An Atypical Cause for Hearing Loss and Syncope: Leukemia Cutis of the Ear Secondary to Acute Myelomonocytic Leukemia

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Background

- Leukemia cutis is the invasion of leukemic cells into the skin, resulting in identifiable cutaneous lesions (1).
- Leukemia cutis is associated with decreased overall survival and may signify the need for more intensive treatment of leukemia (2).
- Herein, we present a case of a patient who presented with syncope and hearing loss and was found to have leukemia cutis in his ear.

Case Presentation

- A 42-year-old man with a past medical history of acute myelomonocytic leukemia in remission presented after an unwitnessed fall.
- He experienced hearing loss from the left ear for two weeks prior to presentation.
- His oncologic history of acute myelomonocytic leukemia was intermediate risk, FLT3-TKD positive, NPM1-positive, and FLT-ITD negative; he received 7 + 3 induction chemotherapy two years prior, followed by high-dose cytarabine (HIDAC), and then maintenance midostaurin.
- His physical exam was notable for left sided ptosis and facial droop.
- His laboratory findings were notable for mild leukocytosis with neutrophilia.

Case Presentation

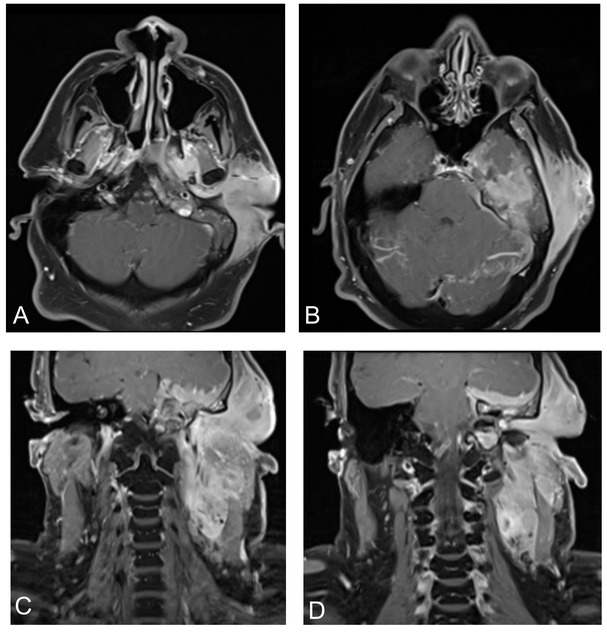


Figure 1A. MRI of the head and neck showing a large infiltrative mass within the left pinna that extends into the external and internal auditory canals. Figure 1B. The mass demonstrates intracranial extension without erosion of the skull. Figure 1C and 1D. Coronal view of MRI showing the mass extending to the neck, deep to the left sternocleidomastoid muscle and into left posterior triangle.

Case Presentation

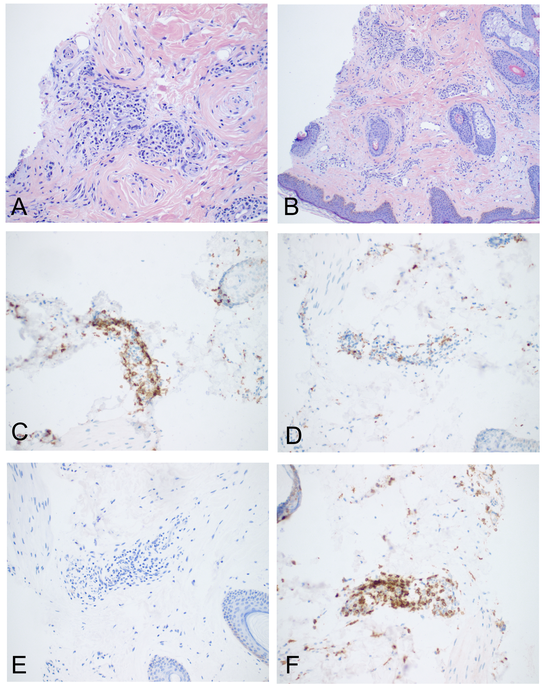


Figure 2A. Hematoxylin and eosin (H&E) stain 20x demonstrating clusters of atypical monocytic and blastoid cells with irregular nuclei consistent with leukemic cutis. Figure 2B. H&E stain 10x. Figure 2C. CD33 positive, a marker of myeloid lineage. Figure 2D. CD68 positive, a monocytic marker frequently expressed in cutaneous AML. Figure 2E. Myeloperoxidase negative, a marker to distinguish myeloid from non-myeloid cells. Figure 2F. CD4 stain positive.

Case Presentation

- He experienced acute worsening of vision and ultimately blindness over one week.
- He experienced severe agitation and delirium as a result of losing his vision and hearing.
- His family ultimately decided to pursue comfort care, and he was discharged to inpatient hospice.

Discussion

- Leukemia cutis is an extramedullary manifestation of leukemia and can commonly be confused with other cutaneous lesions (3).
- The diagnosis of leukemia cutis requires biopsy (3).
- It most commonly occurs in acute myeloid leukemia and typically presents with papules or nodules (1).
- Leukemia cutis is associated with lower overall survival and may suggest the need for more intensive treatment in these patients (2).
- Further studies on leukemia cutis are warranted to elucidate this aggressive malignancy.

References

1. Kang et al. Clinical characteristics of 75 patients with leukemia cutis. *JKMS.* 2013.
2. Wang et al. Association of leukemic cutis with survival in acute myeloid leukemia, *JAMA Dermatology.* 2019.
3. Moyer et al. Leukemia cutis as the presenting symptom of acute myeloid leukemia: report of 3 cases. *Dermatology Online Journal.* 2018.