

Rare Variation of the Origin of Dorsal Pancreatic Artery: A Case Report

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Abstract: Transcatheter arterial chemoembolization (TACE) has become an important method for the treatment of liver cancer. It is necessary to super-select the tumor feeding artery, avoid arteries of normal tissues and organs, and avoid complications caused by ectopic embolization. This case is a rare variation of the origin of dorsal pancreatic artery in the course of TACE.

Keywords: Dorsal pancreatic artery; Origin variation; Transcatheter arterial chemoembolization (TACE)

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1. Introduction

In the course of transcatheter arterial chemoembolization (TACE) of a patient with liver cancer, a rare variation of the origin of dorsal pancreatic artery was found during hepatic proper arteriography through intubation, which provided data for the variation of the origin of dorsal pancreatic artery and reference for interventional procedures and surgical treatment of the related position.

2. Case summary

Patient X, medical record number Z, male, 65 years old, Han nationality was admitted to the hospital 5 days after the discovery of intrahepatic nodules after the surgery of primary liver cancer more than 3 years ago.

In the past, he had a history of chronic hepatitis B for more than 10 years.

Brief laboratory examinations were done and showed alpha-fetoprotein (AFP) was 8.9 ng/mL. Hepatitis B markers showed HbsAg was 247.5 ng/mL, HbeAb was 0.48 PEIU/mL, and HbcAb was 12 PEIU/mL.

Admission diagnosis: (1) Multiple metastatic nodules in the liver; (2) Right lobe liver cancer after surgery; (3) Chronic hepatitis B.

Abdominal contrast-enhanced computed tomography (CECT) suggested that there were multiple liver masses with slight enhancement as shown in **Figure 1**.

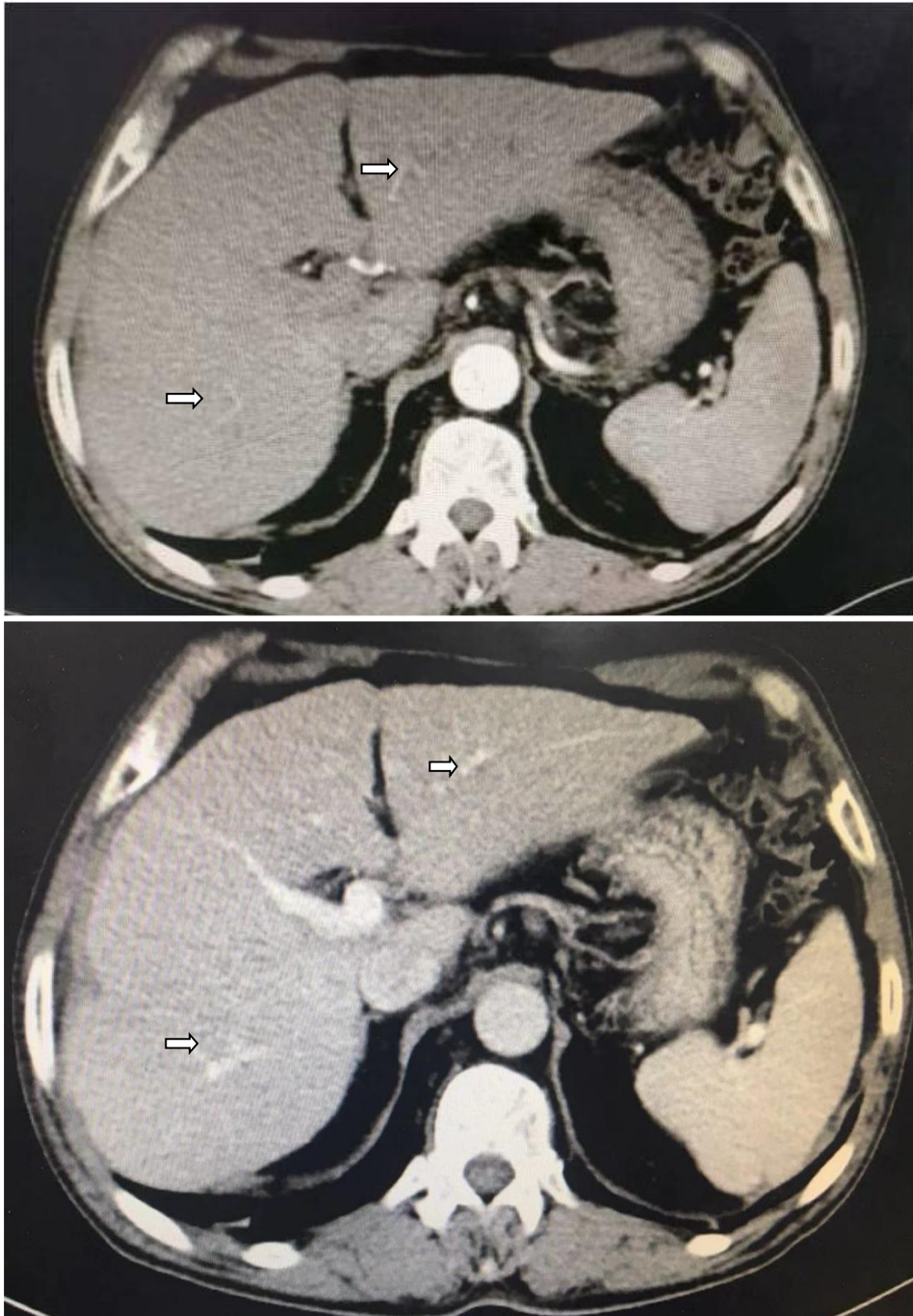


Figure 1. Abdominal contrast-enhanced computed tomography (CECT)

TACE was performed under local anesthesia after preoperative preparation.

The procedure was as follows: The right groin was routinely disinfected. Seldinger technique was used to puncture the right femoral artery and a 5F arterial sheath was inserted. Under the guidance of a guide wire, the 5F hepatic artery catheter was inserted. After the arterial catheter had been formed at the aortic arch, it was selectively inserted into the opening of the celiac artery. Flow rate was 4 ml/s, volume/time was 16 ml, and the celiac artery angiography was performed at 500 PSI. **Figure 2** shows the celiac trunk arteriography.

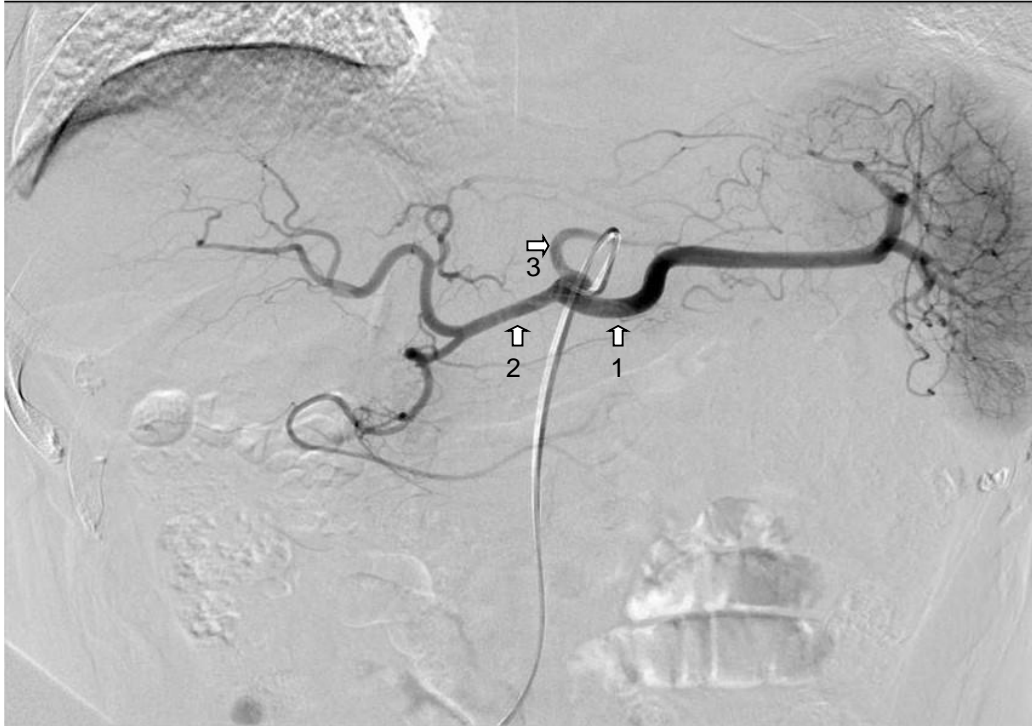


Figure 2. Celiac trunk arteriography

The branches of celiac trunk artery were as follows: (1) Splenic artery; (2) Common hepatic artery; (3) Left gastric artery.

The proper hepatic artery was a super-selective arteriography guided by hepatic artery catheter. The flow rate was 3 ml/s, volume/time was 9 ml (total volume), and the pressure was 300 PSI.

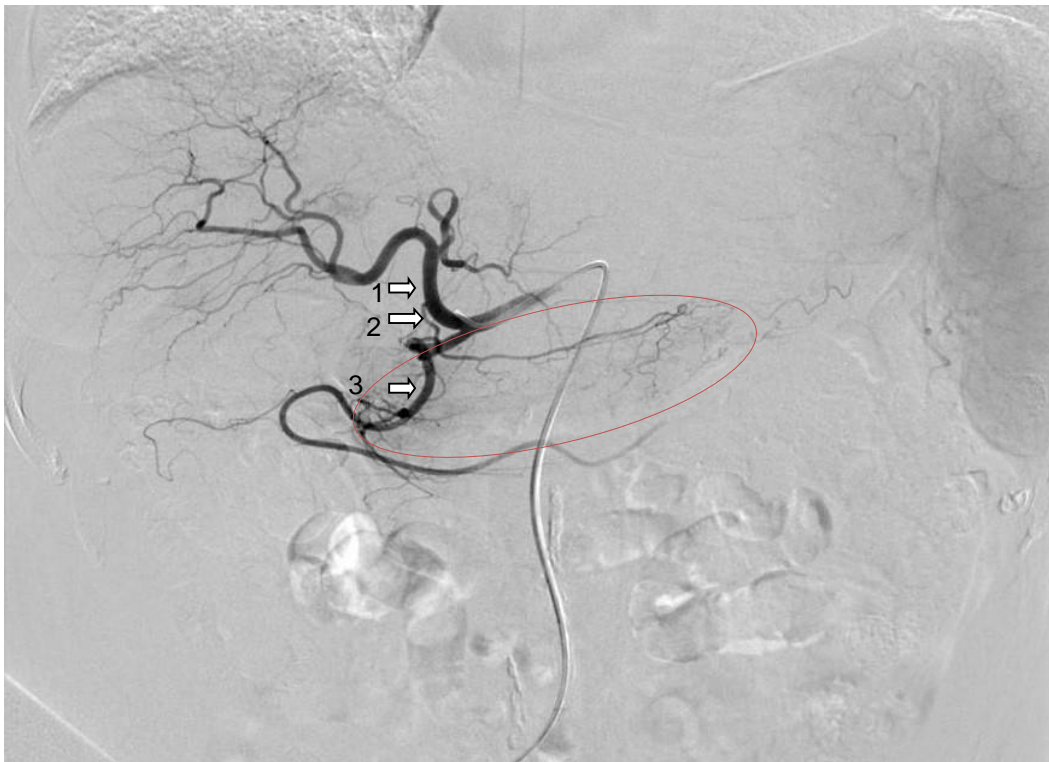


Figure 3. Common hepatic arteriography

As shown in **Figure 3**: (1) Proper hepatic artery; (2) Dorsal pancreatic artery; (3) Gastroduodenal artery.

The dorsal pancreatic artery originated from the right wall of the proper hepatic artery and continued to the left as the transverse pancreatic artery.



Figure 4. Late-stage tumor angiography

At the late stage of angiography, it was seen that the tumors in the liver tissues were developed, multiple, stained, and signed with little blood supply as shown in **Figure 4**.

4. Discussion

The origin of the dorsal pancreatic artery varies. It can originate from the splenic artery, celiac trunk, common hepatic artery, superior mesenteric artery, etc. Usually, the dorsal pancreatic artery originates from the root of the splenic artery and reaches down to the pancreatic neck or the back of the pancreatic body, which is divided into two branches ^[1]. Liu Hongtao et al. studied the direct and indirect blood supply of the pancreas in 225 patients with dual phase enhanced CT of the upper abdomen and found that the origin of dorsal pancreatic artery was diverse where in 119 cases (55.1%), it originated from the splenic artery, in 21 cases (9.7%), from the common hepatic artery, 53 cases (24.5%), from the superior mesenteric artery, and in 23 cases (10.6%), it originated from the celiac trunk ^[2]. Zhu Jie et al. used thin-layer dynamic and high-dose bolus injection contrast medium to observe the direct and indirect blood supply arteries of the pancreas in 50 patients with non-pancreatic diseases and showed the dorsal pancreatic artery in 20 cases where 18 cases, the artery was from the splenic artery, 2 cases from the celiac trunk, and 6 cases from the left horizontal line which continued to be the transverse pancreatic artery ^[3]. Jing Aihong et al. found that the dorsal pancreatic artery originated from the inferior wall of the common hepatic artery origin and descended to the back of the head of pancreas through the splenic vein ^[4]. Yang Fan et al. retrospectively analyzed the images of 80 patients with non-pancreatic diseases who underwent abdominal CT angiography, observed the display of direct pancreatic blood supply artery, and analyzed the origin as well as the variation of direct pancreatic blood supply artery. Among them, 72 cases showed that the dorsal pancreatic artery had great changes in its origin. The dorsal pancreatic artery originated from the proximal splenic artery in 42 cases

(58.3%), from the superior mesenteric artery in 19 cases (26.4%), from the proximal common hepatic artery in 8 cases (11.1%), and in 3 cases (4.2%), it originated from the celiac trunk ^[5]. The origin of the dorsal pancreatic artery varies, however the origin of the dorsal pancreatic artery from the proper hepatic artery has not been clearly reported. In this case, during TACE, the dorsal pancreatic artery originated from the proper hepatic artery. The imaging of the pancreas was clear which provides more imaging reference for interventional procedures and surgery of related diseases.

Disclosure statement

The authors declare that there is no conflict of interest.

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