Case Report

Hepatic Metastasis from Adrenocortical Carcinoma Fifteen Years after Primary Resection

Mohammed Mawardi, Bandar Al-Judaibi, Paul Marotta

Division of Gastroenterology, The University of Western Ontario, London, ON, Canada

Address for correspondence:
Dr. B. Aljudaibi, Room E2-314, Victoria Hospital, London Health Sciences Centre, 800 Commissioners Road East, London, ON, Canada N6A 4GF.
E-mail: baljuda@uwo.ca

ABSTRACT

We report the case of a 73-year-old man who presented with an asymptomatic hepatic mass during investigation of mild chronic obstructive pulmonary disease by a plain chest radiograph, followed by ultrasonography, which revealed a solitary hepatic lesion measuring 7.1 cm × 6.5 cm × 5.8 cm in dimension. Fine- needle aspiration of the mass revealed malignant cells compatible with hepatocellular carcinoma. Interestingly, the patient had a left adrenalectomy and complete left nephrectomy in 1987, for a non-functioning left adrenocortical carcinoma (ACC). The ACC was diagnosed as stage two, with no evidence of local invasion or distant metastases. No adjuvant therapy was recommended postoperatively. After a five-year follow-up, there was no evidence of ACC recurrence and the patient was declared cured from his ACC. The patient underwent a complete segmental resection of the right lobe of the liver successfully. The final diagnosis of the mass was a well-differentiated metastatic adrenocortical carcinoma.

Key Words: Adrenocortical carcinoma, chronic obstructive pulmonary disease, hepatocellular carcinoma

Received: 05.03.2011, Accepted: 24.06.2011
How to cite this article: Mawardi M, Al-Judaibi B, Marotta P. Hepatic metastasis from adrenocortical carcinoma fifteen years after primary resection. Saudi J Gastroenterol 2012;18:140-2.

Adrenocortical carcinoma (ACC) is a rare tumor with an annual incidence of one to two cases per one million population in the United States, with a heterogeneous presentation.[1] An exceptionally high annual incidence of ACC has been reported in children in southern Brazil.[2] Although ACC can develop at any age, there is a bimodal age distribution, with the disease peaking before the age of five years, and the second peak in the fourth to fifth decade of life.[1] Adrenocortical tumors are classified as either functional or nonfunctional. Adults with hormone-secreting tumors usually present with Cushing's syndrome alone,[1] which is the most frequent presentation, or a mixed Cushing's and virilizing syndrome, with overproduction of glucocorticoids and androgens.[3,4] Feminization and hyperaldosteronism are much less common.[1] Women develop functional ACC more often than men, while men are more likely to develop nonfunctioning tumors.[5] The pathogenesis of ACC is still poorly understood.

Access this article online

Quick Response Code:

Website: www.saudijgastro.com

DOI: 10.4103/1319-3767.93821

Inactivating mutations at the 17p13 locus, including the TP53 tumor suppressor gene, and alterations of the 11p15 locus, leading to IGF-II overexpression is frequently observed. Nonfunctioning ACC usually presents with abdominal discomfort such as nausea, vomiting, and fullness, or symptoms of mass effect such as back pain. General well-being is often affected minimally in non-cortisol-producing ACC.[2] Common sites of metastases are the liver (47%), lungs (43%), lymph nodes and bone (25%).[1] We reported the first case of solitary liver metastatic ACC after 15 years of resection. An extensive literature research was performed.

CASE REPORT

A 73-year-old man presented with an asymptomatic hepatic mass during investigation of mild chronic obstructive pulmonary disease (COPD) by a plain chest radiograph, followed by ultrasonography, which revealed a solitary hepatic lesion measuring 7.1 cm×6.5 cm×5.8 cm in dimension. The lesion was situated in segments 6 and 7 of the right lobe of the liver, as seen by computed tomography (CT) scanning [Figure 1]. No other hepatic lesions or abdominal adenopathy, duct dilation or vascular thrombosis were noted. Fine-needle aspiration (FNA) of the mass revealed malignant cells compatible with hepatocellular carcinoma (HCC). Two experienced pathologists agreed on the diagnosis of HCC,

independently. The patient was asymptomatic apart from a mild obstructive airway disease. He had no risk factors for chronic liver disease or hepatocellular carcinoma. His liver enzymes and liver synthetic function tests were all normal.

During his preoperative evaluation for presumed HCC resection, an ultrasound-guided core liver biopsy of the unaffected liver revealed a normal hepatic histology. Interestingly, the patient had a left adrenalectomy and complete left nephrectomy, in 1987, for a non-functioning left ACC [Figures 2 and 3]. The patient was asymptomatic and the ACC was diagnosed by an abdominal CT, investigating a left upper quadrant mass found on routine physical examination by his family physician.

The ACC measured 20 cm in maximum diameter, and was deemed to be a stage two cancer with no evidence of local invasion or distant metastases. No adjuvant therapy was recommended postoperatively. After a five-year follow-up there was no evidence of ACC recurrence and the patient was declared cured from his ACC. Regarding the presumed HCC, the patient underwent a complete segmental resection of the right lobe of the liver successfully. The final diagnosis of the mass was a well-differentiated metastatic adrenocortical carcinoma.

DISCUSSION

Adrenocortical carcinoma is a very uncommon tumor. There is a bimodal age distribution of ACC, with disease peaks in the first and the fourth decades.[1] Non-functioning ACCs are more common in older adults and tend to progress more rapidly.[3,4] Surgical resection is possible in early-stage ACC (stage I or II), but is not curative for most, because of the presence of occult micro metastases, hence, there is a poor long-term survival (five-year survival is approximately 20%). Even with complete surgical removal of the original tumor, a great majority of patients have recurrences in the lungs, lymph nodes, bones, and less commonly in the liver after several months post resection.[1,6-9]

The current standard of treatment for early stage of ACC metastasis requires en bloc resection of the liver, inferior vena cava (IVC), kidney, spleen, and pancreas to avoid tumor spillage, and to achieve a margin-free resection that is a strong predictor of long-term survival.[10-13] The overall five-year survival rates are 38 and 50% in the curative group.[12,13] There is also evidence of prolonged survival in patients with recurrence or metastasis who have a repeat resection of local recurrence and distant metastasis.[5,14,15] Patients who undergo complete second resection have a better survival compared to patients with incomplete second resection (median survival; 74 months *vs.* 16 months), and due to that reason, it is recommended that patients with recurrent or metastatic disease should undergo re-operation if they have potentially resectable disease and can withstand an operation.[15] Berruti *et al.*, reported that surgical resection of residual disease, subsequent to etoposide, doxorubicin, and cisplatin (EDP), plus mitotane chemotherapy, for

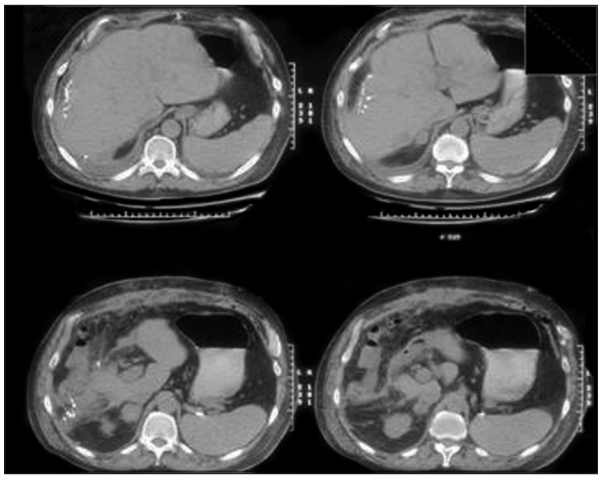

Figure 1: CT abdomen, revealing large soliraty liver lesion

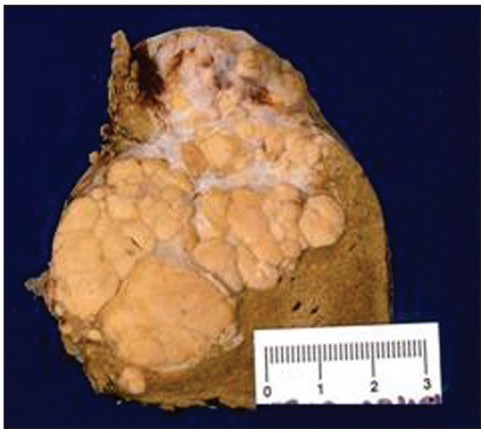

Figure 2: Gross pathology for the ACC

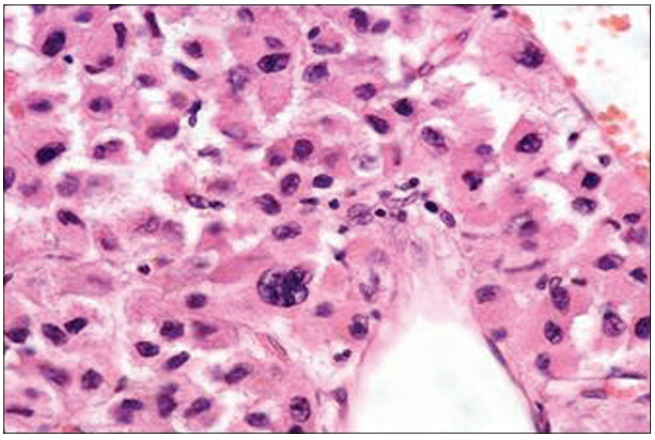

Figure 3: High power imaging of the ACC tumor

patients who were not amenable to radical surgery, led to a more favorable outcome.[16]

This case illustrates the potential for prolonged survival following aggressive resection of a large ACC. Our patient had both adrenalectomy as well as nephrectomy despite negative evidence of local invasion on both imaging and histology. After an extensive literature review, there are no previous reports of solitary liver metastatic ACC occurring so late (more than 15 years) after treatment of the primary ACC.

This case also illustrates the poor sensitivity and specificity of fine needle aspiration (FNA) for accurate histological diagnosis of the liver lesions, as the cells may resemble HCC. The diagnosis of HCC is accomplished with contrast-enhanced computed tomography, contrast-enhanced magnetic resonance imaging (MRI) or contrast-enhanced ultrasound. According to the American Association for the Study of Liver Diseases (AASLD) guidelines,[17] typical findings on a single study (early arterial enhancement with rapid venous washout) can establish the diagnosis of HCC, for lesions larger than 1 cm in size. A biopsy might be required if the imaging is discordant and the lesion is larger than 1 cm.[17]

It is important to recognize that a biopsy carries an approximately 2% risk of tumor seeding, and the false-negative rate can be greater than 10% for small lesions. This AASLD diagnostic approach has recently been validated with low sensitivity (33%), but very high specificity (100%), for the diagnosis of HCC.[18] On account of that, a core liver biopsy is not the current standard of care for diagnosis of HCC, unless indicated.

REFERENCES

1. Cuesta MA, Bonjer HJ, van Mourik JC. Endoscopic adrenalectomy: The adrenals under the scope? Clin Endocrinol (Oxf) 1996;44:349-51.
2. Allolio B, Fassnacht M. Clinical review: Adrenocortical carcinoma: Clinical update. J Clin Endocrinol Metab 2006;91:2027-37.
3. Bertagna C, Orth DN. Clinical and laboratory findings and results of therapy in 58 patients with adrenocortical tumors admitted to a single medical center (1951 to 1978). Am J Med 1981;71:855-75.
4. Linos DA, Stylopoulos N, Boukis M, Souvatzoglou A, Raptis S, Papadimitriou J. Anterior, posterior, or laparoscopic approach for the management of adrenal diseases? Am J Surg 1997;173:120-5.
5. Crucitti F, Bellantone R, Ferrante A, Boscherini M, Crucitti P. The Italian registry for adrenal cortical carcinoma: Analysis of a multi-institutional series of 129 patients. The ACC Italian Registry Study Group. Surgery 1996;119:161-70.
6. Hansen P, Bax T, Swanstrom L. Laparoscopic adrenalectomy: History, indications, and current techniques for a minimally invasive approach to adrenal pathology. Endoscopy 1997;29:309-14.
7. Gill IS. The case for laparoscopic adrenalectomy. J Urol 2001;166:429-36.
8. Valimaki M, Pelkonen R, Porkka L, Sivula A, Kahri A. Long-term results of adrenal surgery in patients with Cushing's syndrome due to adrenocortical adenoma. Clin Endocrinol (Oxf) 1984;20:229-36.
9. Hough AJ, Hollifield JW, Page DL, Hartmann WH. Prognostic factors in adrenal cortical tumors. A mathematical analysis of clinical and morphologic data. Am J Clin Pathol 1979;72:390-9.
10. Khorram-Manesh A, Ahlman H, Jansson S, Wängberg B, Nilsson O, Jakobsson CE, *et al*. Adrenocortical carcinoma: Surgery and mitotane for treatment and steroid profiles for follow-up. World J Surg 1998;22: 605-11; discussion 611-2.
11. Kendrick ML, Lloyd R, Erickson L, Farley DR, Grant CS, Thompson GB, *et al*. Adrenocortical carcinoma: Surgical progress or status quo? Arch Surg 2001;136:543-9.
12. Icard P, Goudet P, Charpenay C, Andreassian B, Carnaille B, Chapuis Y, *et al*. Adrenocortical carcinomas: Surgical trends and results of a 253-patient series from the French Association of Endocrine Surgeons study group. World J Surg 2001;25:891-7.
13. Ohwada S, Izumi M, Kawate S, Hamada K, Toya H, Togo N, *et al*. Surgical outcome of stage III and IV adrenocortical carcinoma. Jpn J Clin Oncol 2007;37:108-13.
14. Luton JP, Cerdas S, Billaud L, Thomas G, Guilhaume B, Bertagna X, *et al*. Clinical features of adrenocortical carcinoma, prognostic factors, and the effect of mitotane therapy. N Engl J Med 1990;322:1195-201.
15. Vassilopoulou-Sellin R, Schultz PN. Adrenocortical carcinoma. Clinical outcome at the end of the 20th century. Cancer 2001;92:1113-21.
16. Berruti A, Terzolo M, Sperone P, Pia A, Casa SD, Gross DJ, *et al*. Etoposide, doxorubicin and cisplatin plus mitotane in the treatment of advanced adrenocortical carcinoma: A large prospective phase II trial. Endocr Relat Cancer 2005;12:657-66.
17. Bruix J, Sherman M. Management of hepatocellular carcinoma. Hepatology 2005;42:1208-36.
18. Forner A, Vilana R, Ayuso C, Bianchi L, Solé M, Ayuso JR, *et al*. Diagnosis of hepatic nodules 20 mm or smaller in cirrhosis: Prospective validation of the noninvasive diagnostic criteria for hepatocellular carcinoma. Hepatology 2008;47:97-104.

Source of Support: Nil, **Conflict of Interest:** None declared.