Langerhans Cell Histiocytosis: A Case Report

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Abstract

Langerhans cell histiocytosis (LCH) is a rare clonal disorder that frequently presents with osseous lesions in pediatric patients, often mimicking odontogenic pathology. This case report describes a 7-year-old male who presented with persistent jaw pain after evaluation by multiple dental providers, where only localized imaging was obtained without definitive diagnosis. Upon presentation to our clinic, a panoramic radiograph was taken, revealing a well-defined radiolucent lesion of the mandible not fully appreciated on prior imaging. Subsequent biopsy confirmed the diagnosis of LCH. Notably, laboratory findings also demonstrated peripheral eosinophilia, which has been associated with LCH. This case underscores the critical role of panoramic radiography in the comprehensive evaluation of pediatric patients with unexplained jaw pain and highlights the importance of appropriate imaging in facilitating timely diagnosis of significant underlying pathology.

Background

Langerhans cell histiocytosis is a rare disorder characterized by clonal proliferation of Langerhans cells, with a clinical spectrum ranging from isolated bone lesions to multisystem disease. In pediatric patients, the jaws are commonly affected, and lesions may present with nonspecific symptoms such as pain, swelling, or tooth mobility, often mimicking odontogenic infections.

Radiographically, LCH lesions typically appear as well-defined radiolucencies and may produce a “floating teeth” appearance due to alveolar bone destruction. However, limited imaging such as bitewings or periapical radiographs may fail to capture the full extent of these lesions.

Panoramic radiography provides a broader field of view, allowing for improved detection of non-odontogenic and expansile pathology.

Histologically, LCH lesions are characterized by an inflammatory infiltrate rich in eosinophils. Correspondingly, peripheral eosinophilia may be observed in some patients, and trends in laboratory values may provide supportive clinical information in the overall diagnostic and staging process.

References

- Neville, B. W., Damm, D. D., Allen, C. M., & Chi, A. C. (2016). *Oral and maxillofacial pathology* (4th ed.). Elsevier.
- White, S. C., & Pharoah, M. J. (2014). *Oral radiology: Principles and interpretation* (7th ed.). Elsevier.
- Allen, C. E., Merad, M., & McClain, K. L. (2018). Langerhans-cell histiocytosis. *The Lancet Oncology*, 19(4), e190–e201.
- Haupt, R., Minkov, M., Astigarraga, I., et al. (2013). Langerhans cell histiocytosis (LCH): Guidelines for diagnosis, clinical work-up, and treatment. *Pediatric Blood & Cancer*, 60(2), 175–184.
- National Cancer Institute. (n.d.). *Langerhans cell histiocytosis treatment (PDQ®)*.

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Case Report

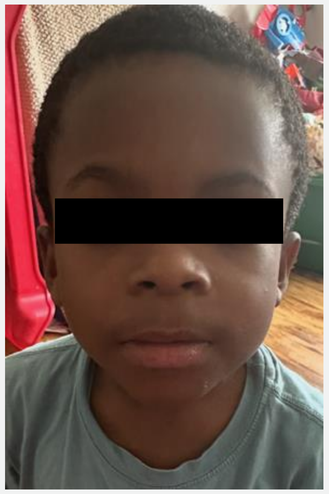
A 7-year-old male patient presented to our pediatric dental clinic with a chief complaint of persistent lower left jaw pain and swelling of approximately one week duration. The patient had previously been evaluated by five different dental providers, where bitewing and periapical radiographs were obtained; however, no definitive diagnosis was made, and symptoms persisted. Medical history was noncontributory, with no current medications and a reported amoxicillin allergy. Clinical examination revealed a firm, non-fluctuant swelling in the region of the left posterior mandible associated with tenderness. Given the history of unresolved symptoms and inconclusive prior imaging, a panoramic radiograph was obtained. This imaging revealed a well-defined radiolucent lesion in the area of the developing mandibular left second molar (#18), raising concern for a non-odontogenic pathologic process.

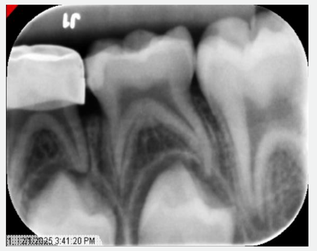
The patient was referred to Oral Surgery for further evaluation. An incisional biopsy was performed under IV sedation, and histopathologic analysis confirmed the diagnosis of Langerhans cell histiocytosis with dentigerous cyst of mandible.

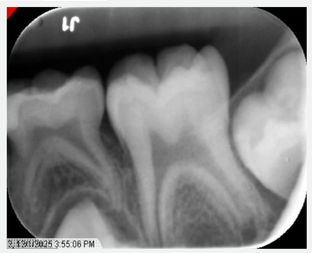
Following diagnosis, the patient underwent further diagnostic workup, including CT maxillofacial without contrast, MRI brain with contrast to evaluate for central nervous system involvement, and PET/CT from skull base to mid-thigh to assess for multisystem disease. Laboratory values obtained prior to patient being diagnosed demonstrated an incidental finding of elevated eosinophil levels with an increasing trend over time.

The patient was seen on April 3, 2026 by Dr. Shanti, Director of Maxillofacial Oncology with no jaw pain and no limitation of nutrition. Patient is scheduled to have surgical excision on April 30, 2026 with follow up CT scan every year for at least five years.

Radiographic Findings







Laboratory Findings: Peripheral eosinophilia demonstrated an increasing trend over time (10.7% → 10.6% → 16.4%), supporting the inflammatory component of LCH.