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Congenital Hairy Polyp Causing Severe Upper Airway Obstruction in a Newborn: A Case Report

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Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
Funds Collection G

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Conflict of interest: None declared

Patient: Female, newborn
Final Diagnosis: Congenital hairy polyp
Symptoms: Cyanosis • respiratory distress
Medication: —
Clinical Procedure: —
Specialty: Oncology • Otolaryngology

Objective: Congenital defects/diseases

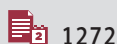
Background: Hairy polyps are rare tumors mainly comprising fatty tissues covered by skin and hair follicles, with varied localizations and sizes. Early excision of the polyps by surgery is an effective treatment resulting in a permanent cure. We present a case of successful management of severe obstruction of the oropharynx in a newborn who presented with a large mass of congenital hairy polyp.

Case Report: A vaginally delivered infant, weighing 3 kg, presented immediately after birth with cyanosis symptoms, failure of the first cry, and respiratory distress signs. The newborn was born to a mother with an uneventful pregnancy. Screening tests during the pregnancy reported no congenital anomalies. The newborn's hematological and biochemical test results were normal. After presenting these symptoms, the newborn was immediately intubated and put on a nasogastric feeding tube, which revealed a small portion of a polyp-like mass. A computed tomography (CT) scan further confirmed a large pedunculated mass, measuring 3×2 cm, arising from the soft palate, and obstructing the oropharynx. Histopathological examination confirmed the presence of a hairy polyp. The polyp was wholly removed transorally using the Covidien LigaSure device without the need for endoscopy. This procedure allowed safe extubation, and the baby was discharged home without symptoms 4 days after birth.

Conclusions: This case sheds light on the importance of considering hairy polyp in the differential diagnosis of pharyngeal mass with respiratory distress in pediatric patients. This report also describes our experience using the LigaSure surgical device without needing endoscopic visualization to successfully resect the hairy polyp without complications.

Keywords: Infant Health • Developmental Biology

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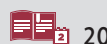
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Background

Hairy polyps are rare benign congenital tumors of infants and neonates, comprising both mesodermal and ectodermal elements [1]. They mostly occur at the time of birth, or in infants and young children, with a higher female incidence than in males (ratio of females to males=6: 1) [2]. However, there is no evidence of a genetic predisposition [3]. It typically presents as a gray or white pear- or sausage-shaped pedunculated mass mostly occurring in the nasopharynx and oropharynx, while a few cases have also been reported to arise in the soft palate, hard palate, tongue, tonsil, or tympanum [3]. Neonatal airway obstruction due to pharyngeal polyps can be lethal and thus should be managed carefully as early as possible. However, the diagnosis is not straightforward, but varies according to the type, size, and location of the hairy polyps, as well as clinical presentations [4]. Some hairy polyps, such as those in the oral cavity, are highly symptomatic and/or large and thus are easily visualized on physical examination, resulting in early diagnosis [5]. Small hairy polyps and nasopharyngeal or middle-ear polyps may long remain silent without presenting symptoms until they progress to adulthood, leading to more frequent diagnoses and sometimes become lethal [6]. Simple surgical excision of the mass may be effective in completely removing the hairy polyps [2].

We report the successful management by surgical resection of a severe obstruction of the oropharynx in a newborn baby caused by a large mass of congenital hairy polyp (CHP) arising from the soft palate. Written informed consent was obtained from the mother to have the case details published.

Case Report

A vaginally delivered female baby weighing 3 kg and presenting with cyanosis symptoms with a failure of the first cry immediately after birth. The baby had an attack of suffocation and showed clinical signs of severe respiratory distress syndrome. The baby was immediately admitted to the Neonatal Intensive Care Unit (NICU). The history of pregnancy was uneventful, and the screening revealed no congenital anomalies in the baby. The hematological and biochemical investigations of the baby were within the normal range. A chest X-ray confirmed the diagnosis of pneumothorax. After that, the patient was immediately treated by chest tube insertion and intubation with mechanical ventilation and nasogastric (NG) tube insertion. During this process, a small white portion of a polyp-like mass was noticed. A computed tomography (CT) scan further confirmed the presence of a large pedunculated mass (3×2 cm) with a short stalk, originating from the soft palate and obstructing the oropharynx (**Figure 1**). The histopathological examination showed a polypoid structure composed of

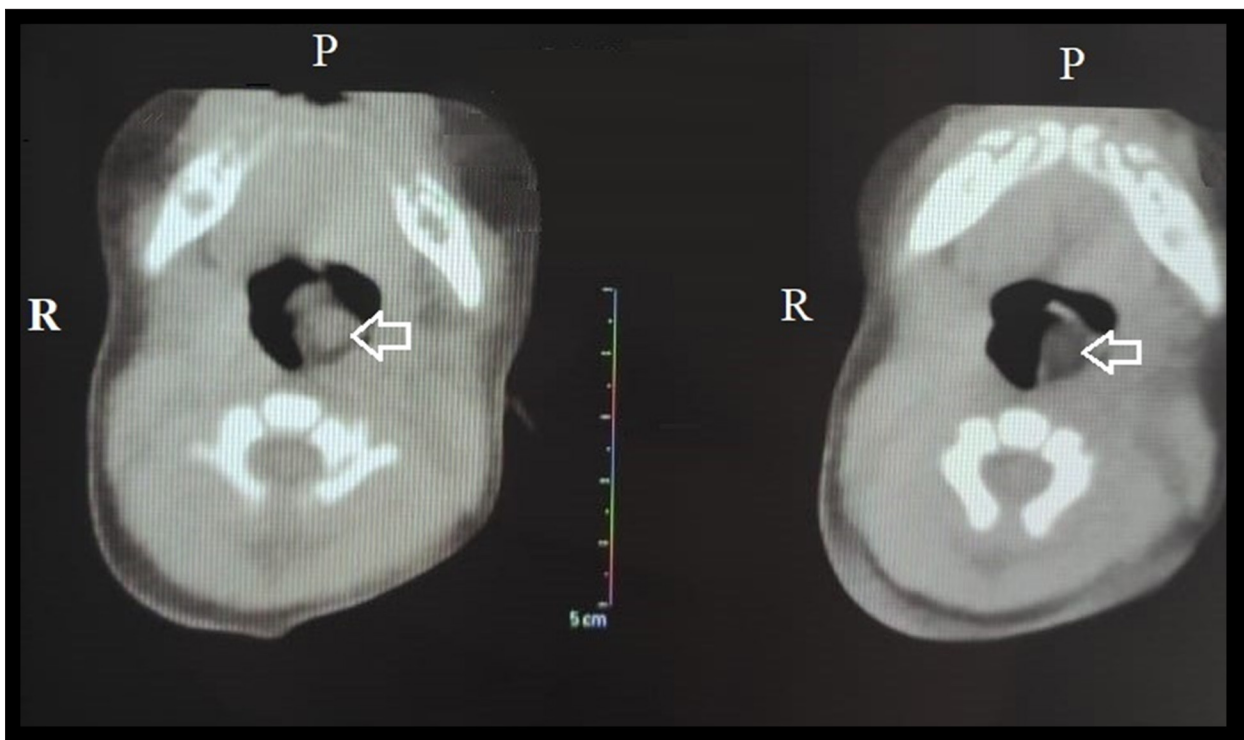


Figure 1. Computed tomography (CT) scan of the hairy polyp originating from the soft palate (indicated by arrow) obstructs the neonate's oropharynx.

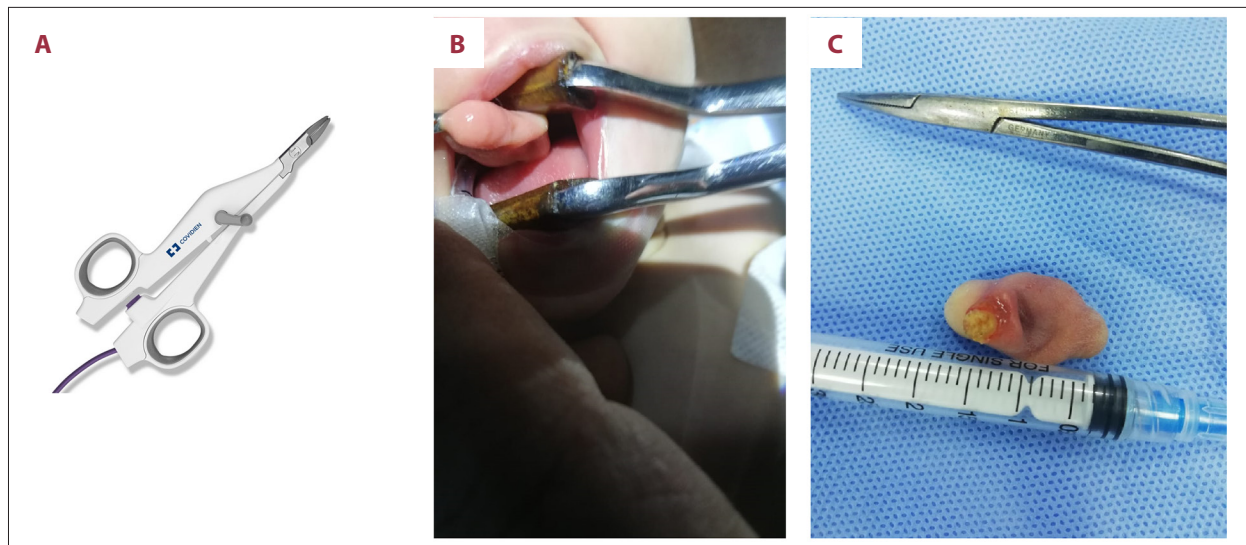


Figure 2. (A) The used the Covidien LigaSure device to excise the mass. (B) The hairy polyp being pulled out of the mouth before excision. (C) The polypoid mass of hairy polyp after the excision, measuring 3×2 cm.

fibrofatty tissue enclosing cartilaginous tissue and surfaced by epidermal covering and hair follicles, confirming hairy polyp features. No evidence of malignancy was observed.

Surgical Procedure

The informed consent to perform surgery was obtained from the baby's family. On the 2nd day of delivery, when the newborn's condition stabilized, the surgical procedure to remove the hairy polyp was conducted. The newborn was laid in a supine position, and general anesthesia was then administered. A small mouth gag was used to open the mouth. The light from a headlamp was enough to visualize the mass attached to the soft palate, and there was no need for video endoscopy. The mass was entirely excised from its attaching stalk using the Covidien LigaSure device to avoid bleeding due to the newborn's tiny mouth (Figure 2). The oropharynx was checked for good patency, homeostasis was secured again, and the mouth gag was removed. The baby was put on antibiotics and steroids. The postoperative period was uneventful. There was no respiratory distress, and the patient was extubated immediately after surgery while keeping the chest tube and NG tube in place. The baby was fully recovered in 4 days. The chest and NG tubes were discontinued, and the baby was discharged home.

Discussion

A hairy polyp is a rare benign tumor, having an incidence rate of 1: 40 000 [7]. It is crucial to perform a thorough physical examination of the oro- and nasopharynx in newborns for a mass to avoid any complications. Clinical presentation of symptoms varies according to the size, location, and mobility of the mass

and mostly includes respiratory obstruction (50%) and feeding difficulties (24.6%) in those with larger lesions [1,8]. Other symptoms at birth may include cyanosis, stridor, asphyxia, hypersalivation, dyspnea, recurrent cough, snoring, slow weight gain, and sometimes speech problems as well [9-11]. CHP is rarely associated with other congenital abnormalities; however, some anomalies, including second branchial arch anomalies or cleft palate, have been described [12]. Our patient presented with cyanosis and respiratory distress due to upper respiratory airway obstruction at the time of birth. A physical examination and chest X-ray led to the diagnosis of pneumothorax. As in the present case, enteral nutritional support with the NG tube should be considered when difficulty in feeding or failure to thrive occurs.

Radiological investigations are further recommended as they play an essential role in (a) evaluating the size and location of the CHP mass, (b) ruling out the differential diagnosis, (c) ascertaining the presence of intracranial growth and other anomalies, and (d) determining the options of treatment including surgery [13]. CHP characteristically appears in the radiological imagings as a lesional mass that shows no intracranial spreading, contains fatty tissue, and is connected with a fibrous stalk. A CT scan was performed in our patient immediately after birth, and it revealed a large mobile mass (3×2 cm) originating from the soft palate, obstructing the oropharynx. Further confirmation by histopathology is necessary to determine the mass microscopic structure and distinguish it from other lesions. A hairy polyp may be composed of tissue originating from mesodermal germ layer components such as fibro-adipose tissue, muscle, and cartilage, and ectodermal germ layer components such as squamous epithelial tissues with skin appendages. While hairy polyp has been classified

as a dermoid cyst according to Arnold's classification [14], a few other authors have described them as teratomas and choristomas [15]. To date, there have been no reports of malignant transformation. Similarly, the histological examination in the present case confirmed the presence of a hairy polyp and ruled out malignancy.

Complete transoral surgical resection of the polypoid mass under endoscopic control is usually a safe and minimally invasive treatment of choice for hairy polyps [10,16] with no reported risk of recurrence [17]. Successful excision of polyps from the pedicle base using either micro-laryngeal scissors [4], knife [11], CO₂ laser [18], or bipolar diathermy [19] has been reported earlier. In the present case, the tumoral lesion was entirely removed transorally using the Covidien LigaSure surgical device without the need for endoscopy. The postoperative course was uneventful. No respiratory distress was observed in the infant, and the baby was discharged from the NICU 4 days after the birth. Although the LigaSure device has been used to resect tumors in various cancer types and other types of surgeries [20], to the best of our knowledge, this is the first successful case of resection of hairy polyp in an infant using this technology.

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Conclusions

Congenital naso- or oro-pharyngeal hairy polyp, although rare, should be considered in the differential diagnosis of life-threatening airway obstruction in neonates. Histological examination is a definitive diagnosis and is also essential for prognosis and follow-up methods. Surgical resection of the tumor mass is the definitive life-saving management. Our case highlights the successful use of transoral surgery using the LigaSure device to completely excise the hairy polyp originating from the soft palate of the oropharynx in a newborn baby without needing endoscopic visualization. A planned multidisciplinary approach is viable in early diagnosis and prompt treatment of hairy polyps in neonates.

Conflict of Interests

None.