analysis revealed WBC of 6.90 × 10^9/L, RBC of 1.05 × 10^{12}/L, polymorphonuclear cell of 19%, lymphocytes of 81%, albumin level of 13 g/L, and the serum ascites albumin gradient (SAAG) was 24 g/L.

Levels of carcinoembryonic antigen and alpha-fetoprotein were normal. The levels of thyroxin stimulating hormone were normal. The levels of thyroxin were normal. The levels of thyroglobulin were normal. The levels of thyroglobulin-stimulating hormone were normal. The levels of thyroglobulin-stimulating hormone were normal. The levels of thyroglobulin-stimulating hormone were normal. The levels of thyroglobulin-stimulating hormone were normal. The levels of thyroglobulin-stimulating hormone were normal. The levels of thyroglobulin-stimulating hormone were normal. The levels of thyroglobulin-stimulating hormone were normal.

DISCUSSION

The incidence of skeletal muscle metastases is reported to be less than 1% of metastases of hematogenous origin, despite of the fact that skeletal muscle accounts for nearly 50% of the total body weight and is characterized by rich blood supply. The cause for the low incidence of skeletal muscular metastases of primary cancer is still unclear, but may be related to various factors as follows: tumor suppressors in skeletal muscles, the constant movement of skeletal muscles which may represent a difficult condition for the implantation and growth of metastatic cells under the high tissue pressure related to the exercise-associated increase of blood flow, the local production of lactic acid which would create an unfavorable environment for metastatic cell growth, the inhibition of cell invasion by protease inhibitors located in the basement membrane, and the antitumor activity of lymphocytes or natural killer cells within the skeletal muscle.

The reason why distant skeletal muscle metastasis from intrahepatic cholangiocarcinoma has been not been reported may be because of the relative rarity and poor prognosis of intrahepatic cholangiocarcinoma, and another possibility is that physicians and patients tend to overlook the distant skeletal muscle metastasis, which is frequentely asymptomatic, nonspecific, and in hidden locations. Under-diagnosis of skeletal muscle metastases may contribute to their apparent low incidence. In 194 autopsies involving tumor metastasis to skeletal muscles, neoplastic glands accompanying moderate desmoplasia (Figure 2). Immunohistochemical staining showed that the neoplastic cells were strongly positive for cytokeratin 7 and CEA, weak and focally positive for cytokeratin 20, and negative for TTF-1. The findings of CT scan and the histopathologic feature would be compatible with intraductal cholangiocarcinoma and its distant skeletal muscle metastasis.

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which were performed at the Marque de Valdecilla National Medical Center from 1980 to 1982, metastases to skeletal muscle were noted in 11%, and 20% of the patients with carcinoma had muscle metastasis.\textsuperscript{[6]}

Budd-Chiari syndrome secondary to intrahepatic cholangiocarcinoma is very rare, only three cases have been reported to our knowledge. The first was from a case series that attempted to etiopathophysiological classify Budd-Chiari syndrome\textsuperscript{[7]}. The second was in a woman who had presented with recurrent venous thrombosis during the third episode endoscopic cholangiopancreatography, and guided biopsy established a diagnosis of cholangiocarcinoma at the mid portion of common bile duct\textsuperscript{[8]}. Law et al\textsuperscript{[9]} reported the third case of metastatic intrahepatic cholangiocarcinoma presenting as acute Budd-Chiari syndrome with a large thrombus in the inferior vena cava and plain thrombus extending from the right atrium down into the iliac veins by postmortem examination.

In summary, intrahepatic cholangiocarcinoma presenting Budd-Chiari syndrome is extremely rare, and distant skeletal muscle metastasis from intrahepatic cholangiocarcinoma presenting with Budd-Chiari syndrome has not been reported previously to our knowledge. In the present report, we described the first case of metastasis to the distant erector spinae muscle from intrahepatic cholangiocarcinoma presenting as Budd-Chiari syndrome. Intrahepatic cholangiocarcinoma tends to have a poor prognosis because of its typically late presentation. In our case, the presentation of distant skeletal muscle metastasis and Budd-Chiari syndrome is a reflection of the severe malignant potential of this carcinoma and our limited options in the management of this disease.

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