Cutaneous metastasis in a patient with adrenocortical carcinoma

Veena Gupta, MD
Promil Jain, MD
Deepti Gupta, MD
Gopal Gupta, MD
Rajeev Sen, MD

Department of Pathology, Pt BDS PGIMS, Rohtak, Haryana, India

Corresponding Author:
Promil Jain, MD
Department of Pathology, Pt BDS PGIMS, Rohtak, 157, L-1, Model town, Rohtak, Haryana-124001, India
Email: jainpromil@gmail.com

Conflict of interest: None to declare

Received: 31 August 2011
Accepted: 25 October 2011

Adrenocortical carcinoma is an uncommon and aggressive malignancy. Despite a high frequency of metastasis, cutaneous metastasis of adrenocortical carcinoma is rare with only isolated case reports. Its diagnosis can be challenging based solely on histopathological findings. Yet, the clinical history in combination with an immunohistochemical panel consisting of inhibin, vimentin, chromogranin, synaptophysin, melan- A, neuron specific enolase and calretinin, can be useful in differentiating it from other tumours with similar morphology. We report a case of a 52-year-old female who presented with subcutaneous nodules on her abdominal wall which, on histopathology, proved to be metastasis from adrenocortical carcinoma diagnosed one and a half years ago.

Keywords: adrenocortical carcinoma, cutaneous metastasis, immunohistochemistry

Iran J Dermatol 2012; 15: 99-101

INTRODUCTION

The skin is a relatively uncommon site for metastasis from an internal malignancy with the reported incidence ranging from 0.7 to 10.4%. They may be found at any age but the greatest incidence is in the fifth to the seventh decades [1]. These metastatic tumour deposits with a known primary malignancy indicate a higher stage of malignant disease and adversely affect the prognosis [2]. As the cutaneous metastatic nodules can be suspected and detected earlier, as compared to metastases in other organs; the clinician and the pathologist should be aware of such unusual presentations. Histologically, the metastatic lesion may mimic the primary tumour or they may be so pleomorphic that immunohistochemical studies may be needed to confirm the diagnosis [3]. Herein, we report a case of a 52-year-old female who was a known case of adrenocortical carcinoma and presented with two nodular cutaneous masses on her abdominal wall, which proved to be metastatic deposits from Adrenocortical carcinoma (ACC) on biopsy.

CASE REPORT

A 52-year-old woman presented to surgery clinic with two subcutaneous swellings, each measuring 5 x 5 cm in size, on the right sided anterior abdominal wall, which was progressively increasing in size. She also had complaints of dyspnoea at rest and loss of appetite. She had been diagnosed with ACC 19 months ago and treated surgically with left adrenalectomy along with 6 cycles of etoposide and cisplatin. She developed recurrence after 8 months of the first surgery; therefore, an exploratory laparotomy was performed with left nephrectomy, splenectomy with the adjacent tail of pancreas, omentectomy with en-bloc resection of nodules at the para-aortic region and appendicectomy due to widespread metastasis. Then, she again presented with subcutaneous nodules. Excisional biopsy

specimens of the subcutaneous swellings were sent to us in the department of pathology without prior photography (therefore, the clinical picture was not available to us). Tissue samples were processed and stained with Haematoxylin and Eosin (Figure 1a). Immunohistochemistry (IHC) was performed on sections using antibodies to inhibin, vimentin, synaptophysin, epithelial membrane antigen (EMA) and CD 10. Histological examination of the nodules showed a tumour composed of highly pleomorphic cells arranged in groups and lobules separated by thin fibro-vascular stroma admixed with areas of necrosis. The cells were round to oval with vesicular nuclei, prominent nucleoli and moderate to abundant amounts of clear to eosinophilic cytoplasm. Tumour giant cells and atypical mitotic figures were also present. Malignant cells were immunoreactive for inhibin, vimentin and synaptophysin (Figure 1b, c) but were negative for EMA and CD 10. Regarding to these data, the diagnosis of metastatic cutaneous deposits from adrenocortical carcinoma was made.

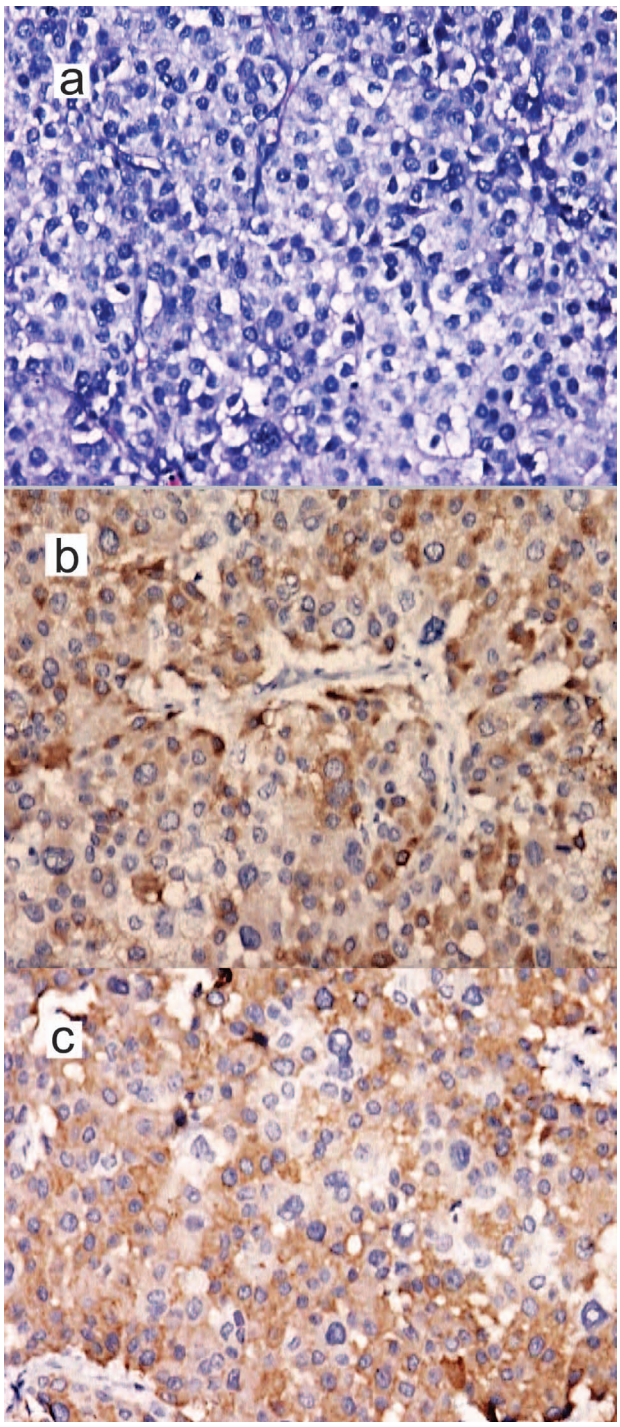

Figure 1. Adrenocortical carcinoma a) H&E stain 200×, b) Inhibin positive, c) Synaptophsin positive

DISCUSSION

Cutaneous metastases are relatively uncommon. Reported incidences range from 0.7 to 10.4% of visceral cancer cases [1]. In a study conducted by Chopra et al, only 14 out of a total of 712 patients with internal malignancies presented with cutaneous metastases, showing a prevalence rate of approximately 2% [2].

The various patterns of presentation of cutaneous metastasis include micropapules, plaques and lesions simulating scars but the most common is the development of a nodule or groups of nodules, which are usually less than 3 cm in size [4]. The histomorphological features of the primary tumour are often reflected in cutaneous metastatic deposits and an attempt to suggest the possible primary site on the skin biopsy helps the clinician in narrowing down the primary tumour possibilities and in initiating relevant investigations concerning the patient's management at the earliest [5]. In our case, the clinical history of the patient with a typical immunohistochemical pattern helped us to make the correct final diagnosis.

Adrenocortical carcinoma is rare aggressive malignancy with an estimated incidence of 0.5 to 2 cases per million persons yearly [6]. There is a bimodal age distribution with peaks in the first and the fourth to fifth decades [7,8]. Patients often have metastatic disease at initial presentation, with the most common sites being the liver, local lymph nodes, lungs, peritoneum and bone. Despite a high frequency of metastases, there are only

isolated reports of ACC that have metastasized to the skin [9]. Hogan et al, reviewed every patient with ACC during a period of ten years. Sixty seven percent of the patients had metastasis at the time of diagnosis and sites of metastases included the lung (73%), liver (47%), lymph node metastasis (40%), bone (33%), skin (27%) and brain (13%) [10].

The prognosis of ACC is poor with an overall-year survival rate of 15-47% [11]. When metastatic disease is present at initial presentation, death usually occurs within one year [12]. Surgical resection is the treatment of choice and the only potential cure for ACC. The recurrence rate after complete resection is 35-85% and even after recurrence, surgical intervention still provides better survival. Mitotane, an androlytic agent, is the only drug that has proven effective in treating patients with metastatic adrenocortical carcinoma [11].

Skin is a rare site of metastatic disease in patients with adrenocortical carcinoma. For both the clinician and the pathologist, it is of paramount importance to recognize that the tumour is in fact a secondary deposit and not an unusual primary neoplasm. When the tumour first presents in the skin, it is sometimes very difficult to determine the origin or the primary site of the tumour. Therefore, the use of ancillary techniques, particularly IHC, gives us some useful pointers in the right direction. Thus, IHC can play an important role in the assessment of metastasis associated with known or unknown primary.

REFERENCES

1. Lookingbill DP, Spangler N, Helm KF. Cutaneous metastasis in patients with metastatic carcinoma: a retrospective study of 4020 patients. J Am Acad Dermatol 1993;29:228-36.
2. Chopra R, Chhabra S, Samra SG, et al. Cutaneous metastases of internal malignancies: a clinicopathologic study. Indian J Dermatol Venereol Leprol 2010;76:125-31.
3. DeYoung BR, Wick MR. Immunohistologic evaluation of metastatic carcinomas of unknown origin: an algorithmic approach. Semin Diagn Pathol 2000;17:184-93.
4. Brownstein MH, Helwig EB. Metastatic tumours of the skin. Cancer 1972;29:1298-307.
5. Sariya D, Ruth K, Adams-McDonnell R, et al. Clinicopathologic correlation of cutaneous metastases: experience from a cancer center. Arch Dermatol 2007;143:613-20.
6. Kopf D, Goretzki PE, Lehnert H. Clinical management of malignant tumours. J Cancer Res Clin Oncol 2001;127:143-55.
7. Wooten MD, King DK. Adrenal cortical carcinoma. epidemiology and treatment with mitotane and a review of the literature. Cancer 1993;72: 3145-55.
8. Stratakis CA, Chrousos GP. Adrenal cancer. Endocrinol Metab Clin North Am 2000; 29:15-25, vii-viii.
9. Rosai J. Adrenal gland and other paraganglia. In: Rosai J, editor. Rosai and Ackerman's Surgical Pathology. 9th ed. Missouri: Mosby; 2004: 1115-62.
10. Hogan TF, Gilchrist KW, Westring DW, Citrin DL. A clinical and pathological study of adrenocortical catcinoma. Cancer 1980;45: 2880-3.
11. Ng L, Libertino JM. Adrenocortical carcinoma: Diagnosis, evaluation and treatment. J Urol 2003;169: 5-11.
12. Wajchenberg BL, Albergaria Pereira MA, Medonca BB, et al. Adrecortical carcinoma: Clinical and laboratory observations. Cancer 2000; 88: 711-39.