

## Massive Retroperitoneal Adrenal Haemorrhage as the First Manifestation of a Lung Cancer

### Dear Editor,

A 74-year-old man was admitted with sudden onset of right upper quadrant abdominal pain radiating towards right shoulder and right thigh. Pain was aggravated by deep breathing and movements. He had no significant past medical history apart from cholecystectomy 17 years ago. He had a 20-pack per year history of cigarette smoking. On examination he was distressed with blood pressure of 85/59 mmHg and pulse of 90 beats/minute. Abdominal examination revealed tenderness and guarding in right hypochondrium and right flank. The rest of the physical examination was unremarkable.

Initial laboratory investigations revealed haemoglobin of 14.4 g/dL and haematocrit of 41%, platelet count of  $170 \times 10^9/L$  and white cell count of  $8.1 \times 10^9/L$ , coagulation profile, liver and renal function tests were normal. His Haemoglobin and haematocrit subsequently dropped to 8.9 g/dL and 25.9%, respectively. Chest and abdominal X-rays were normal.

Computed tomography (CT) scan of abdomen revealed bilateral adrenal masses (right 5.6 cm and left 2.4 cm) with right adrenal and extensive retroperitoneal haemorrhage displacing the right kidney anteriorly and extending into the pelvis (Fig. 1).

The patient received 4 units of blood, and pain was controlled with morphine. No signs and symptoms of hypoadrenalism developed and his response to short

synacthen test was satisfactory. The patient's pain gradually subsided and haemoglobin stabilised.

Phaeochromocytoma was ruled out by normal urinary catecholamine levels (6 samples). Subsequent CT of chest showed abnormal lesion in the right upper lobe and 4 cm soft subcarinal mass. His bronchoscopy, bronchial washings and cytology were all normal. He underwent video assisted thoracoscopic (VAT) for subcarinal mass biopsy, converted to mini thoracotomy for control of bleeding. The histology showed squamous cell carcinoma of lung.

Postoperatively, he developed MRSA septicaemia and died of sudden cardiac arrest 3 weeks after diagnosis.

### Discussion

Adrenal glands are common site for cancer metastases, 27% of cancer patients autopsies have adrenal metastases.<sup>1</sup> Primary sites in most cases are lung, breast, malignant melanoma, and kidney.<sup>2</sup> Adrenal metastasis are usually asymptomatic, and found incidentally at the time of cancer staging using abdominal CT.

Adrenal haemorrhage is a rare entity, found in 1% of hospital autopsies.<sup>3</sup> Presenting symptoms and signs are nonspecific, and include abdominal pain (56%), back or flank pain (21%), chest pain (13%), nausea and vomiting (46%), fever (59%), hypotension/shock (74%), and tachycardia (28%).<sup>3</sup> Bilateral adrenal haemorrhage is encountered in patients with septicaemia, surgery, pregnancy, anticoagulant and adrenocorticotrophic therapy, severe cardiovascular disease, and body surface burns.<sup>3,4</sup> Pheochromocytoma and a variety of primary adrenal tumours and cysts have been reported in association with unilateral adrenal haemorrhage.<sup>5</sup> However, clinically significant adrenal haemorrhage secondary to metastases from lung cancer is extremely rare. To the best of our knowledge, there are only 10 reports (15 patients) in the English literature of adrenal haemorrhage secondary to metastases of lung carcinoma.<sup>6-14</sup> Of the 15 patients, only 7 patients were known to have lung cancer before their presentation with adrenal haemorrhage. Our patient was not known to have lung cancer. The histology of the primary lung tumour was adenocarcinoma in 8 patients, 4 patients had large cell carcinoma, 2 had squamous cell carcinoma (SCC), and 1 patient had small cell lung carcinoma. The histology of our case was SCC. Most of the patients did not require blood transfusion. Our patient had massive retroperitoneal haemorrhage, and required



Fig. 1. CT abdomen showing bilateral adrenal masses with extensive right adrenal and retroperitoneal haemorrhage.

transfusion of 4 units of packed red blood cells. Only 2 patients developed primary adrenal insufficiency.<sup>8,14</sup> However, recognising this rare complication of adrenal haemorrhage is vital, as early administration of corticosteroids saves lives.

Haemorrhagic adrenal metastases is characterised by inhomogeneous mixed density adrenal mass with perirenal changes suggestive of haemorrhage.<sup>11</sup> The diagnosis of adrenal haemorrhage in our case was suggested by the abdominal CT findings.

Surgery, chemotherapy, or combination of both was tried in the previously reported patients. Radiotherapy has been shown to be helpful in the management of 1 patient.<sup>10</sup>

### Conclusion

It is important to consider adrenal haemorrhage in the differential diagnoses of patients with lung cancer who present with abdominal pain and hypotension. Similarly, lung cancer should be ruled out in patients with spontaneous adrenal haemorrhage. Abdominal CT is helpful in reaching the diagnosis.

### REFERENCES

- Abrams HL, Spiro R, Goldenstein N. Metastases in carcinoma. *Cancer* 1950;3:74-85.
- Page DL, DeLellis RA, Hough AJ. Tumors of the adrenal. *AFIP* 1986; 23:150.
- Xarli VP, Steele AA, Davis PJ, Buescher ES, Rios CN, Garcia-Bunuel R. Adrenal hemorrhage in the adult. *Medicine (Baltimore)* 1979;57: 211-21.
- Botteri A, Orell SR. Adrenal hemorrhage and necrosis in the adult, a clinicopathological study of 23 cases. *Acta Med Scand* 1964;175:409.
- Swift DL, Lingeman JE, Baum WC. Spontaneous retroperitoneal hemorrhage: a diagnostic challenge. *J Urol* 1979;123:577.
- Rowinsky EK, Jones RJ, Abeloff MD. Massive adrenal hemorrhage secondary to metastatic lung carcinoma. *Med Pediatr Oncol* 1986; 14:234.
- Shah HR, Love L, Williamson MR, Buckner BC, Ferris EJ. Hemorrhagic adrenal metastases: CT findings. *J Comput Assist Tomogr* 1989;13:77.
- Outwater E, Bankoff MS. Clinically significant adrenal hemorrhage secondary to metastases, computed tomography observations. *Clin Imaging* 1989;13:195.
- Yamada AH, Sherrod AE, Boswell W, Skinner DG. Massive retroperitoneal hemorrhage from adrenal gland metastasis. *Urology* 1992;40:59-62.
- Berney CR, Roth AD, Allal A, Rohner A. Spontaneous retroperitoneal hemorrhage due to adrenal metastasis for non-small cell lung cancer treated by radiation therapy. *Acta Oncol* 1997;36:91-3.
- Kinoshita A, Nakano M, Siyama N, Takatani H, Kanda T, Fujimoto S, et al. Massive adrenal hemorrhage secondary to metastasis of lung cancer. *Intern Med* 1997;36:815-8.
- Oo TH, Martin L, Hesketh PJ. Adrenal hemorrhage secondary to metastasis from lung cancer. *Clin Lung Cancer* 2002;4:183-5.
- Thompson KE, Willard TB, Kuvshinoff B, Teague JL. Adrenal hemorrhage mimicking an abdominal aortic aneurysm. *Urology* 2003;61:1260.
- Hiroi N, Yanagisawa R, Yoshida-Hiroi M, Endo T, Kawase T, Tsuchida Y, et al. Retroperitoneal hemorrhage due to bilateral adrenal metastases from lung adenocarcinoma. *J Endocrinol Invest* 2006;29:551-4.

Saqib Ahmad,<sup>1</sup>*MRCP (UK)*, Rayid Abdulqawi,<sup>1</sup>*MRCP (UK)*,  
Khaled Ashawesh,<sup>2</sup>*MRCP (UK)*

<sup>1</sup> Department of Medicine, Princess Royal Hospital, UK

<sup>2</sup> Diabetes and Endocrinology Department, Walsgrave Hospital,  
University Hospitals Coventry and Warwickshire NHS Trust, UK

Address for Correspondence: Dr Saqib Ahmad, Department of Medicine,  
Princess Royal Hospital, Apley Castle, Telford TF1 6TF UK.  
Email: ahmad\_saqib@hotmail.com