

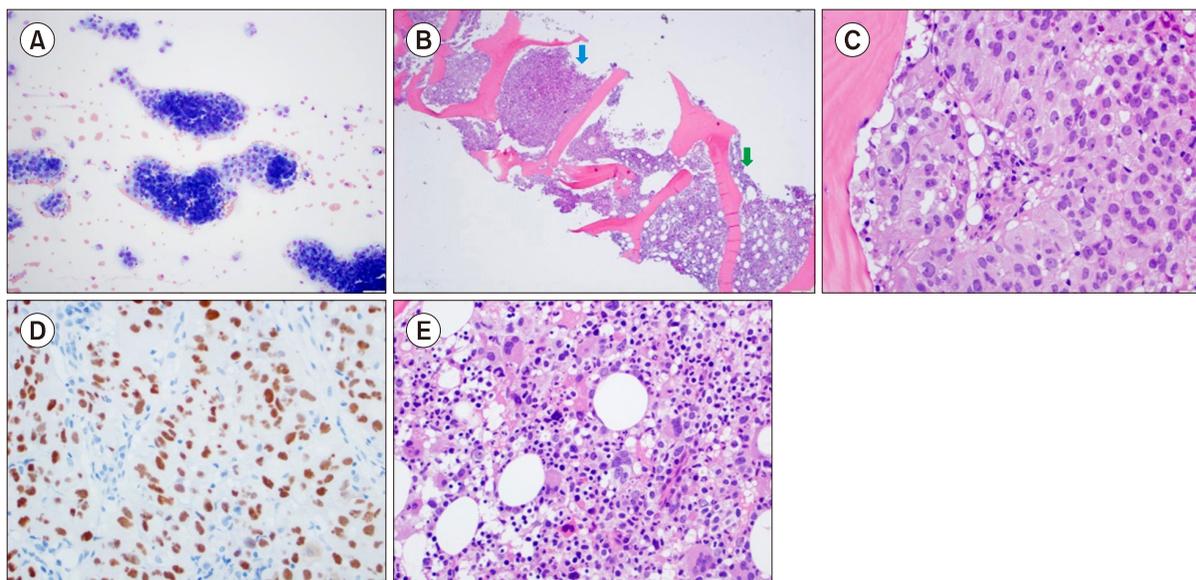
Renal cell carcinoma metastasizing to the myeloproliferative bone marrow

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A 58-year-old man was diagnosed with essential thrombocythemia in 2010 and was managed with hydroxyurea and aspirin. In October 2014, he presented with right pleural effusion. Work-up revealed renal cell carcinoma metastasizing to the right pleura and lung parenchyma. Complete blood count (CBC) revealed white blood cells (WBC) $8.6 \times 10^9/L$, hemoglobin 11.4 g/dL and platelets $294 \times 10^3/\mu L$. He underwent pleural decortication and right middle lobectomy, followed by left radical nephrectomy. In January 2015, sunitinib was started (after discontinuing hydroxyurea) resulting in initial tumor response. In May 2015, the cancer progressed and experimental trial was considered. At that point, CBC showed hemoglobin 9.6 g/dL, WBC $7.9 \times 10^9/L$, platelets $446 \times 10^3/\mu L$. Bone marrow aspirate shows clusters of malignant cells (A, $\times 100$). Bone marrow core biopsy revealed metastases (B, blue arrow, $\times 40$) and residual myeloproliferative marrow (B, green arrow). Malignant cells with clear cytoplasm, large nuclei with prominent nucleoli and vacuoles are seen (C, $\times 400$). PAX-8 staining was positive in carcinoma cells (D, $\times 400$). Residual hypercellular marrow with dysplastic megakaryocytes with clustering in the residual marrow (E, $\times 400$) is observed. This bone marrow biopsy thus reveals two simultaneously coexisting neoplastic conditions.