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RESEARCH ARTICLE

ACUTE PANCREATITIS: RARE COMPLICATIONS OF HEPATOCELLULAR CARCINOMA CHEMOEMBOLIZATION

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ABSTRACT

Transarterial chemoembolization (TACE) is a very well-known treatment used for non resectable hepatocellular carcinoma (HCC). After chemoembolization, pancreatitis is a known but uncommon complication, result from local cytotoxicity or pancreatic ischemia due to reflux of chemoembolic material into pancreatic arterial branches. In this manuscript, we present a case of mild and self-limited acute pancreatitis post-chemoembolization, with successful conservative treatment.

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INTRODUCTION

A 58 years old man known to have hepatitis C not treated presented with right upper quadrant pain. Blood exam done, showed hemoglobin 11.3 G/DL, white blood cell count 5,000U/L, platelet count 160,000/UL, Albumin 3.0 G/DL, AST 100 IU/L, ALT 150 IU/L, alkaline phosphatase 600 IU/L, GGT 450 IU/L, total bilirubin 3.6 mg/DL, prothrombin time 20 seconds. Patient was admitted for his first TACE. On admission patient had no clinical symptoms. TACE was performed with selective catheterization of the right hepatic artery feeding the tumor with a mixture of chemotherapy drug: 75 mg of Doxorubicin and 4 mL Lipiodol, followed by Gelaspon Gelatin Sponge for embolization (Fig 2). Few hours following the procedure, the patient developed fever with severe abdominal pain and had one episode of vomiting. The patient's physical exam showed distended abdomen with tenderness on palpation. Blood exam done: white blood cell count 10,000 U/L, GOT : 200, GPT : 175 IU/L, GGT : 560 IU/L, alkaline phosphatase 620 IU/L, total bilirubin : 3.6 mg/dl with and lipase : 650 UI/L.

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Urgent abdominal CT scan was performed showing acute edematous pancreatitis in the head of the pancreas (Fig 3). Conservative treatment: hydration, fasting and pain control was done and the patient's symptoms and blood exams improved. The patient was discharged after 3 days.

DISCUSSION

Transarterial chemoembolization (TACE) which is being more used widely is the treatment of choice for treating advanced stage liver hepatocarcinomain non-candidate patients for tumor resection, liver transplant or percutaneous ablation (Wáng, 2015). TACE is a technique based on selective tumor ischemia, used as palliative treatment for non resectable hepatic tumors (Rammohan, 2012). The technique is effective, because the hepatocellular carcinoma is mainly vascularized from the hepatic artery where the selective obstruction will be done; therefore the vascularization of the liver is not at risk due to its dominant blood flow from the portal vein (Shin, 2009). The combination of Doxorubicin-Lipiodol-Gelfoam gives the best effect of TACE. Several chemotherapeutic agents are usually used but the most common are Doxorubicin and Cisplatin, without any evidence of superiority to a drug over the other. Dosage of Doxorubicin varies between 10-70 mg, depending on body surface area, weight, and tumor burden or bilirubin level (Shin, 2009).

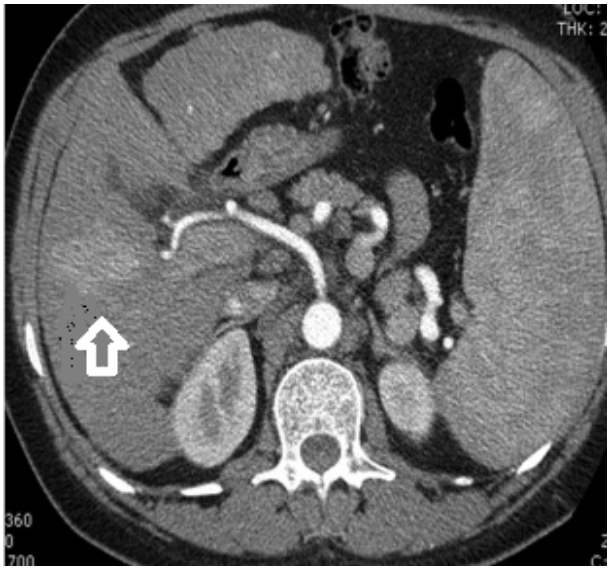

Fig. 1. Large mass in the right hepatic lobe

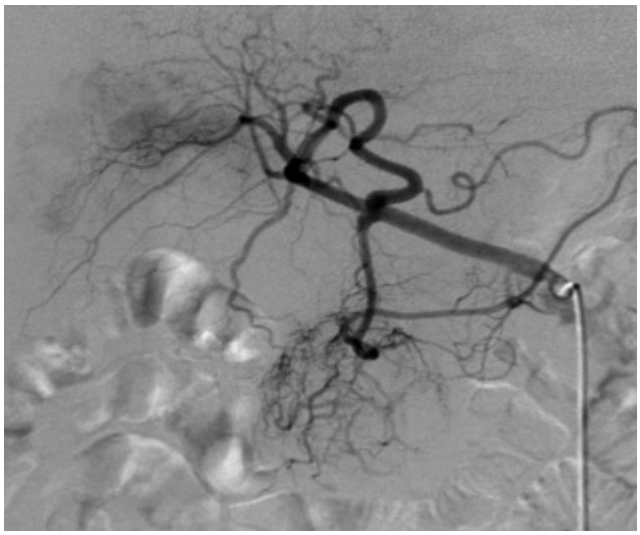

Fig. 2. Middle hepatic artery arteriogram shows infiltrative tumor Staining in right hepatic lobe

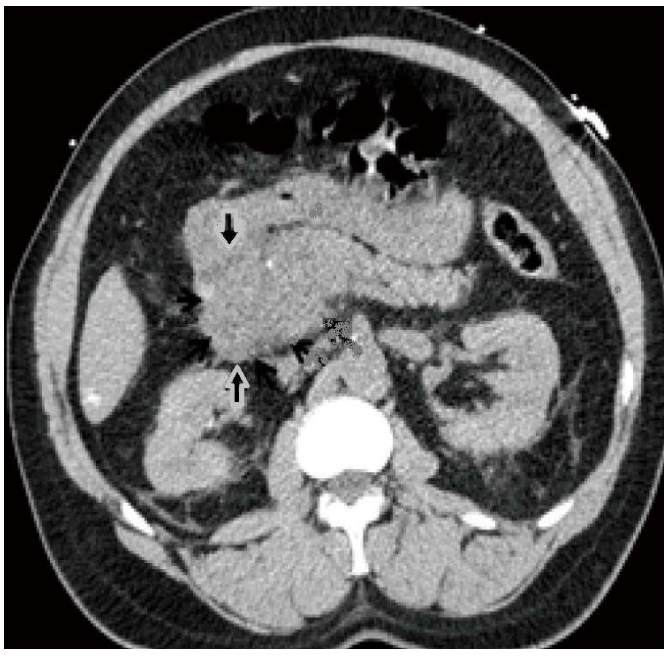

Fig. 3. Non-contrast CT scan shows enlargement of pancreatic head and adjacent fat stranding consistent with pancreatitis

Lipiodol is an oily contrast medium with several functions. It serves as a microvessel embolic agent, as a carrier of chemotherapeutic drugs, andalso increasesthe antitumor effects of TACE by efflux into the portal veins (Miyayama, 2007). The use of embolic agent's , results in temporary obstruction of an artery without causing any liver damage The most common embolic agents delivered in this act are, Gelatin Sponges, Polyvinyl Alcohol particles and Microspheres (Shin, 2009). Acute pancreatitis a rare ischemic vascularcomplication of TACE can occur with an incidence varying between 1.7 % for clinical acute pancreatic and 40 % for biological pancreatitis. The severity of pancreatitis can range between mild and severe necrotizing pancreatitis (Krishnamurthy, 2017). These complication can appear within 24 hours (Krishnamurthy, 2017), and up to 15 days post procedure (Ozçinar, 2009). Acute pancreatitis following TACE can have the same clinical presentation of the Post-embolization syndrome. This syndrome is the most common complication following this procedure with fever and abdominal pain manifestation (Clark, 2006). Other complications include liver abscesses, hepatic biloma, biliary strictures, cholecystitis (Clark, 2006), hepatic artery injury, pulmonary infarction and acute liver failure (Bae, 2012). Many mechanisms induce acute pancreatitis following TACE. Chemotherapy drugs used in the procedure can cause inflammation of the pancreas by their direct toxicity mainly the carboplatin toxicity (López-Benítez, 2007). Regurgitation of embolic particles from hepatic artery into an artery that irrigates the pancreas most commonly the gastro-duodenal artery lead to ischemic lesions and therefore to acute pancreatitis (Krishnamurthy, 2017).

The most common site of the ischemic lesions is the head of the pancreas. The body and the tail are less susceptible for ischemic injuries because reflux into the superior mesenteric artery is uncommon (López-Benítez, 2007). Risk factors for developing acute pancreatitis following TACE include the number of procedures (Bae, 2002), the quantity of particles injected and nonselective chemoembolisation (López-Benítez *et al*., 2007). Placing the tip of the catheter as much distally in the hepatic artery is helpful in reducing this complication and it is preferred to perform it from a lobar artery. Also it is advised to inject carefully the embolic particles to prevent regurgitation (Addario *et al*., 2008). The diagnosis of acute pancreatitis as complication of TACE is established based on abdominal pain associated with elevation of pancreaticenzymes and reported on CT scan (Krishnamurthy, 2017; Bae, 2012 and ThiloHackert, 2009). In case of presence and persistence of abdominal pain after TACE (Addario *et al*., 2008), monitoring of pancreatic enzymesis recommended to diagnose as soon as possible this complication and to differentiate it from other causes of acute pancreatitis (Komekado, 2005). The treatment of this complication is conservative similar to any acute pancreatitis from different origins (Green *et al*., 2015). In case of necrotizing pancreatitis antibiotics should be add and drainage should be considered (Bae, 2012). In our case,TACE was performed for an unresectable right hepatic tumor using combination of doxorubicin with lipiodol followed by Gelatin Sponge for embolization complicated after few hours by mild edematous pancreatitis. This complication was treated conservatively.

Conclusion

Acute pancreatitis is uncommon and rare complication of TACE.

Ischemia caused by regurgitation of embolic materials into the vessels supplying the pancreas. The knowledge of this complication must lead to a systematic monitoring of serum pancreatic enzymes in cases of abdominal pain after chemoembolization. Ct scan is indicated to identify the degree of necrosis, and the treatment is similar to any pancreatitis independent from the etiology.

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