RENAL CELL CARCINOMA METASTASIZING TO PAROTID GLAND

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Date Received:
April 27, 2014
Date Accepted:
June 29, 2014

ABSTRACT

Renal cell carcinoma (RCC) has diverse behaviour. At the time of diagnosis, many patients are found to have metastases. Bones, lungs, liver and brain are the frequent homing sites of metastases. Parotid gland metastasis is the rarest manifestation of RCC. Here-in we report a case of a 70 year old Saudi male who underwent radical left nephrectomy in February 1997 for renal cell carcinoma (RCC) pT2N0M0. After remaining asymptomatic for 15 years, in January 2012, he presented with four months history of left cheek mass. Subsequent computed tomography (CT) and CT- positron emission tomography (PET) imaging showed left parotid lesion of size 1.3 cm. Patient underwent left parotidectomy. Histopathology was consistent with metastatic RCC. At nine months after metastatectomy, patient was doing well without any disease recurrence.

Key Words: Renal cell carcinoma, Adrenal gland, Parotid gland, Metastasis.

This case report may be cited as: **Tunio MA, Asiri MA, Mohammad AAE, Riaz K. Renal cell carcinoma metastasizing to parotid gland. J Postgrad Med Inst 2014; 28(3):333-8.**

INTRODUCTION

Renal cell carcinoma (RCC) has unpredictable and diverse behaviour. The incidence of RCC over last two decades has progressively increased due to widespread use of modern imaging[1]. About 30-50% of patients are found to have metastases at diagnosis. While bone, lymph nodes, adrenals, lungs and brain constitute expected 'homing' sites, metastasis may turn up at the unusual locations[2]. Metastasis to the head and neck region and contra-lateral adrenals and kidney from RCC is rarest manifestation[3].

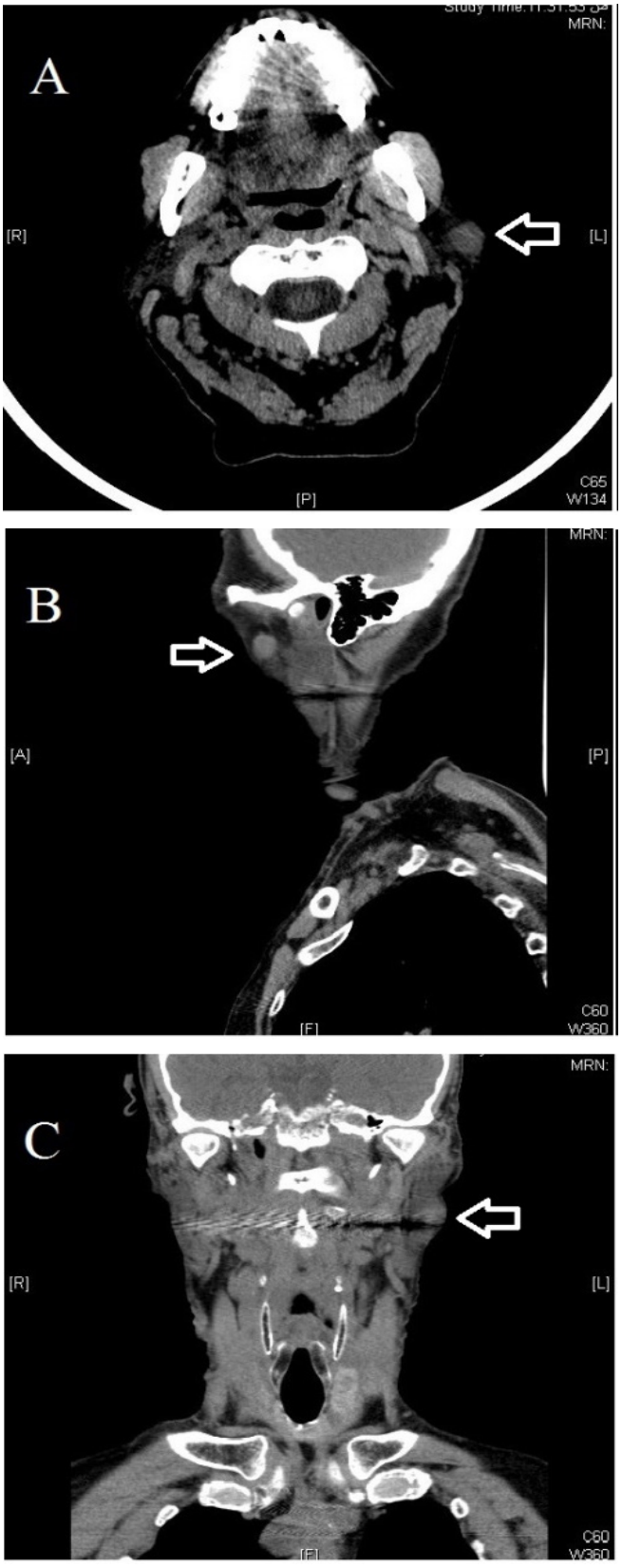
The first case of RCC metastatic to the parotid gland was reported in 1965 by Patey et al[4]. Since then there have only 45 reported cases have been reported in the English literature[5]. Contralateral adrenal gland metastasis and asynchronous RCC are rare and have been found in 2.5% of RCC[6].

Herein, a rare case of contra-lateral adrenal and kidney with ipsilateral parotid gland metastases, following an open radical nephrectomy fifteen years back in a 70 years old male with a stage pT2N0M0 and Fuhrman grade II RCC is reported.

CASE REPORT

A 70-year-old Saudi man presented during routine follow-up in January 2012 with left cheek swelling, pain in right groin and hematuria. He had noticed left cheek swelling for 4 months and it had been rapidly increasing in size over couple of weeks causing otalgia and right loin aches with off and on hematuria since 3 months. His previous surgical history revealed that, fifteen years back in February 1997, he underwent left radical nephrectomy; the histopathological findings were consistent with papillary cell type RCC. Tumor was not infiltrating through the capsule and renal vessels and margins were free of tumor. Stage was pT2N0M0. Later in April 2003, he had coronary artery bypass grafting (CABG) in 2003 for triple vessel ischemic heart disease; however he denied any history of smoking or unexplained weight loss.

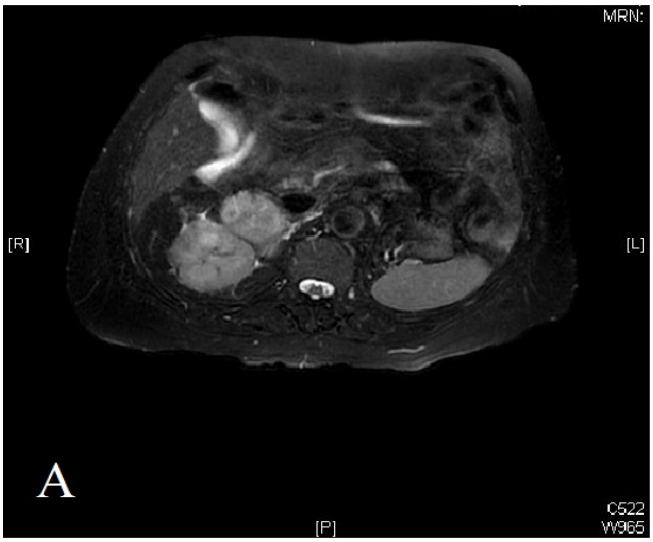
Figure 1: Computed tomography (CT) of neck (A) axial, (B) sagittal and (C) coronal images showing a mass of size 1.3 x 1.2 cm in left parotid gland



On physical examination, patient had ECOG-0 (Eastern Cooperative Oncology Group) performance status without any signs of pallor, jaundice or malnutrition. A hard, fixed and tender mass of size 2 x 2 cm was noticed in left pre-auricular region. Per abdominal examination revealed right lumbar tenderness without any underlying palpable mass or visceromegaly. Hematological, biochemical, hepatic and renal function tests were found within normal limits.

Computed tomography (CT) of neck showed a mass of size 1.3 x 1.2 cm in left parotid gland (Figure 1A, B & C) and T2W images of magnetic resonance imaging (MRI) abdomen showed; (a) right adrenal mass of size 3.4 cm which was inseparable from inferior vena cava (IVC) (Figure 2A), (b) three solid cortical masses in right kidney of sizes 2.2 x 1.9 cm, 1.5 x 1.3 cm and 0.8 x 0.6 cm respectively (Figure 2B) and (c) left nephrectomy surgical bed was clear. CT-positron imaging tomography (PET) showing standardized uptake value (SUV) on PET imaging were 9.5, 6.6, 5.0 for left parotid, right adrenal and right upper kidney. There were no other distant metastases. Differential diagnosis was asynchronous RCC

Figure 2: Magnetic resonance imaging (MRI) of abdomen T2W images showing (A) right adrenal mass of size 3.4 cm which is inseparable from inferior vena cava (IVC and (B) three solid cortical masses in right kidney of sizes 2.2 x 1.9 cm, 1.5 x 1.3 cm and 0.8 x 0.6 cm respectively, with left clear renal bed



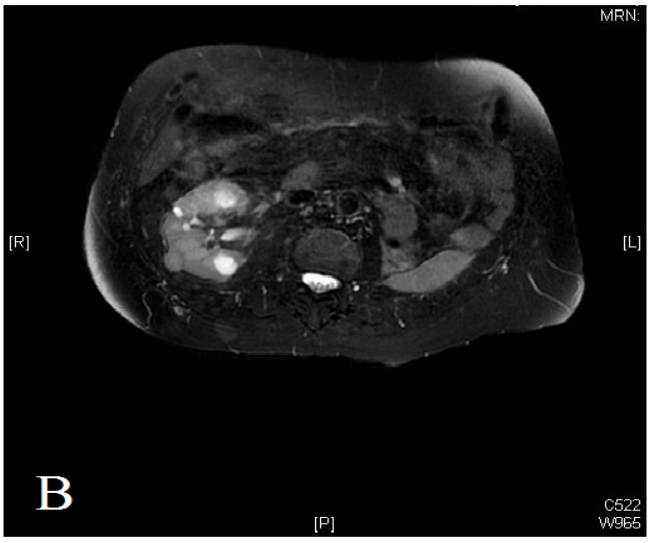
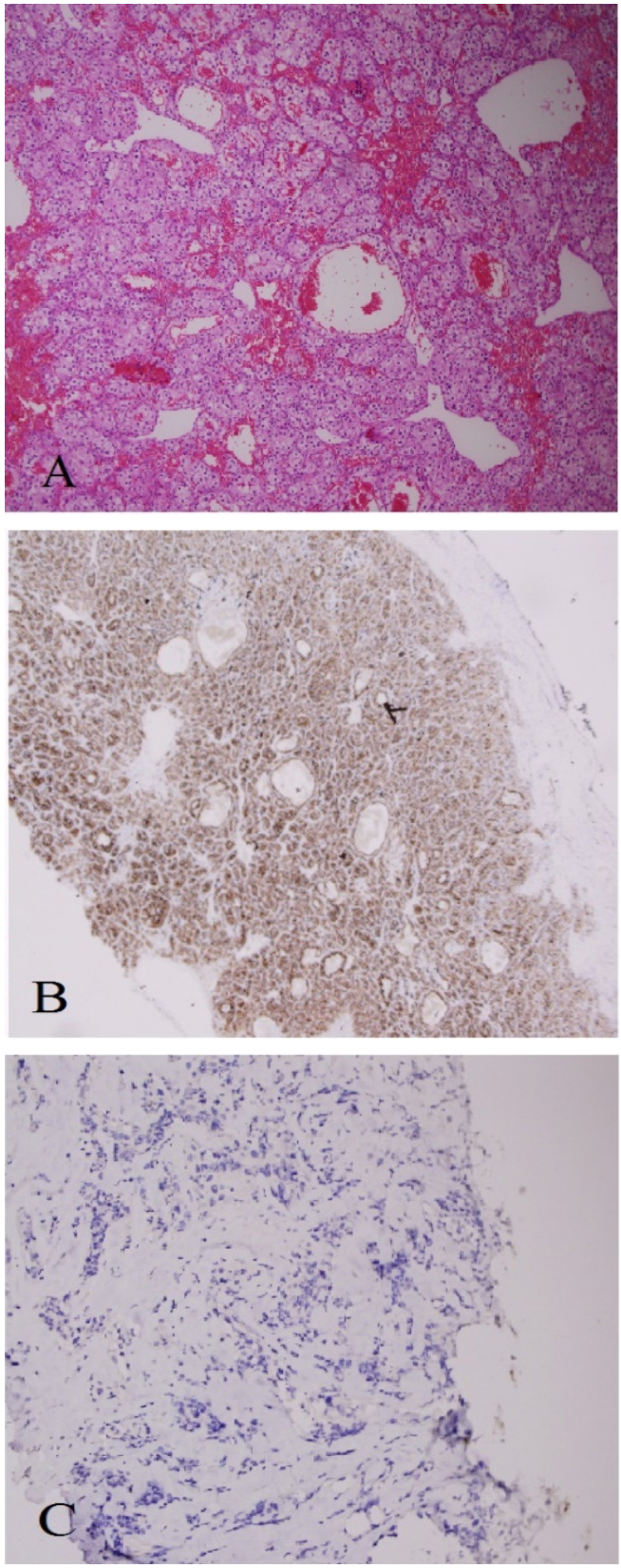


Figure 3: Hematoxylin and eosin staining of parotid lesion showing metastatic RCC; and immunohistochemistry of right adrenal showing CD10 positivity



of contra-lateral kidney, second parotid primary and delayed metastases of right RCC.

Fine needle aspiration cytology was taken from parotid mass, which revealed no malignant cells therefore patient subsequently underwent left parotidectomy; histopathology showed papillary cell histology and immunohistochemistry revealed CD10 positivity and TTF-1 negativity consistent with metastatic RCC (Figure 3 A & B). Genetic testing for VHL gene mutation was found negative. Later, right radical nephrectomy alongwith adrenalectomy was performed without any major postoperative complication. Histopathology was found to be confirmatory for metastatic RCC. Patient was started on hemodialysis and oral sunitinib 25 mg was started. At nine months after metastatectomy, patient was doing well without any disease progression.

DISCUSSION

Parotid gland is rare site for RCC metastasis and out of total 45 reported cases, 35% had parotid metastasis as initial presentation of the RCC and remaining cases parotid became metastatic after being treated for RCC with a latent period of 5 months to 19 years [4, 5], as seen in our patient who developed parotid metastasis 15 years after nephrectomy for RCC. FNAC is usually not diagnostic and carries potential risk of false negative results. Surgery in form of superficial or deep parotidectomy (partial or complete) is the mainstay of treatment; however unresectable parotid metastasis can be offered palliative radiation therapy for symptoms control[5].

Adrenal gland metastases have been found in 5.5% of cases undergoing nephrectomy with ipsilateral adrenalectomy especially in patients with RCC of size above 4 cm[6]. Contra-lateral adrenal gland involvements by RCC is rarest occurring only in 0.6% to 2.5% cases and such patients benefit from Contra-lateral adrenalectomy[7].

As seen in our patient, the occurrence of multifocality has been found greater in patients with papillary RCC than among patients with clear cell or chromophobe RCC and these patients are more likely to experience a contralateral kidney recurrence[8].

Our patient on hemodialysis was treated with low dose 25 mg of sunitinib, as data has shown high grade 3 toxicity especially fatigue in RCC patients treated with 50 mg of sunitinib, further 25 mg of sunitinib has been found sufficient to achieve therapeutic blood concentrations (50 ng/ml)[9]. However, we believe that our patient could have undergone nephron sparing surgery/ partial nephrectomy without hemodialysis if neoadjuvant 50 mg of sunitinib was started before surgery, as few phase II trials have shown response rates of 32% with neoadjuvant 50 mg sunitinib in solitary kidney RCC[10].

In conclusion, RCC has unpredictable metastatic potential and can spread to every organ in the body. Parotid metastases are rare and are managed well with surgery. Contra-lateral adrenal metastases are also very rare and can be cured with surgery. Solitary kidney multifocal RCC can be managed better with neoadjuvant 50 mg sunitinib followed by nephron sparing surgery to avoid hemodialysis in such patients, however multidisciplinary approach is required for such patients to give them better cure rates.

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