CLINICAL VIGNETTE

Pulmonary Adenocarcinoma Presenting as Adrenal Hematoma

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Adrenal hemorrhage is an uncommon, under-recognized clinical condition. Ardrenal hemorrhage can be broadly categorized as due to trauma, or non-trauma etiologies. Non-traumatic causes can be further broken down as due to stress (e.g. sepsis or pregnancy), bleeding diasthesis such as anticoagulation associated from, recent procedures or intra-tumor bleeding.[1]

Acute intra-tumoral bleeding can occur with pheochromocytomas representing 55% of intra-tumoral cases, adrenal-cortical carcinomas, adenomas, hemangiomas and metastatic lesions responsible for 14%. Tumor metastasis, are from lung primary sites (35% of cases), followed by stomach, esophagus and liver or duct cancers.[2] Ten percent of lung cancers have adrenal metastasis. Up to 40% of patients with non-small cell lung cancer, have adrenal metastasis.[3] Since lung cancer is the most common cancer in the U.S., patients presenting with adrenal hemorrhage should have a high degree of suspicion for a primary lung cancer.

The adrenal glands are well perfused, supplied by the superior, middle, and inferior renal arteries and drained by a single adrenal vein into the IVC on the right, and the renal vein on the left.[4] Spontaneous hemorrhage is rare, but can be a potentially fatal manifestation of an adrenal mass. Adrenal hemorrhage is reported in 0.14% to 1.8% of cases, with a 15% mortality rate, dependent on the degree of bleeding and comorbidities. Hemorrhage due to metastasis is thought to be multifactorial, brought on by tumor expansion and increased vascularity, due to upregulation of fibroblast growth factor, interleukin 8 and vascular endothelial growth factor.[4]

Adrenal metastases are typically clinically silent. Reported cases have a wide range of presentations, from non-specific abdominal pain to catastrophic cardiovascular collapse. Common symptoms include chest, abdomen or back pain, nausea, lethargy, and weakness.[4]

Diagnosis is often made incidentally on imaging. CT and MRI are the most sensitive and specific studies, for diagnosing adrenal hemorrhage. CT is the most sensitive, however benign adenomas can be mistaken for metastatic disease. Adrenal hemorrhage appears on CT as an ovoid lesion. There may be peri-adrenal fat stranding and bleeding into the peri-nephric space. MRI is better at differentiating benign from malignant masses and acute versus chronic hemorrhage. To diagnose adrenal hemorrhage, CT-guided percutaneous biopsy can be highly specific.[4]

Adrenal hemorrhage can be a clinical emergency. Early recognition and treatment can be critical to managing severe adrenal hemorrhage. Extensive hemorrhage can lead to adrenal insufficiency, retroperitoneal hemorrhage, and hypovolemic shock.[1] Management of acute adrenal hemorrhage is to first support and stabilize the bleeding. For cases that are refractory to transfusion with ongoing bleeding, may respond to arterial embolism. Following stabilization of the patient, a primary cancer should be ruled out or treated appropriately with chemotherapy and surgery. In the case of a primary lung cancer, metastatic only to the adrenals, can have resection of the primary malignancy followed by an adrenalectomy.[3]

The prognosis of adrenal hemorrhage is variable, and dependent on the underlying etiology, the extent of hemorrhage, and the health status of the patient. Cases involving catastrophic collapse, adrenal insufficiency, or bleeding in the context of a predisposing disease (such as DIC, sepsis or metastatic cancer), carry a higher risk of mortality. For example, Waterhouse Friderichsen syndrome is adrenal hemorrhage in the setting of meningococcal sepsis and carries a 60% mortality, despite adequate treatment.[4] We present a classic case of lung cancer presenting as adrenal hemorrhage.

Case Presentation

A seventy-year-old male with a history of prostate cancer, benign prostate hypertrophy, and colonic polyps presented with sudden onset of generalized abdominal pain, nausea and non-biliary, non-bloody emesis. He reported losing twenty pounds over the past year but stated his weight loss was purposeful. He denied night sweats or palpitations, NSAID use, substance abuse and was not on anticoagulation or antiplatelet treatment. Admission CT abdomen showed a confluent hematoma within the right suprarenal fossa (Figure 1).

Hemoglobin and vital signs were stable and the hemorrhage remained stable on serial imaging. General surgery recommended a CT thorax which revealed bulky hilar and right mediastinal lymphadenopathy with a 4cm mass in the right upper lobe of the lung. The mass was biopsied and confirmed as adenocarcinoma (Figures 2 and 3).

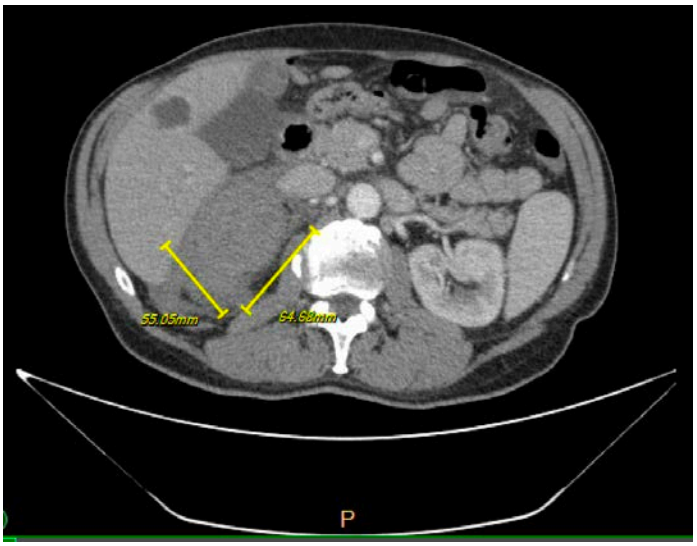

Figure 1.

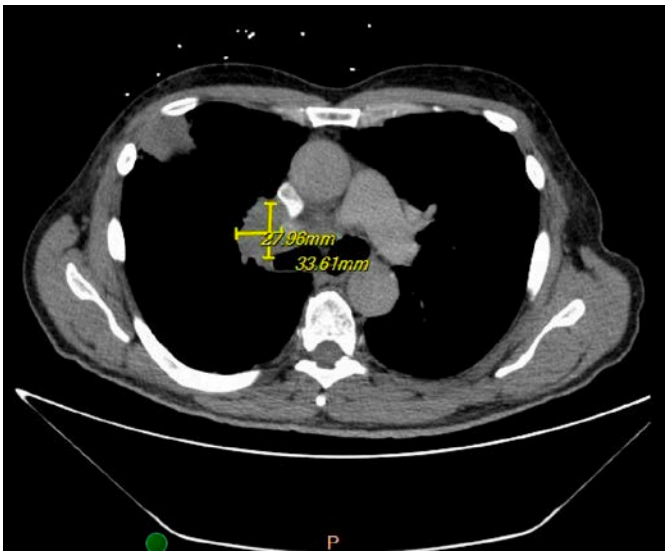

Figure 2.

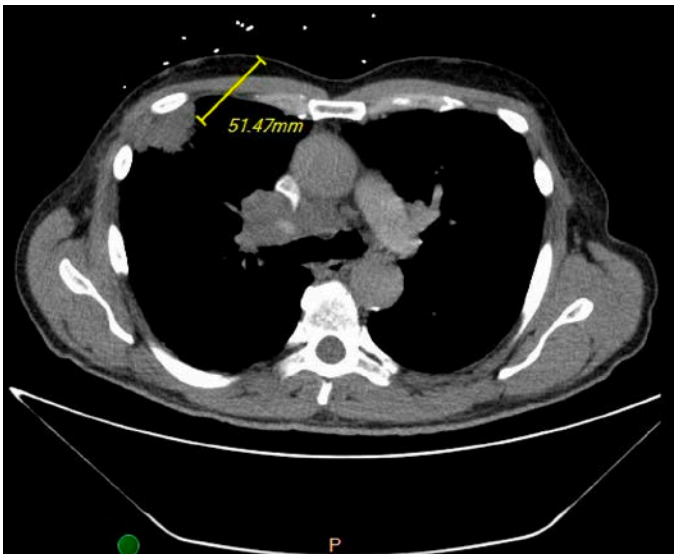

Figure 3.

Discussion

Adrenal masses are commonly due to metastatic cancer. Lung cancer is most common primary, given high incidence in the U.S. Adrenal hemorrhage can be a rare but life-threatening complication of adrenal metastasis, with reported mortality approaching 15%, depending risk factors: DIC, sepsis and malignancy are associated with a higher mortality. Clinical cases are usually silent, but rarely present as back pain and nausea, which may lead to CT imaging and incidental diagnosis of adrenal hemorrhage, CT scan can diagnose adrenal hemorrhage, but MRI is often used to differentiate acuity and possible malignancy. Management first involves, bleeding stabilization which may include surgery and interventional radiology. After stabilization, identification of a primary cancer. Primary lung cancer is the most common underlying malignancy.

This patient presented with nausea and vomiting, after which a CT abdomen revealed an adrenal hematoma, which was clinically stable and not actively bleeding. Following discovery CT thorax revealed a large lung mass, which was later biopsied and confirmed to be adenocarcinoma of the lung. The patient is currently undergoing treatment of his pulmonary adenocarcinoma.

REFERENCES

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