patients with metastatic carcinoid [3]. It is thus argued that imaging of the brain is justified only when the patient develops symptoms from the CNS, and that even in these cases roentgenography alone may be adequate [3]. Median survival after diagnosis of brain metastases ranges from 4 to 16 months [3]. There is no established staging system and preoperative work up may include chest and abdominal CT scan, somatostatin-receptor scintigraphy, and determination of serum chromogranin-A levels [4]. Surgery is an accepted approach in case of bowel obstruction and for the management of metastatic disease in the liver manifested with carcinoid syndrome [2,5]. The case we presented herein is distinct, given the primary site, the development of brain metastases in a very short period and the unusually rapid disease progression. To our knowledge this is the first case in the literature of extra-appendicular colonic carcinoid with brain metastases.

References

1. Modlin IM, Lye KD, Kidd M. A 5-decade analysis of 13,715 carcinoid tumors. Cancer 2003; 97: 934-959.
2. Ghevariya V, Malieckal A, Ghevariya N et al. Carcinoid tumors of the gastrointestinal tract. South Med J 2009; 102: 1032-1040.
3. Hlatky R, Suki D, Sawaya R. Carcinoid metastasis to the brain. Cancer 2004; 101: 2605-2613.
4. Northrop JA, Lee JH. Large bowel carcinoid tumors. Curr Opin Gastroenterol 2007; 23: 74-78.
5. Mayo SC, de Jong MC, Pulitano C et al. Surgical management of hepatic neuroendocrine tumor metastasis: Results from an International Multi-Institutional Analysis. Ann Surg Oncol 2010; 17: 3129-3136.

I. Papaconstantinou[1], P.M. Lykoudis[1], J.C. Contis[2], G.S. Limouris[2], D.T. Trafalis[3]

[1]2nd Department of Surgery and [2]Department of Nuclear Medicine, Aretaieion University Hospital, University of Athens, Athens; [3]Department of Pharmacology, Medical School, University of Athens, Athens, Greece

Correspondence to: Panagis M. Lykoudis, MD, MSc, DIC.
E-mail: panagis.lykoudis08@imperial.ac.uk

A large fibrolamellar hepatocellular carcinoma in a 17-year-old male body builder

Dear Editor,

A 17-year-old boy presented to our emergency department complaining of abdominal distension and bloating after meals for the last two months. Physical examination revealed a palpable liver edge. The patient had no known history of hepatitis, blood transfusion or foreign travel, but reported use of anabolic steroids for body building and weight lifting since the age of 14. The exact dosage of these medicaments was not known. Laboratory tests were: hemoglobin 13.4 g/dL (13-18), white blood cell count 7,700/mL (4,000-10,000), platelet count 536,000/mL (150,000-400,000), INR 1.08 (0.8-1.2), aspartate aminotransferase 98 U/L, alanine aminotransferase 112 U/L, alkaline phosphatase 160 U/L (55-140), γ-glutamyl transferase 37 U/L (7-40). The serum level of AFP was 25 ng/mL (<10). Tests for hepatitis B surface antigen and anti-HCV antibodies were negative. An abdominal ultrasound revealed a large mass in the right hepatic lobe. An abdominal CT scan confirmed a very large mass of the right liver lobe, well-defined and lobulated, measuring 14 cm in maximum diameter. Differential diagnosis included fibrolamellar hepatocellular carcinoma (FLHCC), focal nodular hyperplasia (FNH), and hepatocellular carcinoma (HCC). An abdominal MRI that followed didn't solve the diagnostic problem and surgical exploration was decided. Right hepatectomy was performed and the pathological report was: right hepatectomy containing a neoplasm of 14 cm in maximum diameter, consistent with FLHCC; surgical margins were free of disease. The patient was discharged on the 7th postoperative day and remains free of disease for 5 years as indicated by serial abdominal ultrasound.

FLHCC is an uncommon tumor affecting mostly adolescents and young adults on the second and third decade of life, lacking underlying liver disease in contrast with HCC [1]. The use of anabolic steroids in the development of hepatic neoplasms is controversial, although various studies point out to an increased cancer risk [2]. Also animal studies over the use of anabolic steroids suggest reduced lifespan due to development of tumors in the liver and kidney [3]. Clinical symptoms and findings, if any, are non specific for the disease. Serum AFP levels are usually not elevated, but elevations in vitamin B12 binding capacity have been reported [4]. Tomographic imaging modalities usually reveal a solitary, hypervascular, heterogeneous mass that demonstrates well-defined, lobulated margins and lacks large areas of necrosis and hemorrhage that are typical of conventional HCC. Differential diagnoses for the imaging appearance of FLHCC include FNH, a large cavernous hemangioma, and HCC, because of the presence of a central scar most of the times [5]. The treatment of choice when possible is complete surgical resection; chemotherapy and radiotherapy are not effective. The median 5-year survival rate for patients with resectable FLHCC is 76%, which is much better compared with HCC patients. However, late metastasis and local recurrence have been reported [4,5].

References

1. Torbenson M. Review of the clinicopathologic features of fibrolamellar carcinoma. Anat Pathol 2007; 14: 217-223.
2. Tentori L, Graziani G. Doping with growth hormone/IGF-1, anabolic steroids or erythropoietin: is there a cancer risk? Pharmacol Res 2007; 55: 359-369.
3. Bronson FH, Matherne CM. Exposure to anabolic-androgenic steroids shortens life span of male mice. Med Sci Sports Exerc 1997; 29: 615-619.
4. Stipa F, Sam S, Yoon MD, Kui Hin Liau, Yuman Fong. Outcome of patients with fibrolamellar hepatocellular carcinoma. Cancer 2006; 106: 1331-1338.
5. Ichikawa T, Federle MP, Grazioli L, Madariaga J, Nalesnik M, Marsh W. Fibrolamellar hepatocellular carcinoma: imaging and pathological findings in 31 recent cases. Radiology 1999; 213: 352-361.

D. Dellaportas[1], P. Lykoudis[1], A. Tsagkas[2], D. Voros[1], A. Kondi-Pafiti[2]

[1]2nd Department of Surgery, [2]1st Department of Pathology, Aretaieion University Hospital, Athens, Greece

Correspondence to: Dionysios Dellaportas. E-mail: dellapdio@gmail.com