

Hepatic Artery Chemoembolization for Management of Patient with Advanced Metastatic Carcinoid Tumor: A Case Report

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Liver metastases from carcinoid tumors are usually diffuse at the time of diagnosis, and surgical resection is rarely feasible. The development and clinical application of an analog of somatostatin has provided a novel and frequently highly effective tool for control of carcinoid tumors; most patients however, become resistant to this therapy. Arterial hypervascularization of most liver metastases from carcinoid tumor argues in favor of hepatic arterial chemoembolization. We report here a patient with carcinoid tumor with liver metastasis who has substantial tumor regression with hepatic artery chemoembolization

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Introduction

The management of advanced carcinoid tumors is often challenging. Liver metastases are usually diffuse at the time of diagnosis, and surgical resection is rarely feasible. The development and clinical application of an

analog of somatostatin (octreotide; Sandostatin, Sandoz Pharmaceuticals, East Hanover, New Jersey) has provided a novel and frequently highly effective tool for control of carcinoid tumors. Striking decreases in hormonal levels and substantial or complete relief from symptoms can be achieved in approximately 80% of patients.¹ Most patients become resistant to this therapy; for patients with carcinoid tumor, the median interval is about 1 year. Aggressive approaches may be justified when the patient develops disabling symptoms because tumor debulking or correction of mechanical problems may sometimes provide the patient with additional years of comfortable life. Objective response rates with systemic chemotherapy are disappointing. Arterial hypervascularization of most liver metastases from carcinoid tumor argues in favor of hepatic arterial chemoembolization (HACE). It is assumed that embolization-induced ischemia sensitizes tumor cells to cytotoxic drugs, whose tumor concentrations are increased by the blood flow slowing down. The aims of HACE are to control otherwise untractable hormone-related symptoms, to inhibit tumor growth and to improve patient survival. We report here a patient with carcinoid tumor with liver metastasis, in whom, following hepatic artery

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chemoembolization, substantial tumor regression was seen.

Case report

In 1996, a 38 year-old Saudi female presented at the age of 30 years, with a lung mass. She underwent right upper lobectomy. Histopathology of the lung mass tissue was not available. Five years later, she developed diabetes mellitus and systemic hypertension; she had a buffalo hump appearance and abdominal striae. A diagnosis of Cushing's syndrome secondary to ectopic adrenocorticotropin hormone (ACTH) diagnosis was confirmed with biochemical and hormonal evaluation. A non-enhanced computed tomography (CT) scan of the abdomen showed innumerable hypodense lesions scattered throughout both lobes of the liver. These measured upto 5 cm in greatest dimension, accounting for 40 % of the liver volume (Fig. 1). She was treated with monthly intramuscu-

lar injections of the analog of somatostatin 40 mg. Ketoconazole 200 mg three times daily was added to control her hypercortisolism. Selective catheterization of the left hepatic artery was performed and injection of 70 cc of Doxorubicin mixed with 10 cc of lipiodol. Post-chemoembolization hepatic angiography showed near complete occlusion of the left hepatic artery (Fig. 2, A and B). A non-enhanced CT scan of the abdomen, post-chemoembolization, showed the low density lesion in the liver had almost disappeared (Fig. 3). Her cortisol levels prior and after the chemoembolization are illustrated in table 1. Post chemoembolization was complicated with febrile neutropenia requiring admission on day 17 for intravenous antibiotic and Granulocytes Colony Stimulating Factor administrations and raised alanine transaminase (to triple the normal values) on day 2 which resolved without any sequel.

Table 1. Serum cortisol and 24 hours urine free cortisol levels prior and after the the left hepatic artery chemoembolization

Time	A.M. serum cortisol (nmol/L)	24 hours urine free cortisol(nmol)
3 months prior	316.9	100
One week prior	252.3	377
2 months post	185	192.9

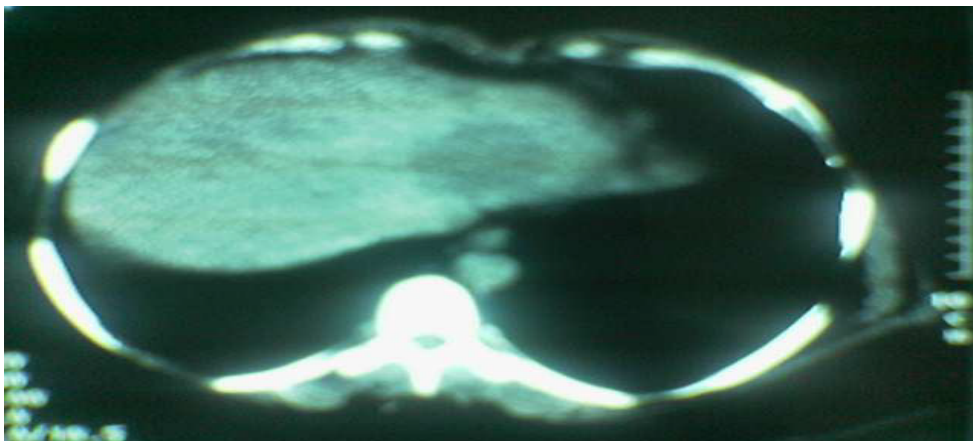


Fig. 1. A non enhanced CT scan of the abdomen showed innumerable hypodense lesions scattered throughout both lobes of the liver account for 40 % of the liver volume. These measures upto 5 cm in greatest dimension

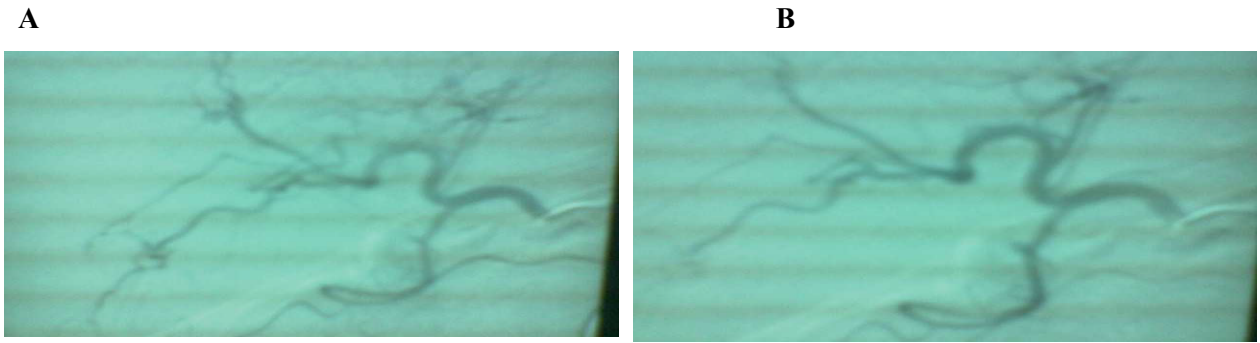


Fig. 2. Selective catheterization of the left hepatic artery. Pre- (A) and Post- (B) chemoembolization hepatic angiography showed near complete occlusion of the left hepatic artery

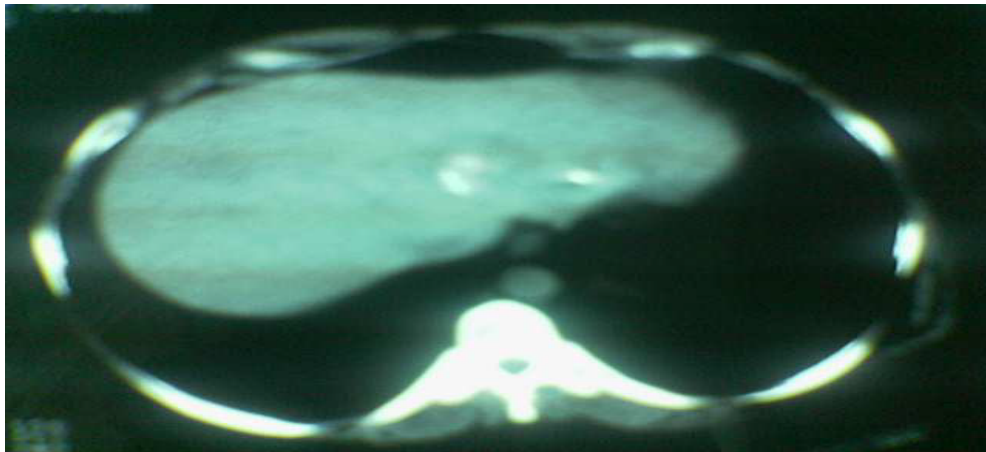


Fig. 3. A non enhanced CT scan of the abdomen postchemoembolization showed the low density lesion in the liver is almost disappeared

Discussion

Carcinoid tumors comprise approximately 55% of all gastrointestinal endocrine tumors. The overall incidence is only 1.5 cases per 100,000 of the general population.^{2,3} The median survival for patients with carcinoid syndrome is 38 months. Long-term survival depends on the control of tumor growth and suppression of the amine-induced symptoms. Although few patients are amenable to complete resection of their hepatic metastases, studies suggest that debulking hepatic metastases may palliate systemic symptoms^{4,5} Palliation is often brief and frequently associated with substantial morbidity.⁶ Hepatic artery

embolization is another alternative that avoids the morbidity associated with a major operation.⁷ Ischemic treatment of hepatic metastases is successful principally because these lesions derive their blood supply from the hepatic artery.⁸ There are several reports of successful palliation of the carcinoid syndrome by selective hepatic artery embolization.⁹ Despite providing significant symptomatic improvement, hepatic artery embolization of hepatic carcinoid metastases may not result in a significant long-term survival benefit.¹⁰ Saying that, clarification of such issues need long term follow up with large number of patients. In our case there was a

decrease in the level of serum and urine free cortisol collections. Our report shows that symptomatic patients with carcinoid tumor and advanced hepatic metastases have substantial tumor regressions with hepatic artery chemoembolization. Considering the side effects, risk to life, necessity for hospitalizations, this report and previous data would not

justify hepatic artery occlusion alone as standard therapy.^{11,12,13} A randomized, prospective, double-blind trial seems warranted.

In conclusion, HACE seems to be an attractive alternative treatment for diffuse and progressive metastases confined to the liver in patients with carcinoid tumor.

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