

# Eruption Cyst of a Newborn and Review of the Management

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## ABSTRACT

Eruption cyst is a cyst associated with the unerupted tooth that is rarely found in a newborn or infant. We reported a case of a male infant who presented with an eruption cyst at birth in which has not caused any feeding or airway problem to him. Periodic monitoring was performed and spontaneous regression of the cystic lesion was observed within a month with the presence of a neonatal tooth .

## INTRODUCTION

Oral lesions in newborn are uncommon. However, if the lesion does occur, it could be a concern for the parents especially if the lesion interferes with feeding or, in a worse case, causing an airway obstruction that needs immediate medical attention.

An oral cystic lesion in a newborn or an infant is one the example of the rare cases of newborn. The oral cyst is associated with the presence of another rare dental anomaly called natal or neonatal teeth. Naturally the cystic lesion is self-limiting making it possible to be managed conservatively in a primary care setting. However, the management of the premature eruption of teeth in newborns needs further consideration. It is vital for a clinician to correctly diagnose the lesion to avoid unnecessary invasive procedures and able to provide appropriate information to parents about the nature of the lesion.

## CASE REPORT

We reported a case of a male newborn who was day 2 of life and referred to the Paediatric Dentistry Unit at Hospital Universiti Sains Malaysia for an evaluation of a swelling in the anterior mandibular gingiva which was

noted soon after birth. He was born full-term through uneventful spontaneous vaginal delivery and the antenatal period was insignificant. He did not have any abnormality elsewhere, and there was no history of dental or hard tissue development problems or syndromes in the family.

On examination, there was a soft tissue mass at the anterior lower left region of the gingiva measuring 10mm x 4mm that was cystic-like, uninflamed with soft surfaced, fluctuated, and contained clear fluid (Figure 1). The other part of the intra-oral mucosa was normal. The swelling did not interfere with his feeding and no other indication of functional difficulties. The mother had no concern with the lesion and agreed to periodic monitoring every two weeks. A provisional clinical diagnosis of a cystic lesion was made as the clinical presentation and texture observed were inconsistent with either a malignant lesion or any other solid tumour.

On day 14 review, the size of the previous cystic lesion had partially regressed, and a tooth-like structure was palpable within the cyst. A radiographic intervention was planned to confirm the presence of the tooth; however, it was not consented by the mother in view that she was agreed to come for regular monitoring. At the 4th week

review, the cyst disappeared entirely with the presence of a partially erupted tooth (Figure 2). The tooth was firm and did not cause any functional difficulties; hence it was decided to keep the tooth, and the infant was put under regular review every six months.



**Figure 1.** Cystic lesion at the lower gingiva present at birth



**Figure 2.** Complete regression of cyst and presence of natal/ neonatal tooth at week 4

## DISCUSSION

Eruption cysts (ECs) are rarely found in newborns compared to other age groups. Recent data reported most ECs to occur in the early mixed dentition age (6-9 years old), which coincides with the eruption of permanent incisors and molars.<sup>1</sup> In a clinical report of 24 patients with ECs, only two (8.3%) cases were found in newborns.<sup>2</sup> This unusual lesion found in newborns is associated with an anomaly called natal/neonatal teeth. Natal teeth are observed in the mouth at birth, and neonatal teeth erupt during the first 30 days of life. It is a rare event with a reported incidence of only 1: 1000 to 30 000 births.<sup>3</sup> Overall, the literature suggests a very low prevalence of ECs in newborns and their association with natal/neonatal teeth. Hence, it is imperative to educate the clinician about this rare oral disturbance for better patient management.

Eruption cysts (ECs) arise from enamel organ epithelium after the enamel formation is complete. In general, the histopathologic features of ECs reveal surface oral epithelium on the superior aspect with infiltration of inflammatory cells at the underlying lamina propria. However, the definite aetiology of eruption cysts remains unknown. Early caries, trauma, infection and space deficiency for tooth eruption are thought of as possible

contributing factors for most ECs.<sup>4</sup> The current case is an example of EC with the presence of a natal/neonatal tooth. It has been speculated that a more superficial position of the tooth germ might accelerate tooth eruption at birth and give rise to a natal tooth (the average age of primary tooth eruption is 4-6 months). Eruption cysts with natal/ neonatal teeth commonly occur as an isolated case, but there are reported associations with several syndromal conditions such as chondroectodermal dysplasia and pancytopenia congenita. Therefore, a newborn with any unresolved oral pathosis should be arranged to see a paediatrician for further assessment and investigation.

The diagnosis of ECs in newborns is almost certain during the physical intra-oral examination. Clinically, ECs appear as soft, rounded, transparent and fluctuate swelling in the mucosa of the alveolar ridge. Sometimes the colour of the lesion can be reddish bluish due to blood accumulation from the gingiva during tooth eruption.<sup>1</sup> The current case resembled a typical cystic lesion with no clinical presentations suggesting malignancy or vascular origin. Nevertheless, a radiograph is indicated to confirm the presence of a supernumerary tooth or part of the normal dentition and rule out any bone pathology.<sup>4</sup> In our case, given the bland presentation of the cystic lesion and the parents' agreement to return, the decision to keep reviewing the swelling was justifiable. Moreover, the parents did not consent to a radiograph intervention because of radiation concerns. Like in most ECs cases, spontaneous regression of the swelling was expected. If this does not occur during the review, then a radiograph would be adamant about dictating the subsequent appropriate management of the lesion.

The surgical approach for the ECs in newborns might not be routinely indicated. Most of the lesions do not require treatment and would resolve spontaneously.<sup>5,6,4</sup> The constantly repeated compression by the action of feeding might help to reduce the size of the lesion and lead to rupture. However, several eruption cysts would need surgical intervention (Table I). A more radical approach includes cyst enucleation and extraction of the associated natal/neonatal tooth.<sup>7</sup> A superficial incision of the overlying tissue to expose the crown of the tooth and

**Table I.** List of reported eruption cyst (EC) in newborn and its management

Authors & Year of study	Management of EC
de Oliveira, Silveira, Duarte and Diniz (2018) <sup>5</sup>	EC present at birth and was monitored. Complete cyst regression at 1 month of age
Weber, Ilha, Borges, Ruschel et al (2015) <sup>9</sup>	EC was present at birth. Surgical intervention was carried out at 4 months of age
Muraleekrishnan, Babu, Pratap and Parvathy (2011) <sup>7</sup>	EC was present at birth. Cyst enucleation and extraction of natal teeth was performed
Alemán Navas, Martínez Mendoza, Leonardo, Silva et al (2010) <sup>10</sup>	EC present at birth and was aspirated to reduce the size of the lesion. Complete cyst regression was observed at 1 month of age
Ricci, Parisotto, Aparecida Giro, de Souza Costa et al (2008) <sup>6</sup>	EC was noticed during the neonatal period and was monitored before complete regression within 1 month
Boras, Zaini and Savage (2007) <sup>4</sup>	EC was present at birth and was monitored. Complete cyst regression at 5 months of age

drain the fluid is also recommended when the spontaneous regression is not observed or when the lesion enlarges. The associated natal / neonatal tooth would then need a decision as to the likely positive benefits of retention of the tooth or early removal.

The presence of natal/ neonatal teeth could pose several problems such as hypermobility, pain in feeding and Riga Fede diseases.<sup>8</sup> If the decision is taken to proceed to extraction of the tooth, the good clinical practice would require appropriate local anaesthetic, high volume suction, and gauze to protect the airway. There is a protocol to defer tooth extraction until a newborn is at least ten days old for the commensal flora of the intestine to become established and to produce vitamin K, which is essential for the production of prothrombin in the liver.<sup>7</sup> In our case, the natal tooth did not cause any functional difficulties throughout its course. Therefore, it was decided to keep the tooth as long as it stayed unproblematic under our regular review.

## CONCLUSION

In conclusion, eruption cysts can be present in a newborn or infant, and due to their benign nature, the lesions can be managed conservatively. Parents should be reassured

regarding the self-limiting character of eruption cysts; however, if the swellings cause any concern, especially the feeding difficulties, patients can be referred to the paediatric dentist for further management.

## CONFLICT OF INTEREST

None

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