

Endovascular treatment in HCC with an extrahepatic collateral artery

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Section: Interventional radiology

Area of Interest: Liver

Procedure: Chemoembolisation

Procedure: Embolisation

Imaging Technique: CT

Imaging Technique: Catheter arteriography

Special Focus: Hyperplasia / Hypertrophy

Haemodynamics / Flow dynamics Cirrhosis Case Type: Clinical Cases

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Patient: 69 years, male

Clinical History:

A 69-year-old male patient presented with a history of an intra-arterially treated focal liver lesion.

Imaging Findings:

CT images revealed a large focal liver lesion with areas of necrosis, the residual component of the lesion was seen more along the subdiaphragmatic region of the liver. The lesion showed an aberrant supply from a hypertrophied right internal mammary artery. Liver function test, coagulation and serology profile were normal.

Patient was prepared for transarterial chemoembolisation (TACE) using drug eluting beads (DEB). A right femoral artery access was achieved and the right internal mammary artery was selectively cannulated using a 5F RIM catheter. DC beads (with 50mg Doxorubicin) were injected via a microcatheter. Tumour feeders from right hepatic artery were also embolised after selective cannulation.

Discussion:

Hepatocellular carcinoma (HCC) is the most common primary epithelial tumour of the liver. It is mainly composed of cells which are similar to normal hepatocytes. It is the fifth most common malignancy with cirrhosis being the most important risk factor. The prognosis of the condition largely depends on the stage of detection of the disease.

Transarterial chemoembolisation is widely used to manage unresectable HCC. Large HCC near the liver capsule or lesions with the exophytic component are prone to receiving extrahepatic arterial supply. Extrahepatic collateral supply is seen anywhere between 17-24% of cases with HCC [1-2]. The most common extrahepatic supply arises from omental branches and inferior phrenic artery. Less common supply originates from the superior mesenteric artery, gastroduodenal artery, internal mammary artery, intercostal artery, and renal artery.

Internal mammary artery (IMA) supplies the anterior portion of the diaphragm and divides into the musculophrenic artery and the superior epigastric artery at the 6th intercostal space. Aberrant supply from IMA is seen when the lesions arise from segment 2, 3, 4 and 8 of the liver. These feeding vessels can be best assessed in coronal reconstruction. Complication of TACE performed via IMA includes erythema, anterior chest wall pain, basal collapse and pleural effusion. Rarely skin necrosis has been reported [3].

A complete evaluation of tumour feeders has to be made especially before performing TACE. A high incidence of

extrahepatic supply can exist based on the location of the tumour.

Written informed patient consent for publication has been obtained.

Differential Diagnosis List: Hepatocellular carcinoma with extrahepatic supply from Rrght internal mammary artery., Mesothelioma, Haemangioma

Final Diagnosis: Hepatocellular carcinoma with extrahepatic supply from Rrght internal mammary artery.

References:

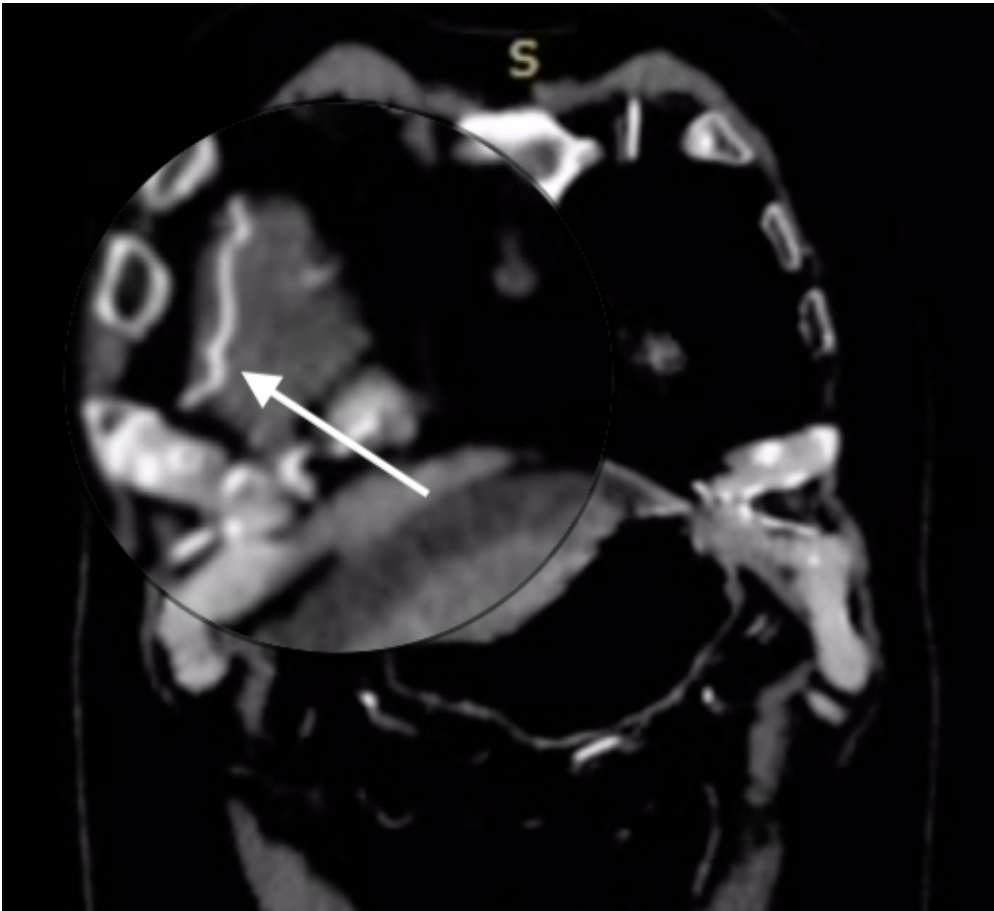
Llovet JM (2005) Updated treatment approach to hepatocellular carcinoma. J Gastroenterol 40(3):225–235 (PMID: [15830281](#))

Lau WY, Yu SC, Lai EC, Leung TW (2006) Transarterial chemoembolization for hepatocellular carcinoma. J Am Coll Surg 202(1):155–168 (PMID: [16377509](#))

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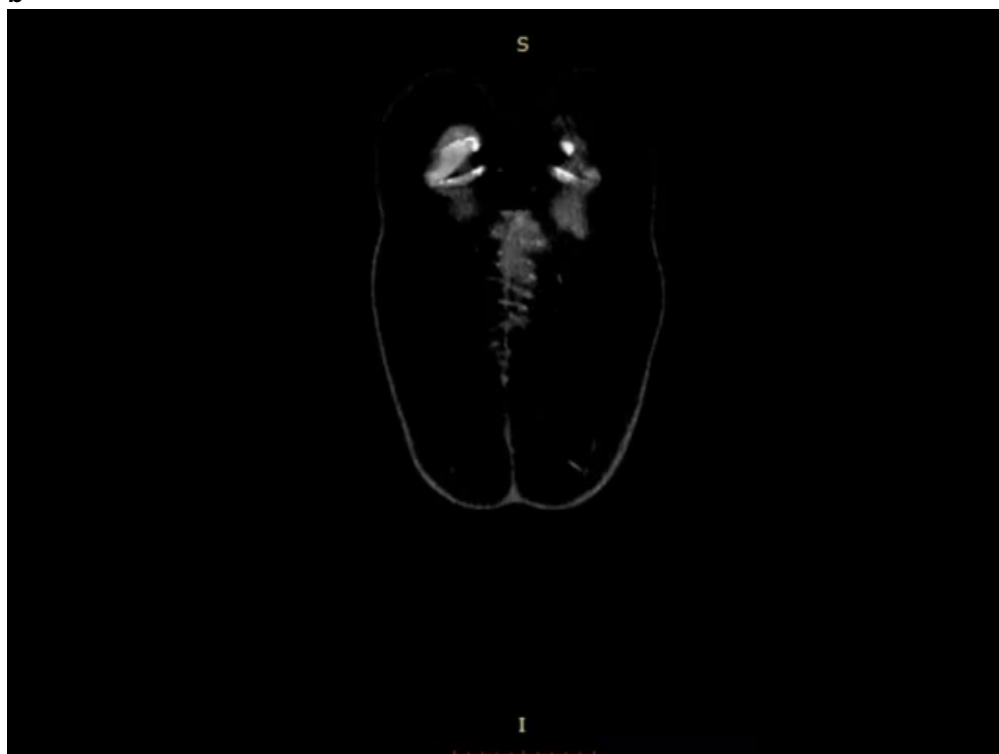
Figure 1

a



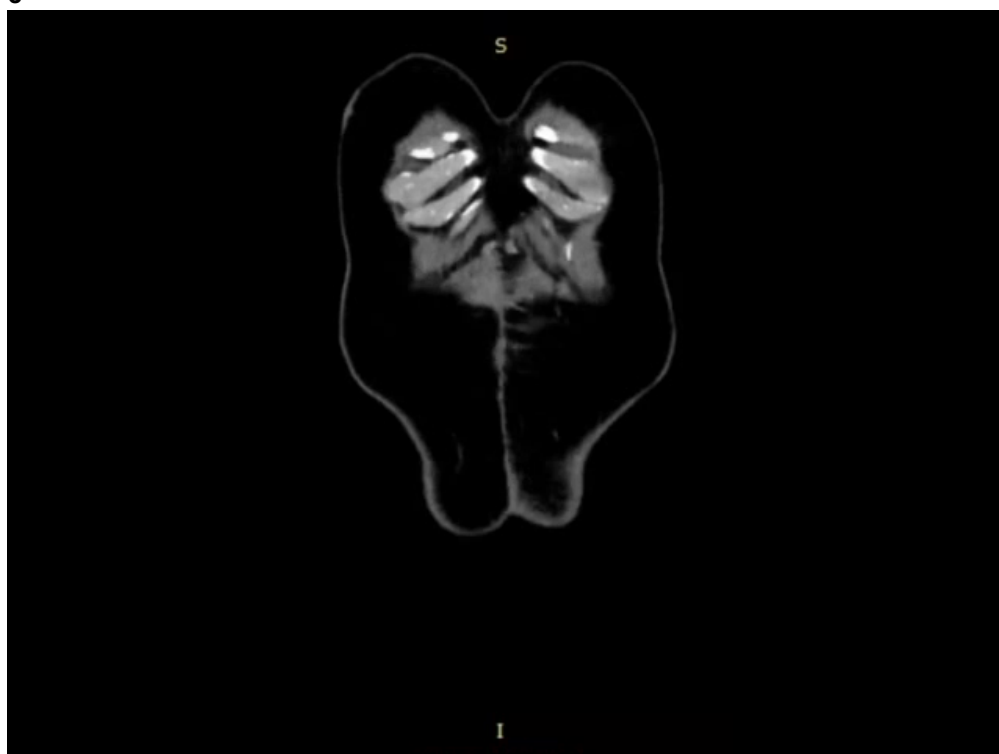
Description: Magnified tumour feeder vessel arising from the right internal mammary artery. **Origin:** BGS Gleneagles Global Hospital

b



Description: Arterial phase coronal MPR cine showing hypertrophied right internal mammary artery with tumour feeding vessels. **Origin:** BGS Gleneagles Global Hospital

c



Description: Venous phase coronal MPR cine showing wash-out in corresponding arterial enhanced region. **Origin:** BGS Gleneagles Global Hospital

Figure 2

a



Description: Right internal mammary artery run-off. **Origin:** BGS Gleneagles Global Hospital

b



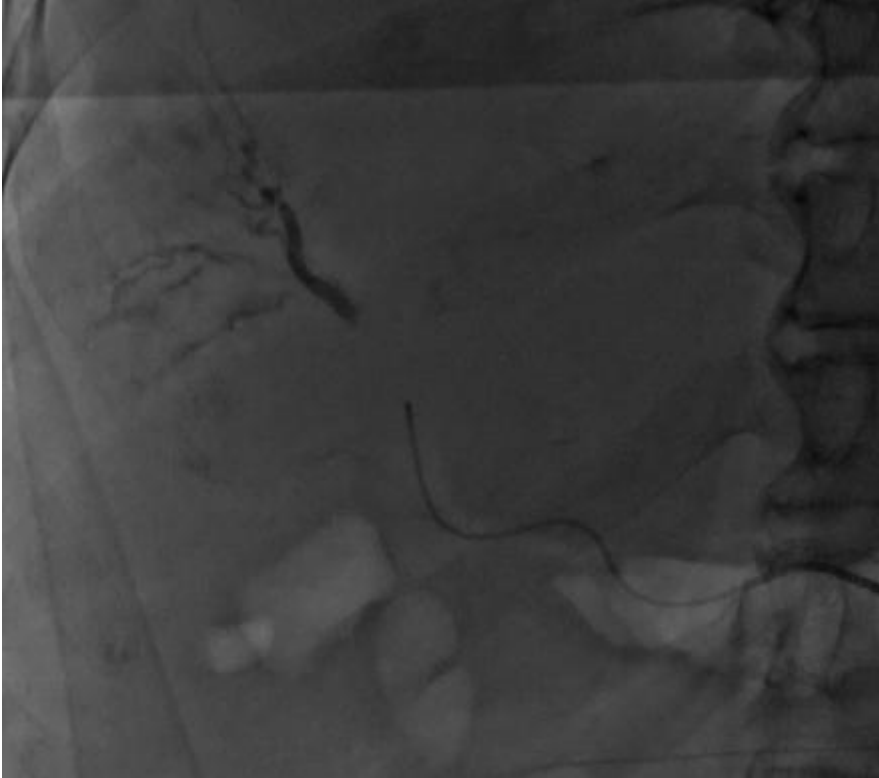
Description: Distal portion of right internal mammary artery with tumour feeder. **Origin:** BGS
Gleneagles Global Hospital



Description: Post-drug eluting bead chemoembolisation angiography. **Origin:** BGS Gleneagles Global Hospital

Figure 3

a



Description: Selective right hepatic artery angiography. **Origin:** BGS Gleneagles Global Hospital

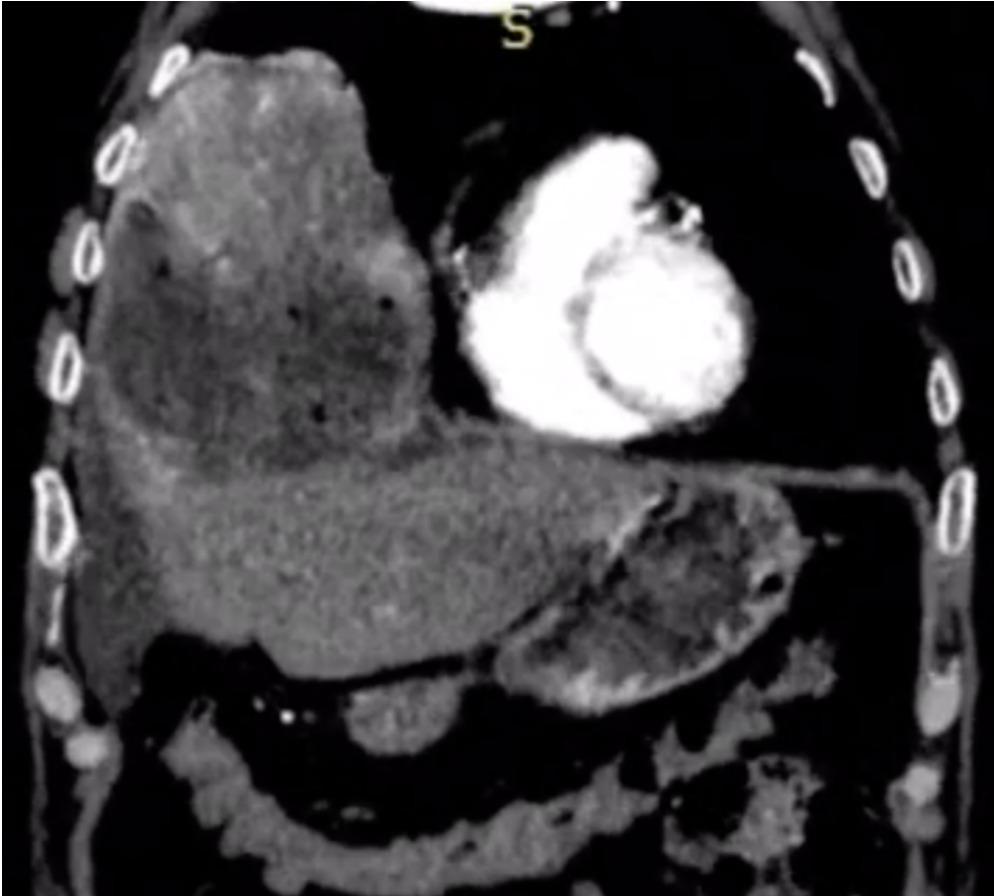
b



Description: Post embolisation run. **Origin:** BGS Gleneagles Global Hospital

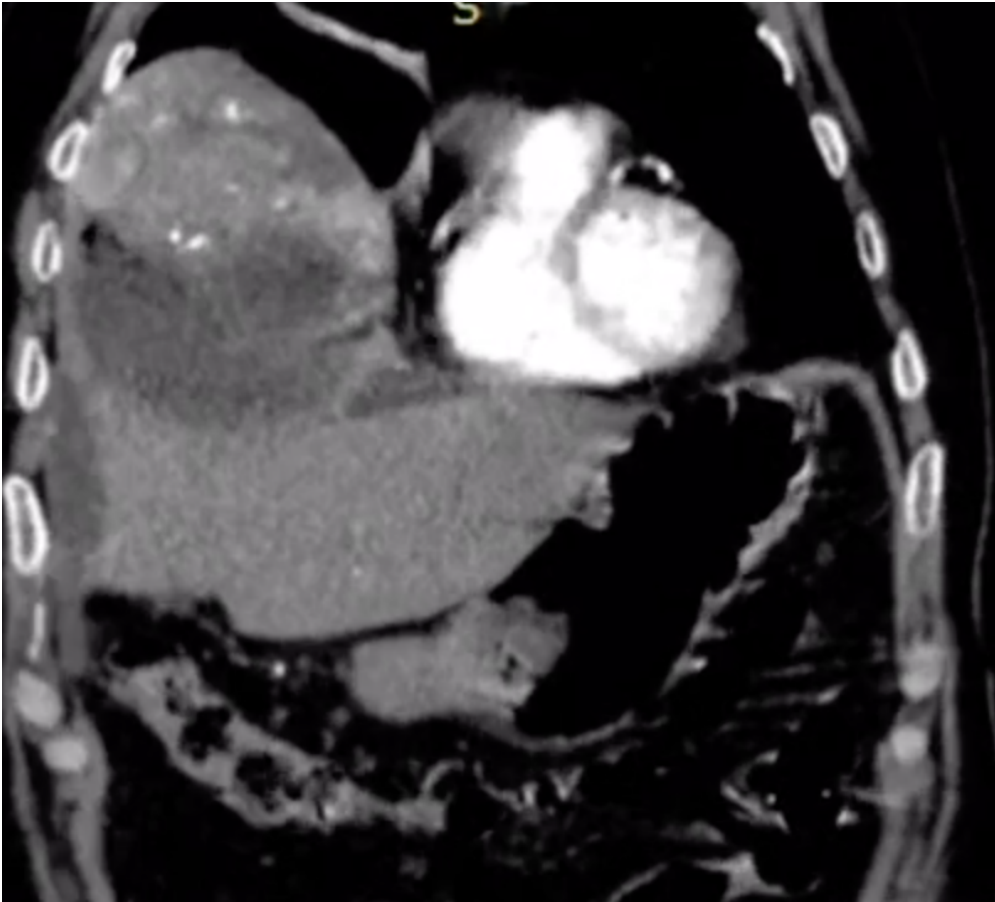
Figure 4

a



Description: Coronal MPR demonstrating residual component in sub-diaphragmatic surface in arterial run. **Origin:** BGS Gleneagles Global Hospital

b



Description: Coronal MPR demonstrating residual component in sub-diaphragmatic surface in portal run. **Origin:** BGS Gleneagles Global Hospital