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Case Report

# An enigmatic ectopic eruption of odontoma

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ABSTRACT

Odontomas are benign non-aggressive odontogenic tumors and are most commonly regarded to be intraosseous lesions of jaw bones. A facial extraoral peripheral odontoma with an intriguing ectopic appearance is uncommon. A visual, radiographic, and histological confirmation of complex odontoma facilitates the treatment of surgical excision, which inhibits the creation of extraoral fistula and preserves esthetics.



## 1. Introduction

The transfer of a tooth from its intra-osseous site of development to its functional position inside the oral cavity [1] is the definition of tooth eruption.

A typical eruption is the result of a complex process in which multiple components play a role. Any changes can result in a variety of anomalies regarding the quantity, size, form, shape, structure, location of eruption and odontogenic tumors. Dental anomalies are frequent congenital defects that can occur individually or as a component of a syndrome.[2] Odontomas are benign, slow-growing, non-aggressive odontogenic tumours that are typically asymptomatic and incidental radiographic findings. Hereditary and developmental variables, local trauma, infection, and growth pressure are thought to be predisposing factors.

This is a case report of a maxillary odontoma with an extraoral ectopic presentation in which the identification and treatment posed significant clinical complications in the formation of an extraoral fistula and scar.

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## 2. Case History

A 6-year-old female, in otherwise healthy child, appeared with an abnormal, painless, white, firm growth on the right side of her face, 1 cm lateral to the nasal bridge and 1 cm inferior to the inner canthus of the right eye, which had been present for the previous two years. Inflammatory edematous development of soft tissue around hard tissue lesion with serosanguinous discharge. No substantial symptoms of cervical lymphadenopathy were present. There was an obvious asymmetry in the eye line, with epiphora in the right eye. Additionally, the right side of the face was noticeably asymmetrical compared to the left side. There was a downward pull of the right eye's inner canthus. (Figure 1 a)

During intraoral clinical examination, there was a complete complement of deciduous teeth. (Figure 1 b,c) On the floor of the orbit, exploratory cephalometric imaging revealed a well-defined amorphous mass of radiopaque shadow resembling a tooth-like shape with a central radiolucent pulp canal.(Figure 2) The mass consists of an invariable radiodensity encircled by a radiolucent rim, suggesting the presence of a tooth-like extraosseous

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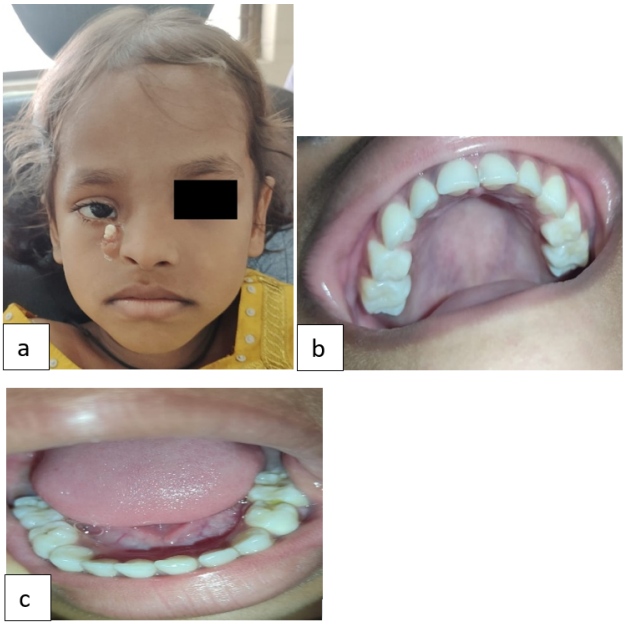


**Fig. 1: a**): Extraoral ectopic eruption of odontoma. Facial asymmetry and epiphora of the right eye

structure wholly within the soft tissue.

**Fig. 2:** Cephalometric view (white arrow head)

CT imaging aided in treatment planning by demonstrating the extent and involvement of neighboring anatomical features such as the floor of the orbit, nasal bone, infraorbital ridge, and maxillary sinus.(Figure 3)

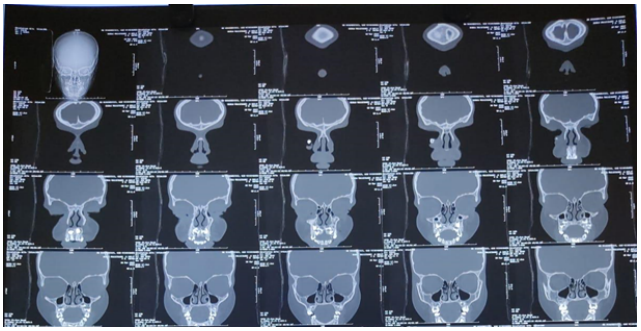

**Fig. 3:** CT the radiopaque mass within the soft tissue. Maxillary sinus air density is radiolucent

Given the clinical presentation of epiphora, an ENT surgeon assessed the patency of the nasolacrimal duct and determined that it was patent, therefore ruling out the abnormalities.

A provisional diagnosis of odontoma was obtained, and surgical extraction under 2% lignocaine was done. The socket was meticulously debrided of all granulation tissue, and the incision was then sutured and allowed for secondary healing.(Figure 5)

The histological analysis revealed irregular masses of homogeneously stained basophilic hard tissues, such as tubular dentine, and peripheral darkly stained structures, such as cementum, grouped in a disorderly manner and interspersed with regions containing central clear spaces, suggestive of pulp.(Figure 4)

The complex odontoma diagnosis was confirmed by clinical, radiological, and pathological findings.

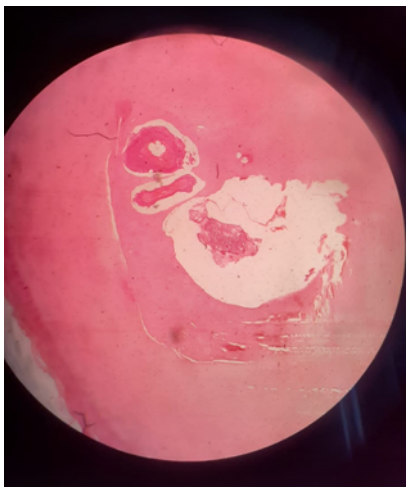

**Fig. 4:** Histological features

**Fig. 5:** Post-surgical view

## 3. Discussion

Odontomas are hamartomatous tumor-like lesions of tooth-forming tissue origin that fail to attain normal morphodifferentiation. In 1867, Paul Broca was the first person to coin the name "Odontoma." He characterized odontoma as a tumor resulting from the expansion of transitory or permanent dental tissues.[3]

Face, oral cavity, and dental apparatus development are phases of a complex process involving the union of prominences through one of two separate processes: migration, merging, and fusion. A sufficient number of neural crest cells must migrate in order for the face and related dental equipment to develop normally. The process by which two neighboring prominences are linked by an upheaval of the separating valley is referred to as merging. Fusion, on the other hand, is the process by which two neighboring prominences come into touch with one another while entrapping a double-layer sheet of epithelial cells.

The cells of the neural crest are multipotent and give rise to odontoblasts. The majority of connective tissue cells beneath the oral ectoderm derive from the neural crest or ectomesenchyme. These cells are believed to initiate tooth formation in the overlying ectoderm. The epithelial and mesenchymal components demonstrate full differentiation, resulting in the deposition of enamel, dentin, and pulpal tissue[4] by functioning ameloblasts and odontoblasts. Throughout the intricate sequence of migration, merging, and fusing, developmental abnormalities could occur. Therefore, hamartomas such as odontoma.

Odontomas have been documented to emerge from the maxillary sinus, mandibular condyle, coronoid process, orbit, palate, chin, and skin, as well as the ovaries, testes, anterior mediastinum, retroperitoneum, presacral, and coccygeal regions.[5]

The present case features an uncommon extraoral odontoma with a complicated morphology. Early trauma to dental machinery, illness, hereditary conditions (such as Gardner's syndrome), and gene variations can trigger the growth of an odontoma instead of a tooth,[6,7] according to reports.

Odontomas are often benign hamartomas, which account for 22% of odontogenic tumors. 9 to 37% of all odontogenic tumors of the jaws are compound odontomas, while the incidence of complex odontomas is between 5 and 30%.[8] The majority of odontomas in the anterior region of the jaws (61%) are compound composite, while the majority in the posterior segment (34%) are complex composite. On the right side of the jaw, both forms of odontomas occurred more frequently than on the left side.[9] Odontomas are widespread in permanent dentition, whereas the research indicates an uncommon prevalence with primary teeth.[10] Rarely, odontomas are observed in the maxillary sinuses, pituitary region, sub-condylar region, ramus of the jaw, middle ear, mental foramen, and mid-palatal region.

In the current case, peripheral odontoma is uncommonly accompanied with extraoral presentation and a complete complement of deciduous teeth. Saeed and Khalid saw numerous odontomas in both the maxilla and mandible of a 7-year-old female.[11]

A visual inspection of the lesions cannot distinguish between the complex and compound varieties on its own. Compared to radiographic evaluation and visual examination, CT appears to be the most effective clinical approach for distinguishing between the two categories.[12]

The radiographic image of a compound odontoma reveals relatively well-organized malformed teeth or tooth-like structures, with a radiolucent pulpal canal at the center, whereas an intraosseous complex odontoma typically reveals an irregularly shaped oval radiopacity surrounded by a well-defined thin radiolucent zone. In the case of compound odontoma, in which there are multiple extremely small, conglomerated deformed teeth or tooth-like structures, the radiological image is similar to that of complex odontoma, making it difficult to differentiate between the two types.

Typically, a differential diagnosis is determined by comparing the degree of morphodifferentiation and histodifferentiation of dental hard tissue.[13]

## 4. Conclusion

Odontoma has a limited development potential, but it should be removed because it can predispose to significant bone destruction and the establishment of extraoral fistula, as well

as compromise an individual's esthetics. Given the harmful impact such an unesthetic appearance can have on a person's socio-psychological status, it is crucial to address the issue as soon as feasible. Early detection of odontoma enables us to avoid displacement or devitalization of surrounding teeth, cyst formation, and loss of nearby vital structures.

## 5. Source of Funding

None.

## 6. Conflict of Interest

None.

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