Original Research

CONGENITAL INTRAORAL DERMOID CYST WITH CERVICAL EXTENSION MANAGED VIA A SINGLE INTRAORAL APPROACH IN A NEONATE: A CASE REPORT

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ABSTRACT

Background: Dermoid cysts of the oral cavity are rare congenital lesions arising from ectodermal tissue entrapment during embryogenesis. In neonates, these lesions are uncommon but clinically significant due to their potential to cause feeding difficulties and airway compromise depending on their size and anatomical location.

Case Presentation: We report a case of a male neonate presenting with swelling involving the oral cavity and left side of the neck since birth. The infant had difficulty swallowing and was dependent on bottle feeding. The patient re-presented at two months of age with fever and progressive increase in swelling size. Clinical examination revealed a tense, fluctuant, non-tender cystic swelling involving the sublingual region and left submandibular area. Magnetic Resonance Imaging demonstrated two well-defined ovoid cystic lesions. The intraoral lesion measured approximately 3.5 × 2.5 × 1.5 cm, and the cervical component was located adjacent to the submandibular gland. Fine Needle Aspiration Cytology (FNAC) revealed benign squamous cells with inflammatory background and yielded characteristic milky white fluid, suggestive of a dermoid cyst. This case is unique due to the presence of both intraoral and cervical components, which were successfully managed through a single intraoral approach, thereby avoiding the need for an external incision.

Therapeutic Intervention and Outcome: The patient underwent complete surgical excision via an intraoral approach under general anesthesia. The cervical component was mobilized, decompressed, and delivered intraorally, enabling total excision without an external incision. Postoperative recovery was uneventful except for transient edema, which resolved within a few days. Histopathological examination confirmed the diagnosis, and no recurrence was observed on follow-up.

Conclusion: Early diagnosis and complete surgical excision are essential for successful management. The intraoral approach provides excellent functional and cosmetic outcomes, even in lesions with cervical extension, while preventing complications such as infection and airway compromise.

Keywords: Dermoid Cyst, Neonate, Sublingual Swelling, Intraoral Excision, Congenital Cyst.

INTRODUCTION

Benign developmental lesions called dermoid cysts result from the sequestration of ectodermal tissue during embryological fusion. Histologically, they have keratinized stratified squamous epithelium lining them, and they may have skin appendages like hair follicles, sweat glands, and sebaceous glands.[1,2] Less than 2% of all dermoid cysts and a tiny percentage of head and neck lesions are found in the oral cavity, despite the fact that dermoid cysts can develop in a variety of anatomical locations.[3]

Clinically, these cysts usually appear as slow-growing, painless swellings in the midline of the floor of the mouth. They may cause functional problems or stay asymptomatic, depending on their size and anatomical relationship to surrounding structures.[4]

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Even relatively tiny lesions in newborns and babies can cause serious clinical signs such dysphagia, trouble feeding, limited tongue movement, and in extreme situations, airway compromise.[5]

Imaging methods like magnetic resonance imaging and ultrasonography, which assist define the extent and anatomical linkages of the lesion, support the diagnosis, which is mostly dependent on clinical evaluation.[6] Aspiration of Fine Needles Its benign nature can be confirmed with the use of cytology. The intraoral technique is recommended for the best functional and cosmetic results, and complete surgical excision is still the final therapy.[7]

Case Presentation

A male neonate was brought with a swelling involving the oral cavity and the left side of the neck, which had been present since birth. The caregivers reported difficulty in feeding, with the infant unable to breastfeed effectively and therefore dependent on bottle feeding. There was no history of respiratory distress, cyanosis, or choking episodes at birth or in

the immediate neonatal period. The antenatal history was unremarkable, and there was no history of maternal illness or drug exposure during pregnancy. The patient was initially advised further evaluation; however, he presented again at the age of two months with complaints of fever and a noticeable increase in the size of the swelling. The swelling had progressively enlarged over time.

On general examination, the neonate was hemodynamically stable with no signs of systemic toxicity. Vital parameters were within normal limits. No associated congenital anomalies were noted.

Local examination revealed a tense, fluctuant, non-tender swelling in the floor of the mouth causing elevation and posterior displacement of the tongue. The overlying mucosa was stretched but intact. An additional swelling was palpable in the left submandibular region, suggesting extension beyond the oral cavity (Figure 1, Figure 2).

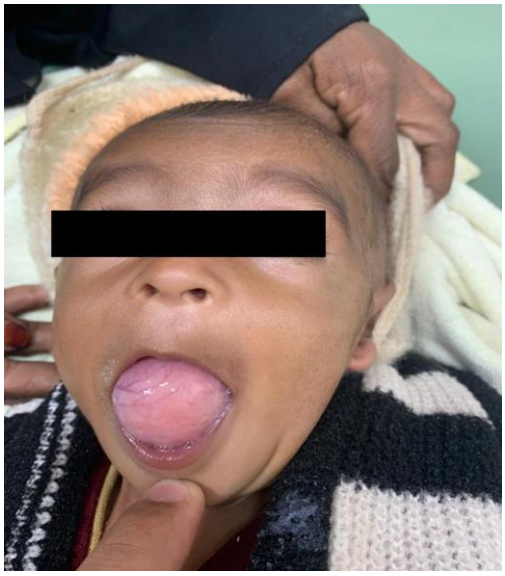

Figure 1: Pre-Operative Intraoral Clinical Image Showing Sublingual Swelling

Figure 1 Notes: Pre-operative photograph demonstrating a tense cystic swelling in the floor of the mouth causing elevation and posterior displacement of the tongue. The overlying mucosa appears stretched but intact, consistent with a benign cystic lesion.

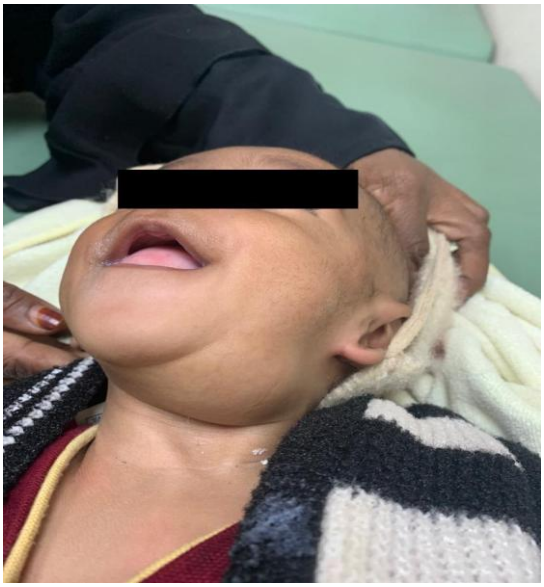

Figure 2: External Clinical Image Showing Left Submandibular Swelling

Figure 2 Notes: External view of the neck demonstrating a well-defined swelling in the left submandibular region, suggestive of cervical extension of the intraoral lesion.

Clinical Findings

On presentation, the neonate was clinically stable but exhibited significant feeding difficulty due to the mass effect of the intraoral swelling. There were no

signs of respiratory distress, cyanosis, or airway obstruction. Local examination demonstrated a cystic lesion in the sublingual region, elevating the tongue and restricting its mobility. The swelling was soft to firm in consistency, fluctuant on palpation, and non-tender.

The submandibular component was palpable externally as a well-defined, non-tender swelling without overlying skin changes. There was no local warmth, erythema, or signs of acute inflammation. Airway patency was maintained.

Overall, the clinical findings were consistent with a benign cystic lesion involving both intraoral and cervical compartments.

Timeline

Time Point	Clinical Event
Birth	Presence of oral and neck swelling
Neonatal period	Feeding difficulty; bottle feeding
2 months	Increase in swelling with fever
Admission	Evaluation and imaging
Same admission	FNAC done
Surgery day	Intraoral excision
Post-op Day 1–3	Edema
Follow-up	No recurrence at 3 months

Differential Diagnosis

The differential diagnosis of cystic lesions in the floor of the mouth includes:

- Ranula
- Thyroglossal duct cyst
- Lymphatic malformation (cystic hygroma)
- Epidermoid cyst
- Submandibular gland pathology

Ranula typically presents as a bluish translucent swelling, whereas lymphatic malformations are often multiloculated and transilluminant. Thyroglossal duct cysts are usually midline and move with tongue protrusion. Imaging and cytological findings in this case helped differentiate dermoid cyst from other cystic lesions.

Diagnostic Assessment

Magnetic Resonance Imaging (MRI) of the head and neck was performed to assess the extent of the lesion. Imaging revealed two distinct, well-defined, ovoid cystic lesions:

·One located on the undersurface of the tongue in the sublingual space

·Another adjacent to the left submandibular gland extending into the neck

Both lesions demonstrated well-defined margins and thick walls, with features consistent with a benign cystic pathology. On MRI, the lesions appeared hyperintense on T2-weighted images and hypointense to isointense on T1-weighted images, further supporting a benign cystic nature (Figure 3).

Figure 3: Mri Axial Sections Showing Intraoral Dermoid Cyst With Cervical Extension

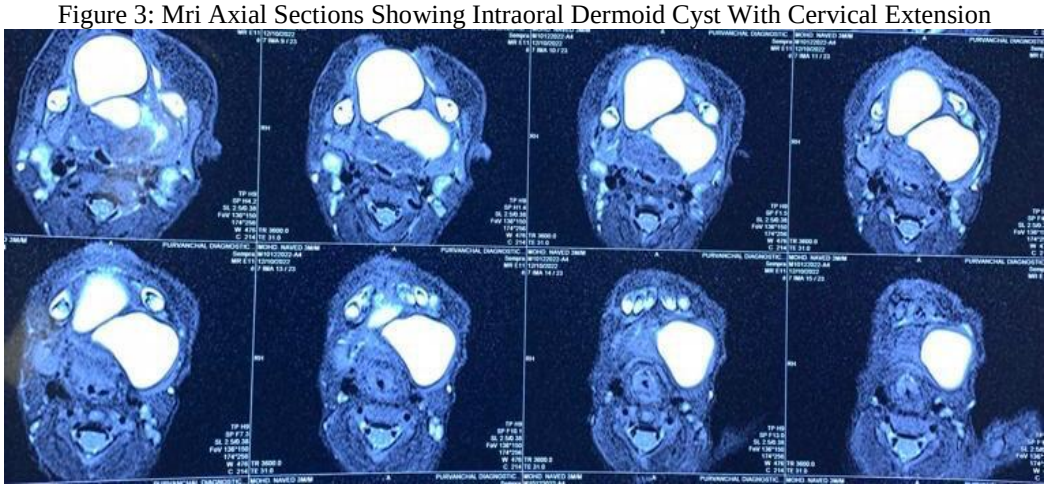

Figure 3 Notes: Axial MRI images demonstrating well-defined ovoid cystic lesions in the sublingual space with extension into the submandibular region. The lesions appear hyperintense on T2-weighted images, consistent with cystic pathology.

Fine Needle Aspiration Cytology (FNAC) was performed, which revealed benign nucleated squamous epithelial cells along with a few anucleated squamous cells and moderate to dense neutrophilic inflammation. The aspirate yielded

characteristic milky white fluid, suggestive of keratinaceous content.
Based on the clinical presentation, radiological findings, and cytological analysis, a provisional diagnosis of an intraoral dermoid cyst with cervical extension was established.

Therapeutic Intervention
A surgical approach was planned under general anaesthesia with endotracheal intubation to ensure airway protection. The patient was started on appropriate antibiotic coverage prior to surgery to reduce the risk of infection.
An intraoral approach was chosen to avoid external scarring and to allow direct access to the lesion. A mucosal incision was made over the swelling in the floor of the mouth, and careful dissection was carried out to identify the cyst wall. The dissection was performed in a submucosal plane while preserving surrounding structures, including Wharton's duct and the lingual nerve. A well-defined, thick-walled cyst measuring approximately 3.5 × 2.5 × 1.5 cm was identified.
The cervical component of the lesion was gently mobilized and pushed intraorally. Decompression of the cyst facilitated its delivery through the oral cavity. Complete excision of the cyst, including its entire wall, was achieved to prevent recurrence, and the excised specimen was sent for histopathological examination (Figure 4).

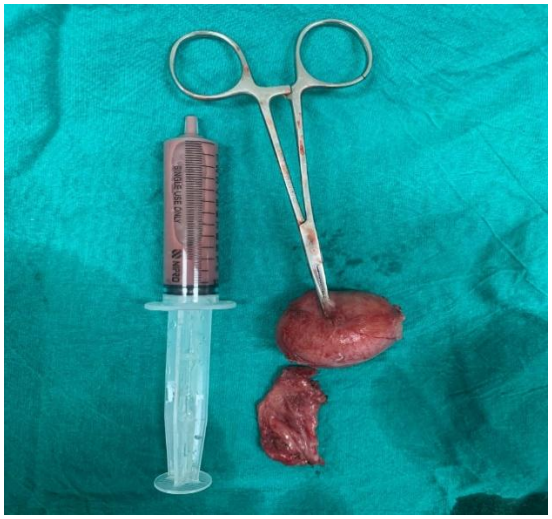

Figure 4: Gross Specimen of the Excised Dermoid Cyst

Figure 4 Notes: Gross specimen showing a well-defined cystic lesion with keratinaceous content, consistent with a dermoid cyst.
The surgical field was thoroughly irrigated, and meticulous hemostasis was ensured. The wound was closed in layers using absorbable sutures.

Follow-Up and Outcomes
In the immediate postoperative period, the patient developed localized edema in the floor of the mouth, which persisted for 2–3 days and gradually subsided with conservative management. The patient tolerated feeds well after surgery, with significant improvement in swallowing function. Oral feeding was resumed within 24–48 hours postoperatively, and the patient was discharged in stable condition.
There were no postoperative complications such as infection, haemorrhage, or airway compromise. The surgical site healed satisfactorily.
Histopathological examination of the excised specimen confirmed the diagnosis of a dermoid cyst, characterized by a cystic cavity lined by stratified squamous epithelium containing keratinous material.
During follow-up, the patient showed normal feeding behaviour and appropriate weight gain. There has been no evidence of recurrence over a follow-up period of 3 months.

DISCUSSION
The present case highlights a rare presentation of a congenital intraoral dermoid cyst with cervical extension in a neonate, emphasizing both diagnostic challenges and surgical considerations. Dermoid cysts are benign developmental lesions that arise due to ectodermal tissue entrapment during embryological fusion. Although they may occur in various anatomical locations, their occurrence in the oral cavity is uncommon, and presentation in the neonatal period is even rarer.[8]
Intraoral dermoid cysts usually manifest as slow-growing, painless swellings in the floor of the mouth. However, in neonates, even relatively small lesions can produce significant functional impairment due to the limited oral space. In the present case, the infant exhibited feeding difficulty, which is a key clinical feature. The elevation and posterior displacement of the tongue interfered with effective swallowing and breastfeeding, necessitating bottle feeding. Such symptoms highlight the importance of early recognition and evaluation of oral swellings in neonates.[9]

A distinctive aspect of this case is the presence of both intraoral and cervical components. Most dermoid cysts are confined to a single anatomical compartment, whereas dual-compartment involvement is uncommon and poses challenges in diagnosis and surgical planning. Imaging, particularly magnetic resonance imaging, plays a crucial role in delineating lesion extent and its relationship with adjacent structures. Fine Needle Aspiration Cytology further aids in confirming the benign nature of the lesion by demonstrating keratinous content and squamous cells.[10]

Traditionally, lesions with cervical extension are managed using an external surgical approach. However, this case demonstrates that an intraoral approach can be effectively employed even in complex presentations. Careful dissection, mobilization, and decompression of the cyst allowed complete excision through a single intraoral incision, thereby avoiding external scarring and reducing surgical morbidity.[11]

Postoperative recovery in this case was favourable, with only transient edema and no major complications. The patient showed marked improvement in feeding and no evidence of recurrence on follow-up. Complete excision is essential to prevent recurrence, as residual cystic tissue can lead to regrowth. Overall, this case underscores the importance of early diagnosis, appropriate imaging, and a well-planned surgical approach in achieving successful outcomes in rare neonatal presentations.[12]

LIMITATIONS

This report is limited by its single-case design and relatively short follow-up duration. Further studies with larger sample sizes are required to validate the effectiveness and generalizability of the intraoral approach in similar cases.

CONCLUSION

Intraoral dermoid cysts are rare congenital lesions that can present early with feeding difficulty in neonates due to their location and mass effect. Early diagnosis using clinical evaluation, imaging, and cytology is essential for appropriate management. Magnetic Resonance Imaging plays a key role in assessing lesion extent and surgical planning. Complete surgical excision remains the definitive treatment, with the intraoral approach offering excellent cosmetic and functional outcomes. In this case, successful intraoral excision resulted in resolution of symptoms without recurrence. Prompt intervention and regular follow-up are crucial to prevent complications and ensure normal growth and development.

This case reinforces that minimally invasive intraoral techniques can be effectively utilized even in complex neonatal presentations.

Patient Perspective

The caregivers reported significant improvement in feeding following surgery and expressed satisfaction with the treatment outcome. They appreciated the absence of external scars and the uneventful recovery.

Informed Consent

Written informed consent was obtained from the patient's guardians for publication of this case report.

Ethical Approval

Ethical approval was obtained from the institutional ethics committee in accordance with local regulations and guidelines. The study was conducted in compliance with the principles of the Declaration of Helsinki.

Conflict of Interest

The authors declare that they have no conflicts of interest regarding the publication of this case report.

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