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Case Report

The Effect of Acupuncture on Obstructive Jaundice Secondary to Metastatic Gastric Cancer after Failure of Percutaneous Transhepatic Cholangiography and Drainage: A Case Report

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Abstract

Obstructive jaundice is a rare complication of gastric cancer and portends poor prognosis. Percutaneous biliary drainage or implantation of biliary stents are commonly used treatment. In our case who was afflicted with biliary obstruction secondary to metastatic gastric cancer, Percutaneous Transhepatic Cholangiography and Drainage (PTCD) was performed, however, the efficacy was not optimistic, as shown by sustained elevation of serum bilirubin. We then resorted to acupuncture, which successfully reduced bilirubin to normal and therefore allowed the patient to receive palliative chemotherapy. This report demonstrates that acupuncture treatment contributed to significant alleviation of malignant obstructive jaundice after failure of PTCD and improving survival of advanced gastric cancer patient.

Keywords: Acupuncture; Biliary drainage; Obstructive jaundice; Advanced gastric cancer

Introduction

Malignant obstructive jaundice is usually caused bymetastases from stomach, colon, lung, uterine, and breast cancers [1]. Percutaneous or endoscopic drainage and placement of metallic stents have been established as an effective palliative therapy for malignant biliary obstructions. Although the incidence of obstructive jaundice secondary to gastric cancer is rare, ranging from 1.3% to 2.3% [2,3], the remarkably unfavorable influence on prognosis deserves more attention. Endoscopic drainage is often difficult to perform because of previous gastrointestinal surgery. Percutaneous Transhepatic Cholangiography and Drainage (PTCD) and metallic stent placement are primary treatment strategies. However, the success rate of PTCD is about 80% [4]. H3 liver metastasis and hepatic hilar bileduct stricture are independent factors of unsuccessful PTCD, which makes it impossible to undergo biliary stent placement. Thus, exploration of effective treatment strategy after failure of PTCD is realistic and pressing need for prolonging survival time of patients with obstructive jaundice caused by metastatic gastric cancer.

Here, we present, as far as we know, the first report of efficient acupuncture treatment of obstructive jaundice secondary to advanced gastric cancer after failure of PTCD. This case report was approved by the Ethical Review Committee of the Affiliated Huai'an Hospital of Xuzhou Medical University.

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Case Presentation

On November 20th 2018, a 64-year-old man was hospitalized for progressively worsening upper abdominal pain and jaundice for one month. He underwent radical resection of gastric cancer in July 2018 and the pathological examination confirmed poorly differentiated adenocarcinoma. During this hospitalization, the first blood biochemistry results were as follows: Total bilirubin, 316.18 umol/L; direct bilirubin, 199.66 umol/L; indirect bilirubin, 116.52 umol/L; alanine aminotransferase, 135 U/L; aspartate aminotransferase, 89 U/L. Magnetic Resonance Cholangiopancreatography (MRCP) revealed an abnormal signal in the hilar area of the liver and a severe dilatation of the both right and left intrahepatic bile ducts (Figure 1), indicating the presence of a neoplasm in hepatic hilar region, which coincided with results of color doppler ultrasonography examination. Thus, the patient was diagnosed of advanced gastric cancer complicated with obstructive jaundice caused by liver metastasis. He received PTCD on November 24th, 2018. However, The postoperative bile drainage volume was only 60 ml/24h to 80 ml/24h. Elevated levels of serum total bilirubin (353.55 umol/L) as well as direct bilirubin (226.92 umol/L) and indirect bilirubin (126.63umol/L) were indicated according to the biochemistry results on December 7th, 2018. Considering that successful drainage after PTCD was defined as a ≥ 20% decrease in serum bilirubin level relative to baseline within one week [5], serum bilirubin remaining sustained increase in thirteen days after PTCD definitely demonstrated treatment failure. Then the patient received acupuncture treatment including fire needling and body acupuncture. Surrounding fire needling was conducted in body surface projection of hilar mass twice a week. We chose to perform body acupuncture at RN12 (zhongwan), KI3

(taixi), Yinlingquan (SP9), Yanglingquan (GB34), EX-B4 (pigen) and ST36 (zusanli) once a day except weekends. The daily volume of bile drainage was increased gradually, reaching 300 ml/24h to 500 ml/24h after three weeks. The patient described the daily volume of bile drainage increased to more than 600 ml within two days after fire needling treatment. Serum levels of total bilirubin, direct and indirect bilirubin declined progressively, and upper abdominal pain were also gradually relieved. MRCP on January 14th, 2019 showed the left intrahepatic bile duct was not dilated (Figure 2). Regular CT scan and ultrasonography indicated stable disease according to the RECIST1.1 criterion during treatment course. Serum levels of total bilirubin, direct and indirect bilirubin decreased to normal range on March 28th, 2019. Thus, palliative chemotherapy was performed. The patient received XELOX regimen (oxaliplatin 150 mg + capecitabine 1.5g twice a day for two weeks) for 2 cycles without severe adverse effects. Efficacy assessments after 2 cycles of chemotherapy indicated stable disease according to the RECIST1.1 criterion.

The patient discontinued treatment due to financial reasons in July 2019 and passed away three months later. He lived for 11 months since the diagnosis of obstructive jaundice.

Discussion

Gastric cancer is one of the most common causes of cancer-related deaths worldwide. With progressive advances in surgical resection and chemotherapy regimens, prognosis of patients with gastric cancer has been improved. Obstructive jaundice secondary to gastric cancer is usually classified into five types including intraductal metastasis, periductal lymph node enlargement, periductal seeding mass, extrinsic compression by a metastatic liver mass, anddirect invasion by a primary or recurrent cancer [3,5]. The levels at which biliary obstruction occurred were categorized as biliary hilum and biliary non-hilum. Compared with non-hilarobstruction, hilarobstruction dramatically increased the failure rate of PTCD. Stent implantation via endoscopic pass way or PTCD are proven to be valid to lessen malignant biliary obstruction [4,5]. Studies report a significant decreasein plasma bilirubin during the first week after successful PTCD [6-8]. In our case with biliary obstruction caused by hilar mass, sustained increase bilirubin in thirteen days after PTCD showed unsuccessful therapy, which make stent implantation unable to be implemented. Endoscopic treatment was also difficult due to previously undergoing gastric operation. We then resorted to acupuncture including body acupuncture and fire needling; the former was performed with the purpose of strengthening spleen and tonifying kidney and the latter was used to inhibit growth and metastasis of tumor. Although fire needling was often applied in treating superficial tumor, recent research confirmed that surrounding fire needling in body surface projection of internal malignancy can suppress tumor as well [9,10], which at least in part accounted for the relieved compression of bile duct as evidenced by more significantly increased bile drainage induced by fire needling. Accompanied by daily volume of bile drainage increasing gradually, upper abdominal pain was dramatically relieved. MRCP indicated an obvious improvement in dilatation of intrahepatic bile duct after two months of treatment and total bilirubin, direct and indirect bilirubin decreased to normal range after four months of treatment, which provided the patient with opportunity of chemotherapy.

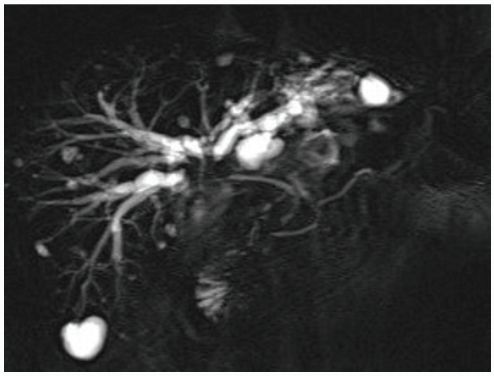

Figure 1: MRCP revealed an abnormal signal in hepatic hilar region and serve dilatation of the both and left intrahepatic bile ducts at initial diagnosis.

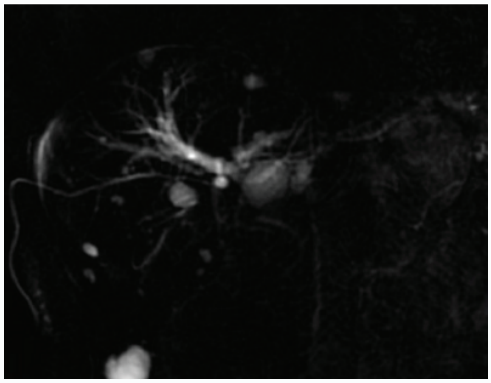

Figure 2: MRCP showed an dramatic improvement in dilatation of intrahepatic bile duct after two months of acupuncture treatment following failure of PTCD.

The median survival of patients with malignant biliary obstruction caused by metastatic gastric cancer is 2.3 months to 4.9 months [11,12]. Median survival was significantly improved in patients with differentiated histology, total serum bilirubin levels ≤ 34.2 umol/l after PTCD, receiving subsequent chemotherapy compared with those with signet ring cell histology, total serum bilirubin levels >34.2 umol/l after PTCD, not receiving subsequent chemotherapy, respectively [5]. For patients undergoing both successful PTCD and subsequent chemotherapy, the median survival climbed to 9.1 months [4]. In our case, efficient acupuncture treatment not only reversed the negative situation caused by unsuccessful PTCD, but also provided the opportunity for subsequent chemotherapy, achieving 11 months survival time despite the adverse prognostic factor of poor differentiation. This case report presents successful acupuncture treatment of obstructive jaundice secondary to metastatic gastric cancer after failure of PTCD. Acupuncture, as a valid, safe, convenient "green therapy", is worthy of further study in the field of cancer treatment.

Conclusion

Acupuncture can provide valuable therapy option for malignant obstructive jaundice secondary to gastric cancer. Prospective trials are needed to validate the efficacy of acupuncture in this patient population.

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