

Spontaneous Retroperitoneal Hemorrhage due to Adrenal Metastasis for Non-Small Cell Lung Cancer Treated by Radiation Therapy

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Adrenal hemorrhage is not a rare event. It is mostly bilateral, consecutive to anticoagulation therapy, bleeding diathesis and trauma (1), and also observed in severe stress situations with excessive adrenocortical stimulation, such as acute myocardial infarction, congestive heart failure, and septicemia (2). Massive unilateral hemorrhage is uncommon, but is a recognized complication of primary adrenal tumors, among which pheochromocytoma is most commonly encountered (3, 4).

Adrenal involvement by metastatic neoplasms is a frequent occurrence in some malignancies such as carcinoma of the lung (2, 5). These lesions are usually discovered incidentally during routine cancer work-ups or in postmortem studies (6). Hemorrhagic complications are exceedingly rare, but can be dramatic and are mostly managed surgically. We report here one case of retroperitoneal hemorrhage secondary to metastatic involvement of the left adrenal by a non-small cell carcinoma of the lung, which was successfully treated by transfusion and radiation therapy.

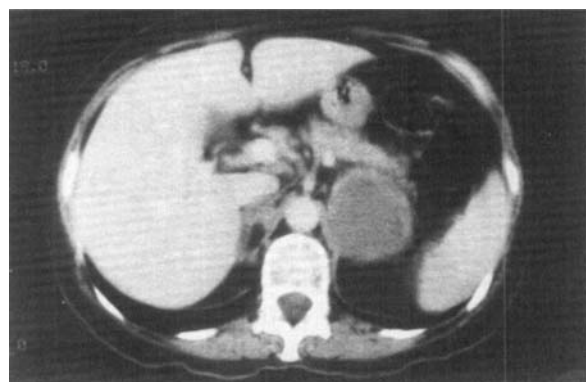
Case report. A 56-year-old woman was admitted in June 1993 for investigation of unexplained weight loss and development of paresthesia and pains in her left arm and leg. Clinical examination was positive for a right axillary adenopathy and hypoesthesia of her left lower and upper limbs with a homolateral Babinski sign. Routine laboratory test was within normal ranges. Chest x-ray and thoracic CT-scan revealed a left upper lobe nodule (2 cm in diameter). Bronchoscopy showed a stenosis of a segmentary apical bronchus in the left lung and biopsy was positive for a poorly differentiated squamous cell carcinoma. A left adrenal mass of 5.4 cm in diameter was present on abdominal CT-scan being consistent with metastasis (Fig. 1a). A cerebral CT-scan showed 3 right hemispheric lesions. During her stay at hospital the patient suddenly presented with diffuse abdominal pain and nausea complicated by an abrupt hemoglobin drop on July 5th (Table 1), requiring transfusion of 4 blood units on the same day. On clinical examination, left upper abdominal tenderness and fever (38.4°C) were recorded. A second abdominal CT-scan revealed a change in radiodensity on the left adrenal mass with massive bilateral retroperitoneal infiltration predominating on the left side compatible with hemorrhage (Fig. 1b and c). The diagnosis of spontaneous hemorrhage from the left adrenal metastasis was made and

was corroborated by a transient rise of the platelets and the bilirubin over the following days (Table). No abnormality in prothrombin time, partial thromboplastin time and fibrinogen level was recorded.

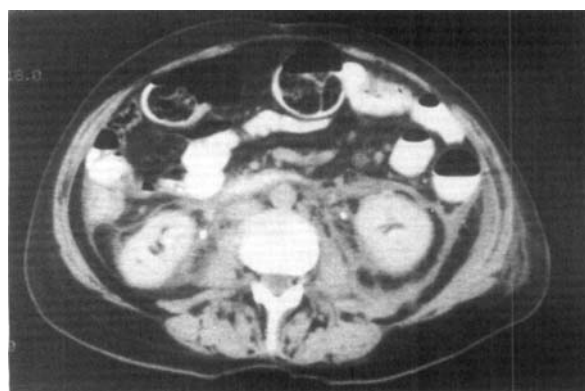
A radiation treatment of the adrenal was promptly started with a total dose of 30 Gy in 10 daily fractions. The patient's condition improved and she did not require further blood transfusion. She was discharged shortly thereafter and treated as an outpatient by radiotherapy and corticosteroids for her cerebral metastasis. Her condition deteriorated progressively and she died at home 2 months later. A postmortem examination was not performed.

Discussion. Spontaneous massive hemorrhage from neoplastic lesions is a relatively uncommon problem. It can arise from tumors, primary or metastatic, infiltrating the mucosa of the gastro-intestinal, genito-urinary and respiratory tracts (7). Spontaneous bleeding from an extraluminal lesion is an infrequent event, which has been described in metastatic melanoma, hepatoma, glioblastoma and, more rarely, in the context of hepatic metastasis from various tumors (8, 9). Although the hemorrhage in an extraluminal site is often self-contained it can induce acute symptoms because of the compression of the surrounding normal tissues, such as convulsions in cases of cerebral lesions (10).

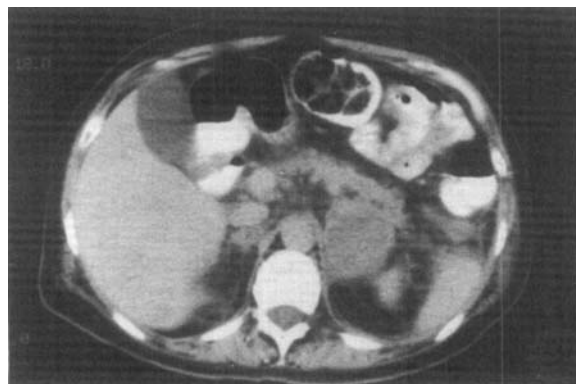
The retroperitoneum is an expandable space which can easily accommodate large amounts of blood, leading to significant blood loss and shock. The clinical manifestations of spontaneous retroperitoneal hemorrhage (SRH) are variable and non-specific, the most frequently presenting features being abdominal pain, a tender flank mass and signs of hemorrhagic shock (Lenk's triad) (11). Among the many causes of SRH, tumors come far behind ruptured vascular aneurysms (1). Benign as well as primary malignant tumors have been reported to cause SRH (12, 13). Renal cell carcinoma (RCC) is admitted to be the first renal cause of SRH although the occurrence of such an event is still rare. A large review involving 309 cases of RCC reported only one case of SRH (1). Benign angiomyolipomas of the kidney are considered to be the second most frequent tumoral cause of SRH (14). In the adrenals, pheochromocytomas, which are highly vascular tumors, are known to cause SRH. However, SRH due to retroperitoneal metastatic disease as in our patient is exceedingly rare. In the English medical literature



a)



b)



c)

Fig. 1. View of the important left adrenal metastase (arrows) a) before the event and b) just after its occurrence. c) shows the infiltration of the retroperitoneum by the hemorrhage (arrow).

only 10 cases of SRH because of adrenal metastasis from a primary carcinoma of the lung have been reported so far (2, 3, 5, 15, 16). All patients had advanced disease, from which they died one to several months later. One died acutely from this bleeding event (2).

Because of the rarity of tumor-induced SRH there are no guidelines regarding its management. Only some of the reports discuss the treatment of SRH and surgery was applied in most cases (3, 17–22). Intra-arterial embolization was also proposed for the control of bleeding renal lesions (17). Due to the complexity of the blood supply of the adrenal gland such an approach might not be possible in the context of adrenal lesions. Our patient had very advanced disease and we attempted to be as conservative as possible. Since we were able to compensate for her blood loss by transfusions we considered use of radiation therapy which is known to be useful in hemostasis of chronically or subacutely bleeding neoplastic lesions. It is most often applied in the control of neoplastic cervical and bronchial hemorrhages (23–25). Fairly small doses of 10–15 Gy given in 2–5 fractions are sufficient to obtain satisfactory hemostatic results in most cases (23, 24). Radiation can thus be considered in situations not requiring immediate control of the blood loss. Our patient did not need any further transfusion after the start of radiation. Although we cannot exclude a spontaneous cessation of the hemorrhage, radiotherapy may have been of benefit not only in the control of the bleeding event, but also in the prevention of subsequent relapse.

In conclusion, SRH from metastasis to the adrenals is a rare complication in patients with advanced metastatic disease. Although emergency surgery seems to be preferred in life threatening situations, a more conservative approach with radiotherapy may be considered in subacute cases in order to avoid the risk of a surgical intervention in already debilitated patients.

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Table

Evolution of hematological parameters and bilirubin during and after the hemorrhagic event

	Data (day, month)							
	11.6	3.7	5.7	7.7	12.7	16.7	21.7	27.7
Hemoglobin (g%)	13	9.2	5.5	9.0	8.6	11.4	10.7	10.5
Hematocrit (%)	37.5	27.7	16.8	26.0	25.5	34.8	32.8	32.5
Platelets ($10^{-3}/\text{mm}^3$)	364	–	297	328	521	634	422	262
Bilirubin ($\mu\text{mol/l}$)	9	7	9	35	17	20	9	–

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