NYU Long Island School of Medicine

DEPARTMENT OF PATHOLOGY

Short Report in Pathology

Organ system: Autopsy

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History:

We report a case of a 56-year-old female admitted to the emergency department in severe respiratory distress and flank pain. She was found to have large volume hemoperitoneum with right retroperitoneal hemorrhage and a large right renal mass. The patient subsequently went into hemorrhagic shock and passed away despite medical intervention. She had a past medical history of triple negative breast cancer status post neoadjuvant chemotherapy, bilateral mastectomy and adjuvant radiation therapy. The patient also had subsequent medical history of radiation induced high grade osteogenic sarcoma in the chest wall status post neoadjuvant chemotherapy, which was treated by radical resection of the right chest wall, including 1st and 2nd ribs, sterno-clavicular joint, followed by reconstruction of the chest wall with adjuvant chemotherapy and radiation therapy.

Gross images:

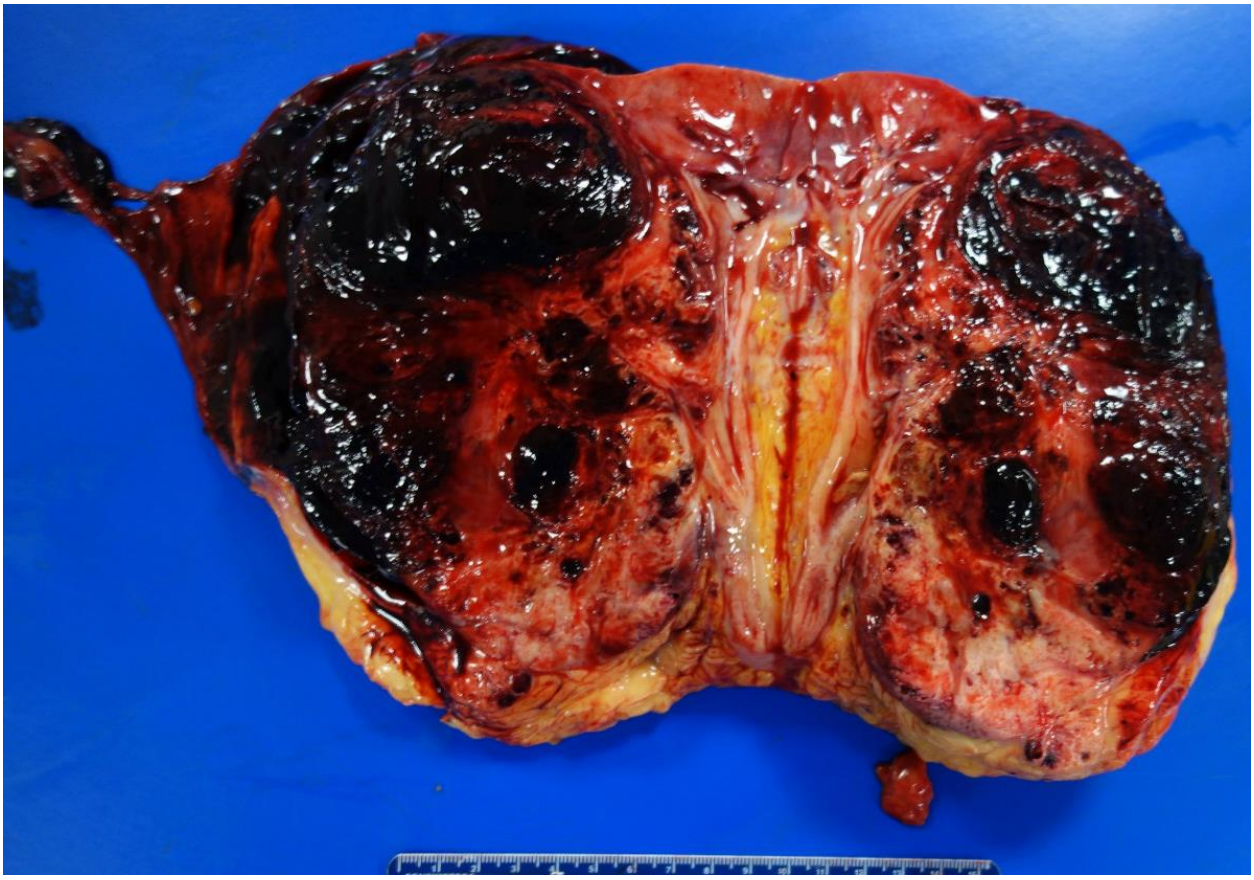

Figure 1: Cut surface of right kidney showing a solid, hemorrhagic and necrotic tumor mass extending from the upper to lower pole of kidney and invading into the perinephric fat.

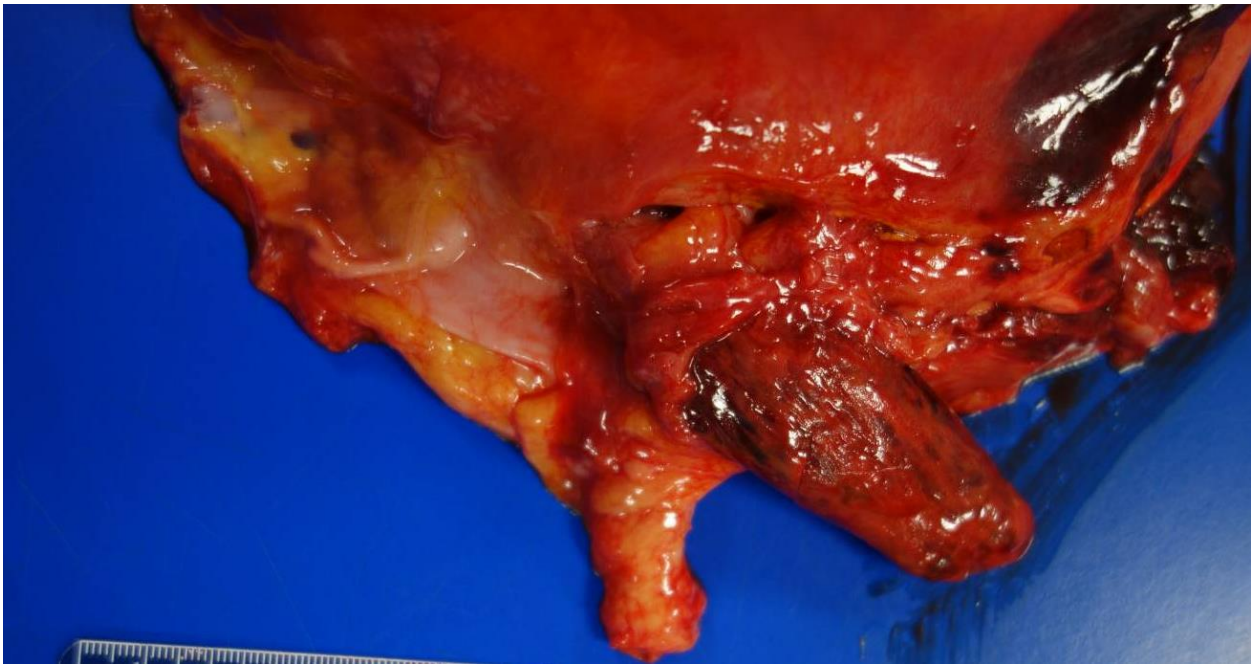

Figure 2: Tumor thrombus protruding from the inferior vena cava.

Microscopic images:

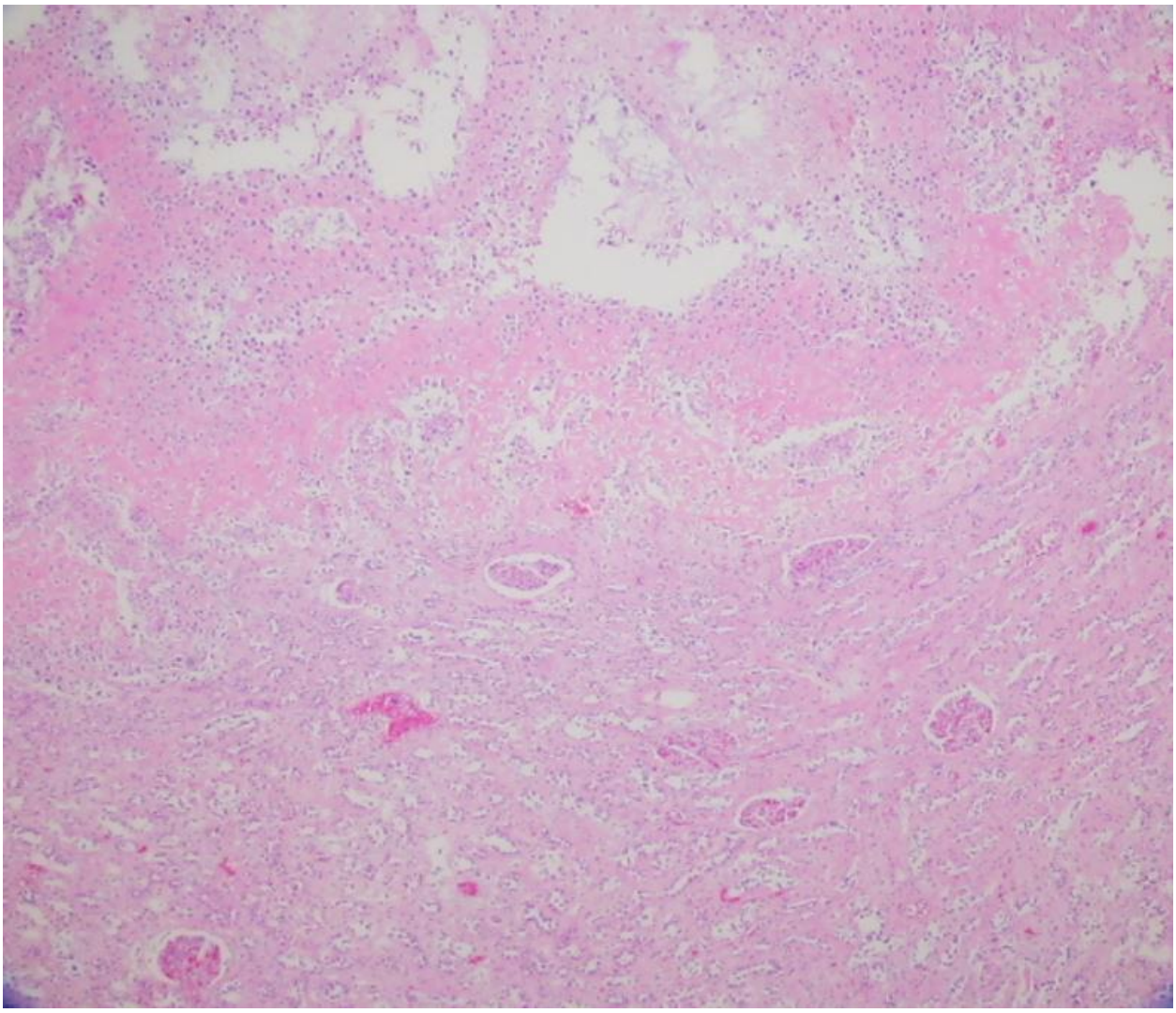

Figure 3: Renal tumor showing interface of malignant tumor with osteoid matrix and adjacent focally preserved renal parenchyma (200X; H & E stain).

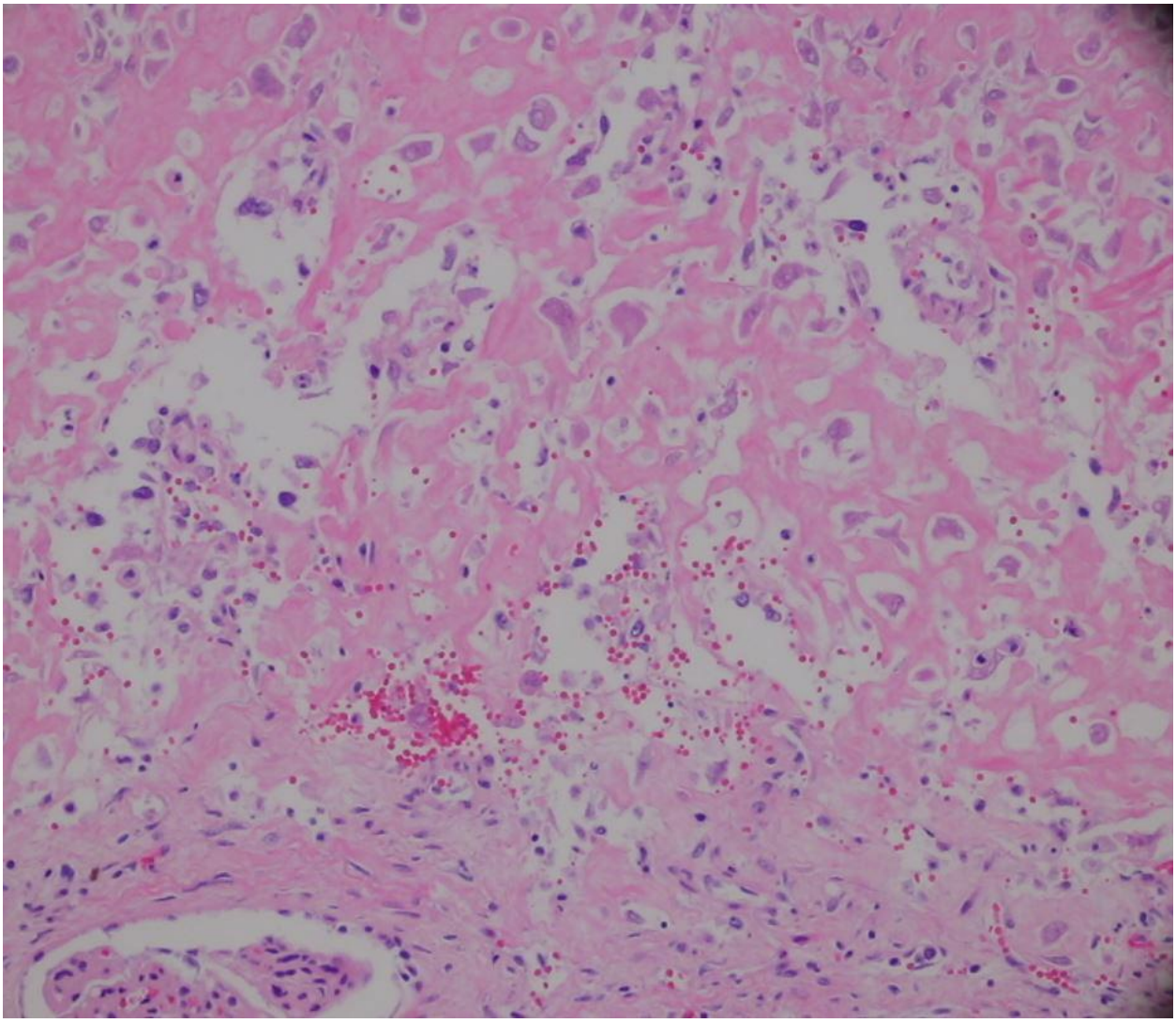

Figure 3: Section of renal tumor showing pleomorphic malignant tumor cells with intermixed osteoid matrix (400X: H & E stain).

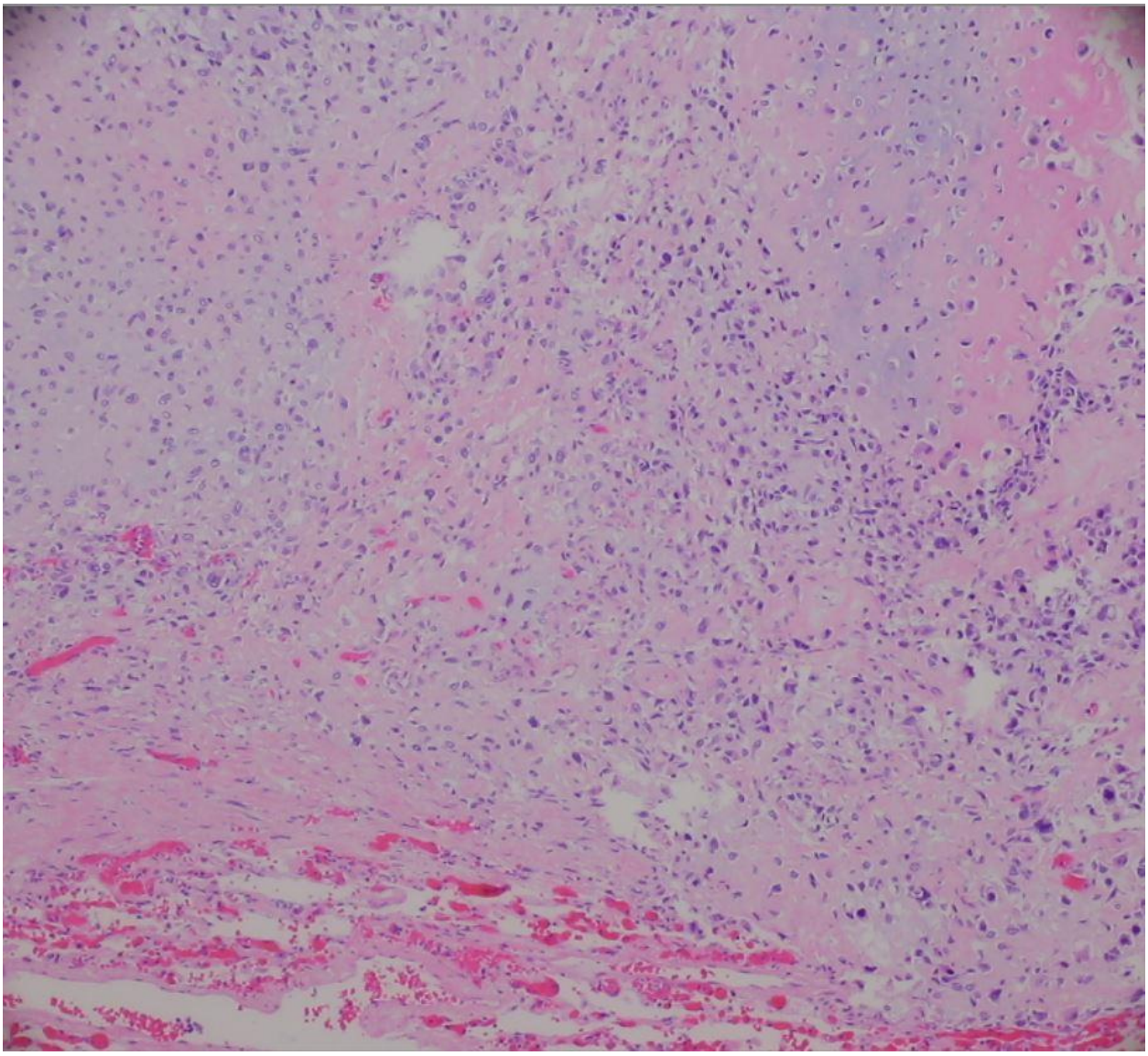

Figure 4: Section of tumor nodule from left lung shows sheets of malignant cells immature bone and chondroid and osteoid matrix (400X: H & E stain).

Diagnosis:

Metastatic osteosarcoma of kidney with massive retroperitoneal hematoma (Wunderlich syndrome) and invasion of renal vein and inferior vena cava
Separate metastatic involvement of left lung

Discussion:

Osteosarcoma is a primary malignant tumor of bone, which is highly aggressive and metastasizes by hematogenous dissemination. Osteosarcoma of the kidney is a rare clinical condition, more likely to have arisen as a metastasis from primary bone osteosarcoma rather than a primary renal tumor. Pre-mortem diagnosis of renal metastasis is rare and it is usually detected after death as part of widespread metastatic disease. Metastatic renal osteosarcoma has been reported in

approximately 10% of autopsies of patients with a history of osteosarcoma. Clinically, these metastases are often silent, but sometimes discovered accidentally or during staging. Renal metastasis of osteosarcoma frequently manifests as tumor invasion of the renal vein and other major vessels. The presentation as spontaneous non-traumatic renal hemorrhage resulting in Lenk's triad of flank pain, flank mass and hypovolemic shock. Tumor invasion of the blood vessels can result in life threatening hemorrhage, shock and subsequently death.

References:

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3. King CM, Reznek RH, Norton AJ, Kingston JE. Osteosarcoma metastatic to the kidney with invasion of the inferior vena cava. *The British Journal of Radiology*. 1992 Sep;65(777):827-30.
4. Jeffree GM, Price CHG, Sissons HA. The metastatic patterns of osteosarcoma. *British Journal of Cancer.* 1975;32(1):87–107.