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內文：

Introduction

1. Odontoma - one of the most common odontogenic tumors of the jaw bones etiology is unknown, no sex predilection, classified as complex and compound
2. The compound type is the most common and is mainly diagnosed in the anterior region of the maxilla of children and adolescents, consists of toothlike structures or denticles arranged on a fibrous stroma
3. The complex type also affects young adults and occurs more frequently in the posterior region of the mandible. It consists of irregular dentin, cementum, and enamel masses without a defined dental morphology
4. Odontomas can cause cystic degeneration, although this is considered to be a rare phenomenon
5. Complex cystic odontomas are usually detected during clinical examination due to swelling, absence of a tooth, pain, or infection and normally affect the lower molar region
6. Anomalies of dental and facial development may be correlated with cancer treatment due to the lack of specificity of antineoplastic therapies such as chemotherapy and radiotherapy
7. a case of cystic odontoma affecting a pediatric patient diagnosed previously with Hodgkin's lymphoma (HL) who was treated by combination therapy mainly consisting of cyclophosphamide and vincristine.

Case Presentation

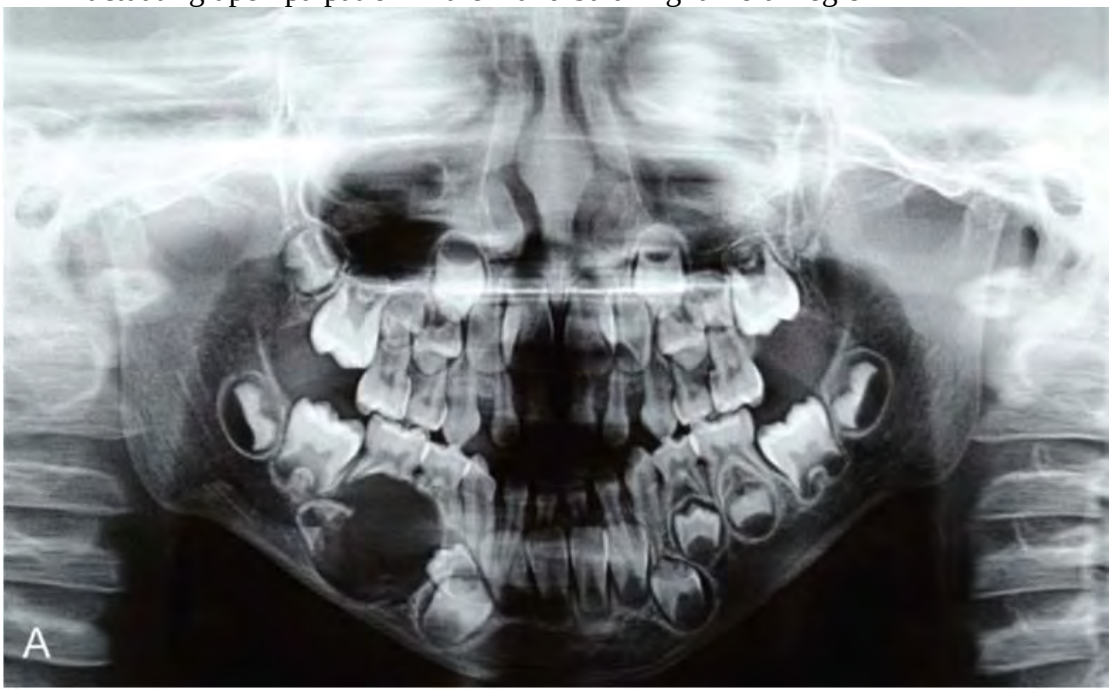
1. A black 5-year-old male patient swelling on the right side of face.
2. Anamnesis revealed that the patient had been diagnosed at age of 2 years and 8 months with mixed cellularity classical HL
3. He had received a combination of surgery, chemotherapy, and radiotherapy.

   The chemotherapy protocol

   8 cycles at 21-day intervals
   760 mg/day cyclophosphamide
   1 mg/day vincristine
   7 mg/day bleomycin
   128 mg/day etoposide
   15 mg/day Adriamycin
   155 mg/day dacarbazine
   25 mg/day prednisone.

   Radiotherapy consisted of a total dose of 2160 cGy fractionated into 12 applications of 180 cGy/day to the right cervical, supraclavicular, and infraclavicular fields and the upper mediastinum

4. Extraoral physical examination revealed a discrete swelling on the right side of the mandibular region
5. Intraoral examination showed bulging of bluish color, asymptomatic and fluctuating upon palpation in the mandibular right molar region

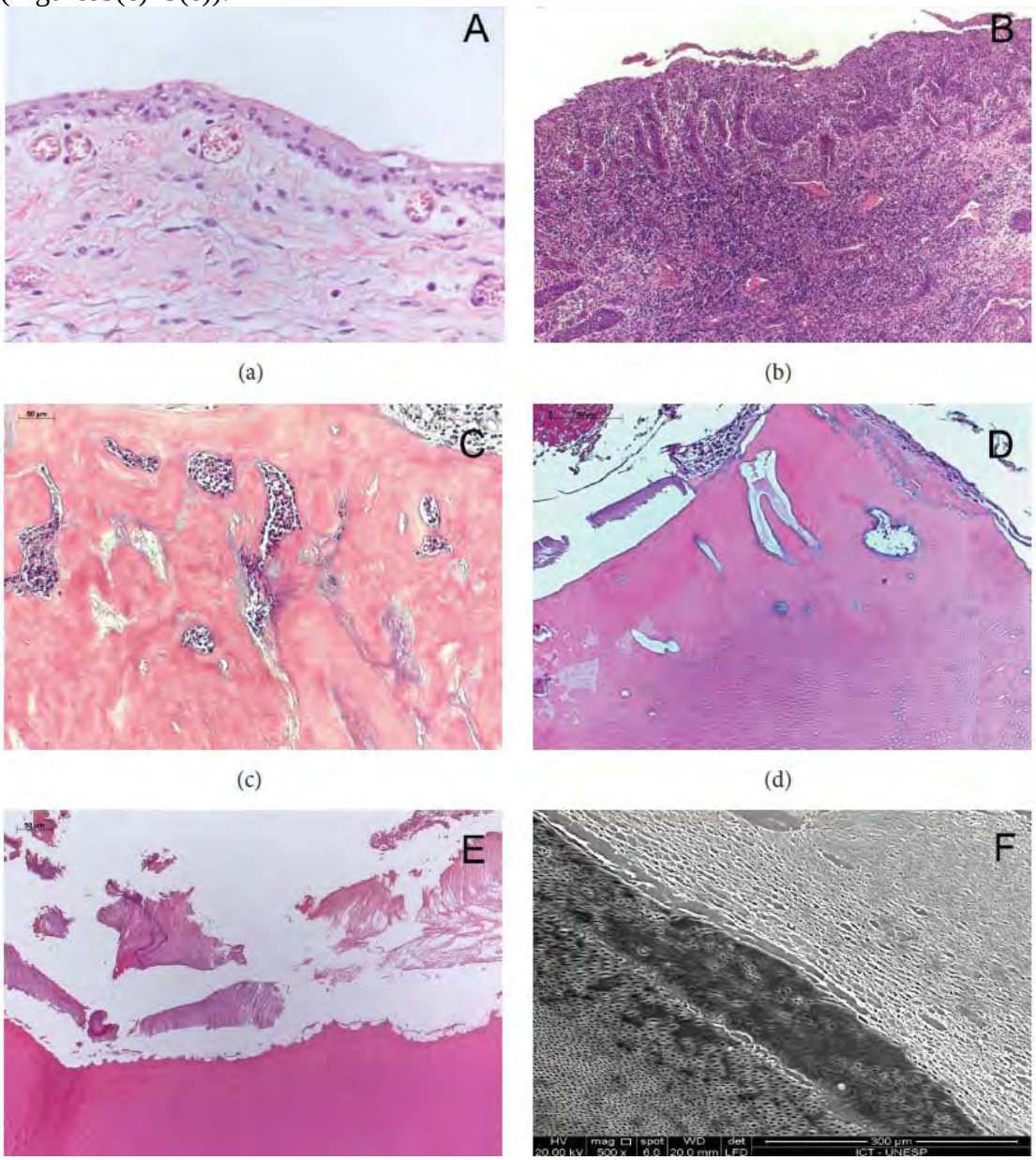


6. Panoramic radiography revealed a unilocular circumscribed radiolucent image associated with a radiopaque image of dental tissue-like density, causing reabsorption of the roots of the primary mandibular right first and second molars.

7. There was thinning of the ipsilateral mandibular basal cortical bone and delayed root development of the first permanent molars
8. Incisional biopsy: Microscopically, a cystic lesion lined with nonkeratinized atrophic stratified epithelium and supported by connective tissue without

inflammation was observed (Figure 3(a)).

9. Microscopic analysis of the surgical specimen revealed a proliferative epithelium exhibiting spongiosis and exocytosis, as well as an intense lymphoplasmacytic inflammatory infiltrate surrounded by granulation tissue in the cystic capsule (Figure3(b)).
10. Fragments of calcified tissue composed of cementoid and/or dentinoid material, as well as focal areas of a basophilic substance resembling the enamel matrix, supported by fibrocellular connective tissue and in close contact with hyperplastic epithelium, were observed at the periphery (Figures3(c)–3(e)).



Discussion

1. Hodgkin's lymphoma accounts for 6% of all childhood cancers.
   There are three distinct forms of HL:
   (a) childhood form which occurs in children aged 14 years or younger;
   (b) young adult form which affects individuals aged 15 to 34 years; and
   (c) older adult form which commonly affects individuals aged 55 to 74 years.
2. Chemotherapeutic agents can cause enamel and dentin hypoplasia, conical roots,

short apices, premature apex formation , anomalous teeth, and cysts, as observed in the present case.

3. Cyclophosphamide is considered to be cytostatic, acting on DNA and inhibiting cell division. Animal studies have demonstrated that the damage caused by cyclophosphamide is limited to primitive mesenchymal cells and preodontoblasts, preventing ameloblast differentiation due to the absence of odontoblasts and to their inductive influence on epithelial cells of the inner layer of the enamel organ
4. Some chemotherapeutic agents reduce the mitotic and secretory activity of odontoblasts and ameloblasts, interfering with the formation of collagen fibrils, with the secretion of the dentin matrix and with calcium transport in the ameloblasts.
5. Chemotherapy can lead to the formation of osteodentin, which represents a niche or an irregularity in the amelodentinal junction
   Abnormal osteodentin alters dentinogenesis and affects enamel mineralization, resulting in enamel hypoplasia over the defective dentin
   Dental abnormalities are related to the stage of tooth development, which is correlated with the age range of children at the beginning of chemotherapy as well as with the type, intensity, and frequency of the administered drug
6. The use of combined chemotherapy and radiotherapy in pediatric patients increases the risk of dental abnormalities. Radiotherapy acts directly on odontoblasts, inhibiting their mitotic activity and indirectly on the formation of enamel since it induces the formation of osteodentin replacing normal dentin by a mechanism similar to that observed with the use of chemotherapeutic agents. The patient reported here had started chemotherapy at 3 years of age, a fact that might have contributed to the pathogenesis of the cystic complex odontoma since odontogenesis of the second lower premolar starts at about 2 and 1/2 years of age.
7. Odontomas associated with cystic lesions, as in the case of a dentigerous cyst, are uncommon. Radiographically, this association appears as a mixed image containing radiolucent and radiopaque areas, with the differential diagnosis including calcifying cystic odontogenic tumors and ameloblastic fibroodontomas. Microscopically, cystic odontomas have characteristics of both dentigerous cysts and of complex odontomas, as observed in the present case.
   Conclusion
   Pediatric oncology patients who received antineoplastic treatment during the phase of odontogenesis may develop dental structure defects such as hypoplastic dentin and enamel, conical roots, root shortening, premature apex formation, agenesis, and anomalous teeth. These defects may imply esthetic, occlusal, and functional disorders and dentists should be aware of these possible side effects. Therefore, since chemotherapy can affect the growth and development of infant teeth, a relationship between chemotherapy-associated adverse events and cystic odontoma should be considerate.

題號	題目
1	罹患霍奇金氏淋巴瘤(Hodgkin's lymphoma)的病人,病理檢查註明是屬於淋巴球缺乏亞型 (lymphocyte depletion subtype),其意義為何? (A) 分期(stage)上屬於第一期 (B) 纖維化較明顯的一型 (C) 雷德斯登堡細胞(Reed-Sternberg cells)不存在的一型 (D) 較具侵襲性(most aggressive)的一型

答案(D)	出處：Oral and Maxillofacial Pathology, 3rd edition
題號	題目
2	關於齒瘤(odontoma)之敘述,下列何者正確?
	(A) 常見於成人 (B) 複雜型(complex type)由多顆微型牙齒組成 (C) 複雜型(complex type)好發於前牙區 (D) 屬於混合性齒源性腫瘤(mixed odontogenic tumors)
答案(D)	出處：Oral and Maxillofacial Pathology, 3rd edition