

Ameloblastic Fibroma of the Left Mandible

Iga Alicja Fudyma^{1,2}, Fareha Nazneen² and Nitin R Wadhvani^{1*}

¹Department of Pathology and Laboratory of Medicine, Ann & Robert H. Lurie Children's Hospital of Chicago, Feinberg School of Medicine, Northwestern University, Chicago, Illinois, USA

²Northeastern Illinois University, Chicago, Illinois, USA

*Corresponding author: Nitin R. Wadhvani, MD, Pathology and Laboratory Medicine, Ann & Robert H. Lurie Children's Hospital, 225 East Chicago Avenue, Box 17, Chicago, Illinois-60611, USA, Tel: 312- 227-3984; Fax: 312-227-9616; E-mail: nwadhvani@luriechildrens.org

Received date: June 17, 2017; Accepted date: July 10, 2017; Published date: July 16, 2017

Copyright: ©2017 Fudyma IA, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Ameloblastic fibroma is a rare odontogenic tumour that can occur in the paediatric population. Morphologically, it may resemble an organized proliferation of developmental remnants of the dental lamina; however it can be reliably classified as a neoplastic process by its circumscription, bland mesenchymal component, islands of epithelium, and radiographic characteristics. Our case demonstrates the classic clinical presentation for this rare odontogenic tumour and briefly discusses histologic mimics.

Keywords: Ameloblastic fibroma; Ameloblastic fibro-odontoma

Case Presentation

An 8-year-old female presented with a chief complaint of a mass on the left side of her mouth. Physical exam performed by an oral and maxillofacial surgeon revealed a radiolucent mass involving two primary teeth (K and L). During the subsequent removal of these primary teeth, multiple well-circumscribed loculations of fibrotic tissue were encountered and curetted. These were sent to pathology along with the primary teeth.

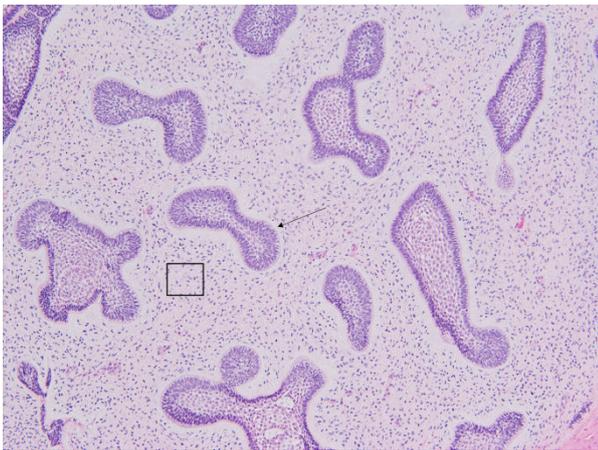


Figure 1: Low power microscopic examination shows proliferation of bland appearing spindle cells (box) with numerous islands, strands, nests, and cords of epithelium (arrow).

Upon inspection in the pathology lab, the teeth were unremarkable; however the curettage consisted of multiple fragments of tan-pink to tan-white soft tissue measuring 2.9 centimetres in greatest dimension. No abnormal mineralization was observed. Microscopic examination of this tissue revealed a proliferation of bland appearing spindle cells

with numerous islands, strands, nests, and cords of epithelium (Figure 1). At higher power, some of the islands contained hyalinised material while others contained epithelium resembling stellate reticulum surrounded by basal palisaded nuclei (Figure 2). Rare mitotic figures were seen in the mesenchymal component. Given these characteristics, the mass was diagnosed as an ameloblastic fibroma. In postop follow-up, the patient had no recurrence of disease.

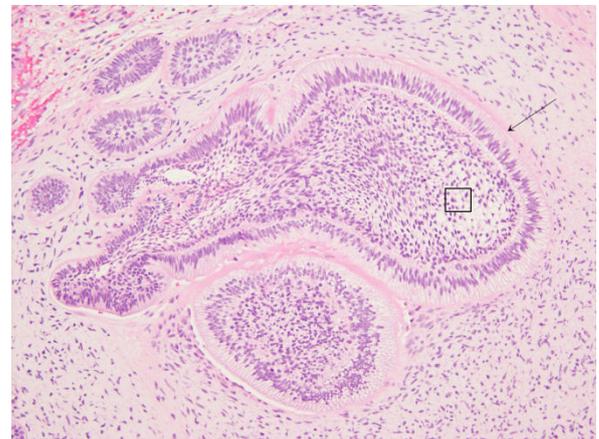


Figure 2: At higher power, some of the islands contain epithelium resembling stellate reticulum (box) surrounded by basal palisaded nuclei (arrow).

Discussion

Ameloblastic fibroma is a rare odontogenic tumour that can occur in the paediatric population. Morphologically, it may resemble developmental remnants of the dental lamina. While the clinical differential diagnosis is quite wide and includes cystic neoplasms of the jaw that may have a solid component, the microscopic examination can reliably lead to the correct family of odontogenic neoplasms. The bland mesenchymal component is crucial as it helps classify the lesion

into a biphasic tumour (epithelial and mesenchymal tumour) and helps distinguish this tumour from its sarcomatous counterpart.

Ameloblastic fibroma is a tumour derived from odontogenic tissue that often presents with oral pain and a palpable mass over the alveolar ridge. Imaging of the jaw should reveal a solid neoplasm associated with an erupted tooth [1]. While the clinical differential diagnosis is quite wide and includes odontogenic keratocyst and other cystic neoplasms of the jaw, the diagnosis of this rare tumour can be reliably made by looking for the presence of both an epithelial and mesenchymal proliferation.

The epithelial component may be reminiscent of dental papilla or Rests of Malassez. The centre of the epithelial component may contain stellate reticulum. The periphery of the epithelial component is often lined by basally palisaded nuclei. Occasional cases may even show reverse polarity of the epithelium as seen in Figure 2 or an intracanalicular pattern as seen in Figure 3. The mesenchymal component typically has bland plump to ovoid spindled cells in a myxo-hyaline matrix.

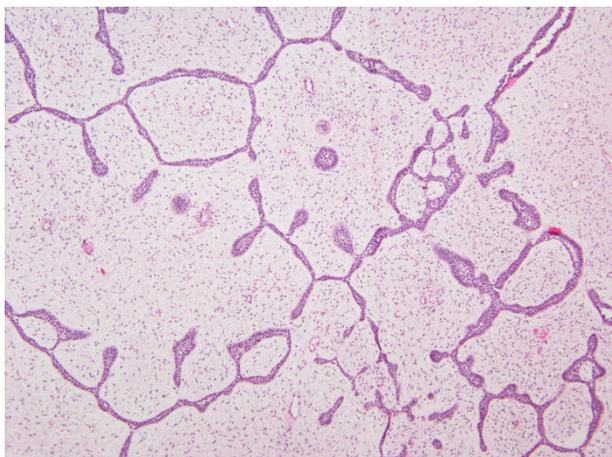


Figure 3: Ameloblastic fibroma-intracanalicular pattern.

The histological differential diagnosis for this neoplasm is an ameloblastic fibro-odontoma (Figure 4) and ameloblastic fibrosarcoma [2]. In ameloblastic fibro-odontoma, there is a composite odontoma made of multiple structures resembling small single rooted teeth. In ameloblastic fibro sarcoma, the spindled cells in the mesenchymal component contain bizarre, pleomorphic, hyper chromatic nuclei; moreover, brisk mitotic activity and atypical mitotic figures are often present.

Some authors advocate for using the proliferative index Ki-67 to determine if the tumour has more aggressive potential [3]. The Ki-67 should only be evaluated on the mesenchymal component excluding the epithelial component (Figure 5). Large scale studies for this presumption have not been performed, however close clinical follow-up is recommended for cases with an unusually high Ki-67 where the mesenchymal component does not meet the criteria for sarcoma.

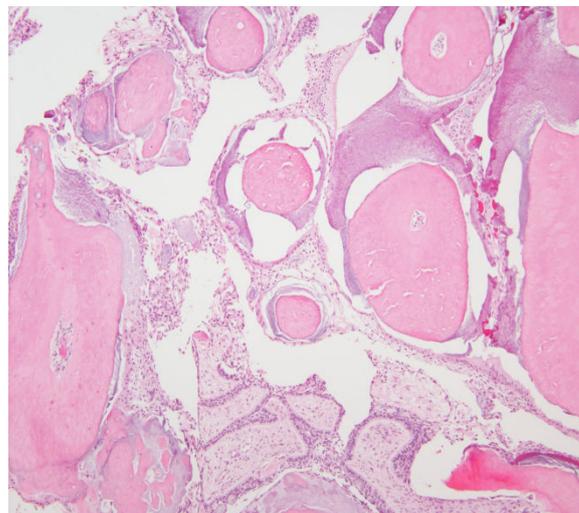


Figure 4: Composite ameloblastic fibroma and odontoma-ameloblastic fibroodontoma.

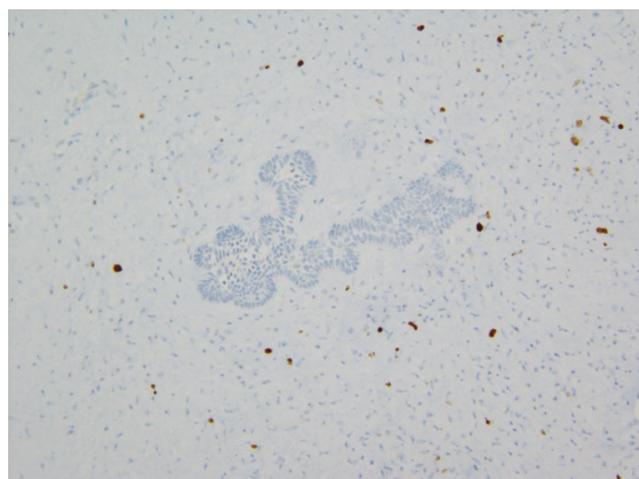


Figure 5: The Ki-67 proliferation index in the mesenchymal component is low.

It is important to recognize an ameloblastic fibroma as a benign entity with minor variants. The key to the histologic diagnosis is the biphasic proliferation of both epithelial and mesenchymal elements. Treatment involves simple excision and curettage of the mass.

Conflict of Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

References

1. Ponnampalani SR, Srivastava G, Smitha B (2012) Ameloblastic fibroma. J Oral Maxillofac Pathol 16: 444-445.
2. Zarbo RJ (2010) Chapter 19: The Jaws and Oral Cavity. In: Sternberg's Diagnostic Surgical Pathology 5th Edition. Lippincott Williams & Wilkins, Baltimore Maryland 773-823.
3. Verma N, Neha (2016) Ameloblastic fibroma or fibrosarcoma: A dilemma of oral surgeon. Natl J Maxillofac Surg 7: 191-193.