Acute Myelogenous Leukemia Presenting as Atypical Mastoiditis

Kelli Rudman, MD; Robert Chun, MD
Medical College of Wisconsin & Children’s Hospital of Wisconsin

ABSTRACT

Objective: To describe a case of acute myelogenous leukemia presenting as acute otitis media with atypical mastoiditis and granulocytic sarcoma of the temporal bone and sigmoid sinus.

Methods: Case report and review of the literature.

Results: Acute otitis media is a rare presentation of acute leukemia. Our patient also presented with granulocytic sarcoma involving the superior sagittal sinus, skull base, sigmoid sinus and internal jugular vein. Literature review describes similar cases; 75% (6/8) had associated facial nerve paresis. Intervention in these cases varied from observation and treatment with chemotherapy to mastoidectomy.

Conclusions: This is the eighth case of acute leukemia presenting as acute otitis media reported in the literature. Though rare, acute leukemia or relapsed leukemia should be considered in the differential diagnosis for atypical otitis and mastoiditis. Because granulocytic sarcoma of the temporal bone may mimic mastoiditis or sigmoid sinus thrombosis, complete hematologic and radiologic workup is necessary prior to surgical intervention. Surgical management of otologic manifestations of acute leukemia should be considered for biopsy in unknown diagnosis or treatment of infection in the presence of leukemia. As demonstrated in our patient and literature review, many of the otologic findings in leukemia improve with chemotherapy.

INTRODUCTION

Acute leukemia presenting as otitis media is a rare presentation of the disease.1-5 We present a patient that was diagnosed with acute myelogenous leukemia (AML) who presented with atypical otitis media and mastoiditis. His workup demonstrated granulocytic sarcoma involving the superior sagittal sinus, sigmoid sinus, internal jugular vein, and parotid gland. This extensive involvement has not been described. This case report highlights the importance of a complete hematologic and radiologic workup prior to surgical treatment of mastoiditis.

CASE PRESENTATION

A 10 year old boy with a two week history of left otalgia was transferred to Children’s Hospital of Wisconsin secondary to CT scan findings concerning for mastoiditis. Eleven days prior to admission, azithromycin was prescribed for acute otitis media with no improvement in symptoms. He had no history of recurrent otitis media, fever, facial weakness, or immunodeficiency. His otologic exam was consistent with a left acute otitis media and right serous otitis media. There was mild tenderness over the left mastoid tip. There were no facial or other cranial nerve deficits. The white blood cell count from the outside hospital was 7600 cells/mm3. The CT scan demonstrated fluid in bilateral middle ear spaces with intact mastoid cortices and no coalescence of the mastoid air cells. A partial filling defect of the left sigmoid sinus was noted but was inconclusive for thrombosis. Broad spectrum intravenous antibiotics were initiated.

The following morning the outside hospital called to report the patient’s peripheral blood smear contained 60% blasts and Auer Rod cells. An MRI/MRV was obtained to further investigate the left sigmoid sinus filling defect. It demonstrated findings consistent with granulocytic sarcoma in the superior sagittal sinus, skull base, left sigmoid sinus and left internal jugular vein, with leukemic infiltrate involving the parotid glands, middle ear cavities and petrous apices bilaterally (Figures 1-4). The patient underwent bone marrow and cerebrospinal fluid aspiration as well as bilateral myringotomy and tube placement. The left tympanic membrane was inflamed with bloody otorrhea after myringotomy. Middle ear cultures were negative and cytology was not performed. The bone marrow and CSF were positive for acute non-lymphocytic leukemia (M2 variant). The patient was started on induction chemotherapy of intravenous cytarabine, etoposide, and daunorubicin and intrathecal cytarabine. He was also treated with Ciprodex otic drops for two weeks. Repeat MRI/MRV performed 10 days later demonstrated resolution of granulocytic sarcoma in the mastoid air cells, parotid gland, and superior sagittal sinus with patent transverse and sigmoid sinuses (Figures 5, 6). He was treated with 4 doses of chemotherapy per the Children’s Oncology group AAML 0531 protocol. He was last seen 1 month ago and is currently in remission.

REFERENCES