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CASE REPORT

CONGENITAL NASAL GROWTH IN A NEWBORN:A CASE REPORT ON DIAGNOSIS AND SURGICAL MANAGEMENT

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ABSTRACT

Background: Congenital nasal masses, although rare, pose significant clinical challenges, particularly in neonates. These masses may be benign or malignant, and careful monitoring and early intervention are essential to avoid complications. This case report describes a male neonate with a congenital growth at the tip of his nose.

Material and Methods: We report the case of a 1,5-year-old child who were treated for nasal growth in our unit, inclusive, were reviewed retrospectively. Information recorded included medical history, clinical characteristics, diagnostic procedures, treatment methods, and the outcome.

R**esults**: At six months mass was removed under general anesthesia without complication. This case highlights the importance of early diagnosis and timely surgical treatment for congenital nasal masses, ensuring both functional and cosmetic benefits.

Conclusion: Congenital nasal masses, though rare, require careful monitoring and timely intervention to prevent complications

Keywords: newborn, congenital anomalies of the nose, congenital nasal masses, teratoma**.**

INTRODUCTION

Congenital nasal masses are a consequence of disrupted embryonal developmental processes in the frontonasal region. They are thought to be embryologically related to developmental anomalies of the frontal lobe and the responsible mechanism is the incorrect closure of the anterior neuropore, which leads to the preservation of the anterior cranial defect[1,2] Embryonic abnormalities in the frontal lobe can result in the development of midline nasal masses[3].

Congenital nasal masses are rare and can be composed of tissue that has herniated from the cranium or may be made of tissue native to the nasal cavity. Encephaloceles, Meningocele and Gliomas can consist of ectopic intracranial tissue and may have an intracranial connection[4-6]. Dermoids in contrast are not composed of intracranial tissue and are thought to be due to the failure of the normal separation of the different germ cell layers. There are a wide range of causes of nasal masses in children[6-9].

Congenital nasal masses, though infrequent, are critical to recognize due to their potential for functional and cosmetic complications.

Early diagnosis and intervention are essential to avoid complications such as airway obstruction or infections[11-13].

Diagnosis of congenital anomalies of the nose is based on collecting anamnesis, objective examination of the child, results of laboratory tests and instrumental diagnostic methods. Anamnestic data can indicate a possible etiology - previous infections, exposure to pathological factors, genetic predisposition, etc. Severe defects of the external nose are manifested by characteristic deformation of the facial skull already during the initial examination by a pediatrician or neonatologist. In the development of sinusitis, this technique reveals pallor, excessive moisture of the mucous membranes. Laboratory tests are used to confirm or refute infectious etiology, exclude inflammatory complications. Instrumental research methods occupy a leading place in the diagnosis of congenital anomalies of the nose. In pediatrics, nasal cavity probing, fibroendoscopy, radiography (sometimes with contrast). Probing makes it possible to determine the patency of the nasal passages, fibroendoscopy – to fully examine the condition of all intranasal structures[14-16]. Radiographic work-up and management of any neonatal respiratory distress that may result from absent or hypoplastic nasal structures should be performed expeditiously. Computed tomography (CT) or magnetic resonance imaging (MRI) remain the standardsfor presurgical management in all midface nasal masses. A CT image is preferred for assessing the bony defect. Nasal gliomas may contain areas of calcification or cystic changes on CT scan and tend to be isodense on CT.

Magnetic resonance imaging (MRI) provides detailed imaging of the nose and post nasal space and has the advantage of soft tissue imaging and information on any intracranial connection. An MRI can differentiate between gliomas and encephalocele by demonstrating an associated CSF space.

Surgery is the only treatment modality to prevent local and intracranial inflammatory complications, as well as distant facial skeletal deformities[17-19].

In newborns there may be a visible mass projecting from the nasal cavity and may present with respiratory distress due to the fact that newborns tend to be obligate nose breathers. They may become cyanotic when feeding or crying, a condition known as cyclic cyanosis. The timing of surgical intervention in patients with congenital nasal anomalies depends on the specific pathology. Newborns are required to breathe through their nose for at least 6 weeks of life and up to the first 6 months.

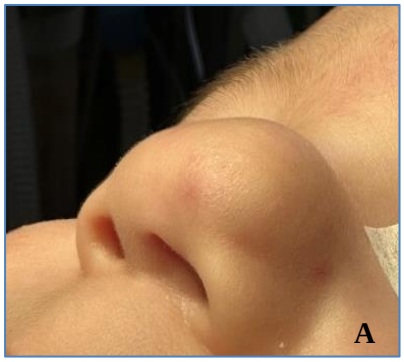
The main treatment for congenital nasal anomalies is surgical. The time frame for the operation depends on the severity of the child's condition. In case of choanal atresia, the earliest possible correction is indicated, since there is a high risk of asphyxia. Severe deformations of the external nose are also subject to rhinoplasty at an early stage. The scope of operations and surgical access are determined individually for each child. External lesions may be excised using a skin incision over the mass or a coronal flap approach. After the treatment, there is always a rehabilitation period, including full care, regular treatment of the mucous membranes of the nasal cavity, and drainage changes every 10-15 days. If necessary, the child is transferred to parenteral nutrition; infusion and antibacterial therapy can be used.

This case report discusses a neonate with a congenital nasal growth that was diagnosed and treated surgically, providing an opportunity to highlight the clinical and diagnostic steps involved in managing such conditions.

Case Report

The case that we present is unique in the Republic of Armenia, congenital growth of the nose in a child. A

male infant, born on December 28, 2023, was diagnosed with a congenital growth at the tip of his nose (Figure 1A, B).



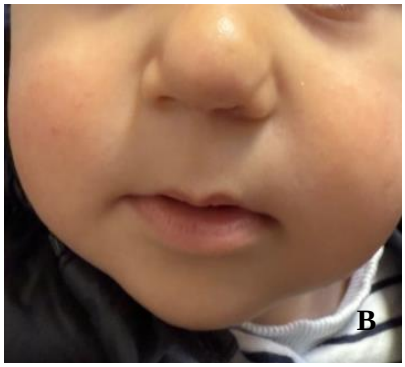


Figure 1. A,B Growth at the tip of nose.

The lesion was immediately observed following birth, and the pediatric team initiated periodic monitoring. By three months, the lesion showed noticeable growth, prompting further investigation. Sonographic assessments revealed an increase in size, and an MRI was ordered at that time.

The MRI confirmed the presence of a benign soft tissue mass, likely a dermoid cyst, and it indicated the necessity for surgical intervention(Figure 2).

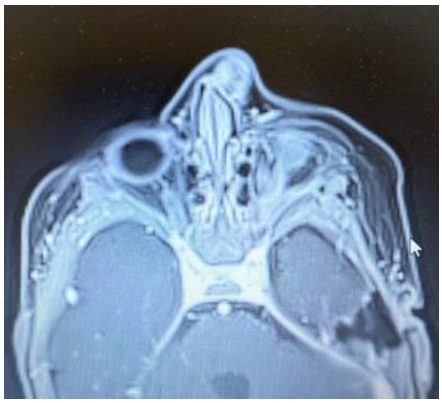


Figure 2. The MRI of the growth.

At six months of age, the infant was admitted to the maxillofacial surgery department at Yerevan State Medical University, Muratsan Hospital Complex. The mass was excised under general anesthesia without complications.

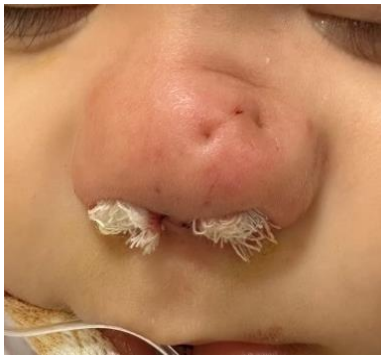


Figure 3. Immediately after removing growth mass

The excised tissue was sent for histopathological examination(fig.4), which confirmed the diagnosis of a **teratoma**. The biopsy revealed a well-circumscribed lesion composed of stratified squamous epithelium with a fibrous capsule and sebaceous glands. There were no signs of malignancy or infection, and the cystic contents were found to contain keratinized material. These histological features are typical of dermoid cysts, confirming the benign nature of the mass.

Figure 4. Excised tissue which undergo histopathological examination

The infant's recovery following surgery was uneventful. No complications such as infection, wound dehiscence, or cosmetic concerns were noted. The postoperative outcome was excellent, with no recurrence of the lesion after several months of follow-up.

DISCUSSION

Congenital nasal masses are rare but important to diagnose early, as they can lead to significant functional and aesthetic issues[20,21].

Masses in the nose may be caused by glioma, meningoencephalocele, encephalocele, congenital rhabdomyosarcoma, and lymphatic malformations[22].

Teratomas are thought to arise from multipotent germ cells anywhere from the brain to the coccyx, most often in the midline during the fourth and fifth weeks of gestation[22]. The estimated reported incidence of teratomas is 1 in 35,000–40,000 live births[23,24].

Most teratomas arising in the head and neck region are benign and asymptomatic, can cause upper airway obstruction and respiratory distress in newborns, and require intubation to maintain airway patency and ensure early removal[25,26].

Imaging plays a crucial role in the evaluation of congenital nasal masses. Ultrasound is often used as the first-line imaging technique for soft tissue evaluation in neonates. However, when further detail is needed, MRI is the preferred modality. Surgical excision remains the treatment of choice for symptomatic congenital nasal masses, especially those that are progressively growing or causing cosmetic concerns. Early surgical intervention, as in this case, typically leads to a favorable outcome both functionally and cosmetically.

The prognosis for life in children with congenital nasal anomalies, provided that the operation is performed in a timely manner, is favorable. The cosmetic result directly depends on the severity of the defect and the capabilities of the pediatric surgeon. In most patients, it is possible to reconstruct the physiological shape of the nose, restore normal nasal breathing and patency of the paranasal sinuses. Prevention of congenital nasal anomalies is similar to any other congenital pathologies. It involves adequate pregnancy management, regular visits to the antenatal clinic, ultrasound according to the schedule, and complete rejection of bad habits during pregnancy. This case illustrates the importance of early intervention and the successful outcome that can result from appropriate management of congenital nasal growths.

CONCLUSION

Congenital nasal masses, though rare, require careful monitoring and timely intervention to prevent complications. Early diagnosis through imaging, including sonography and MRI, is crucial to determining the appropriate management plan. Surgical excision is often the treatment of choice for lesions that are causing symptoms or growing progressively.

DECLARATIONS

Conflicts of interest and financial disclosures

The authors declare no conflict of interest

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Ethical approval

In this study ethical approval is not required.

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