

## Pictorial Essay

## Nasopharyngeal Hairy Polyp in a Neonate : MR appearance

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**Abstract** Hairy polyp of the nasopharynx is an uncommon developmental malformation that is most frequently seen as a pedunculated tumor in the neonate. We report a female neonate with this lesion showing intermittent respiratory distress successfully treated with surgical excision. MR showed the precise tissue characteristics and locations in the case of our patient before the surgery. In a newborn with a naso-opharyngeal mass, MR is recommended to prospectively differentiate a benign fat-containing mass from a cyst or lesion of vascular or neurogenic origin.

**Keywords** Hairy Polyp, Nasopharynx, Choristoma, Magnetic resonance imaging, Neonate

## Introduction

Hairy polyp in the upper aerodigestive tract is an uncommon developmental anomaly consisting of ectodermal and mesodermal tissue<sup>1)</sup>. It most frequently occurs as a pedunculated mobile tumor, and it may cause intermittent airway obstruction in the newborn. We report here the magnetic resonance imaging (MR) findings on a nasopharyngeal hairy polyp in a neonate.

## Case report

A female infant weighting 3,018 g was born by spontaneous vaginal delivery at 38 weeks gestation. She developed intermittent cyanotic episodes soon after birth. After admission to our hospital, she had successive episodes of apnea and cyanosis relieved by vigorous crying. Her respiratory distress disappeared immediately after endotracheal intubation.

A round-shaped whitish mass was seen to

protrude into the mouth when she was crying and at the time of applying oropharyngeal suction. At other times, it was barely visible on direct inspection of the mouth. The mass was found to be a mobile pedunculated lesion. The pedicle seemed to attach the mass to the left side of the oropharynx.

MR images were obtained while the mass was pulled and fixed in the oral cavity by means of sutures. Axial and sagittal T1-weighted images of the mass showed a hyperintense signal (fat intensity) surrounding an isointense (muscle intensity) center (Fig.1, 2). It seemed to have continuity to the left lateral oropharyngeal wall. These findings allowed a confident preoperative diagnosis of a benign fat-containing teratoid polyp.

During surgery, it was noted that the lesion was 3cm in diameter and skin-covered with numerous fine hairs. The polyp is covered with keratinized skin, and had a core of fibromuscular tissue surrounded by mature adipose

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tissue (Fig.3). It had a pedicle attached to the left upper surface of the soft palate. The mass was successfully excised, and the infant made an uneventful recovery. She has done well for 10 months postoperatively without complications.

Histological examination showed fibromuscular bundles with cartilage at the center of the polyp (Fig.4a). The polyp consisted of fatty

tissue covered by squamous epithelium including hair follicles and sebaceous glands (Fig.4b).

## Discussion

Hairy polyp of the nasopharynx is an uncommon developmental malformation. It was observed most frequently in the neonatal period

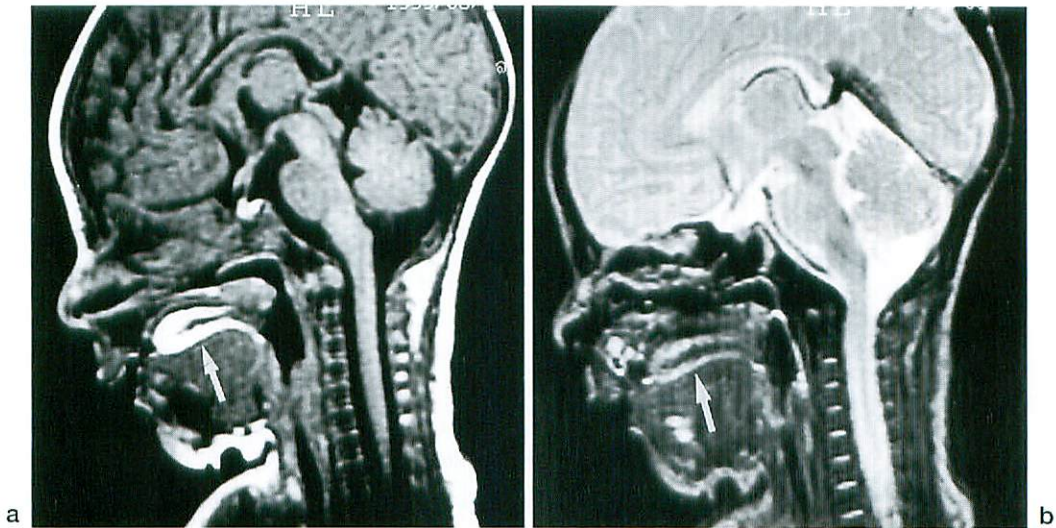


Fig.1

Sagittal T1-weighted (a) and T2-weighted (b) MR images show a mass (arrows) with fat intensity surrounding the core with muscle intensity.

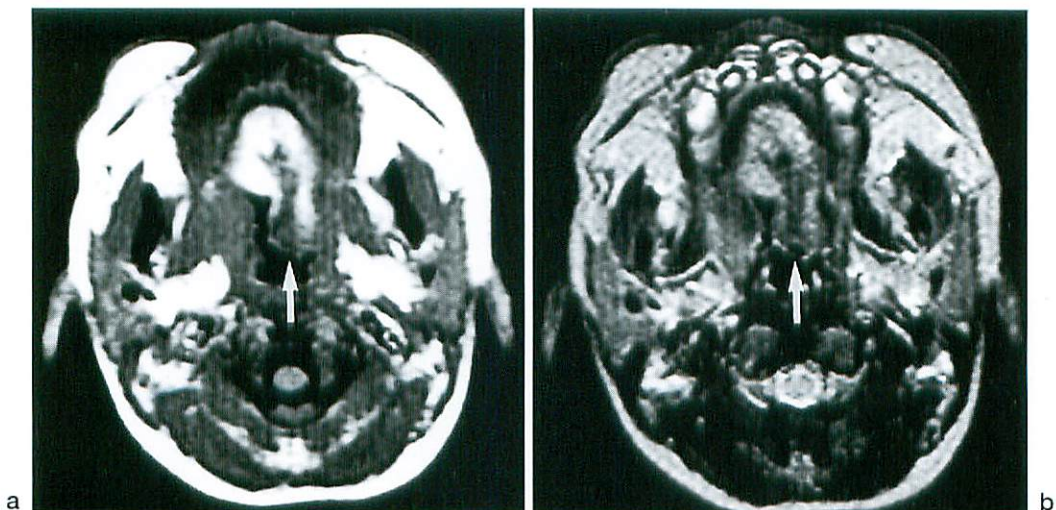


Fig.2 Axial T1-weighted (a) and T2-weighted (b) MR images

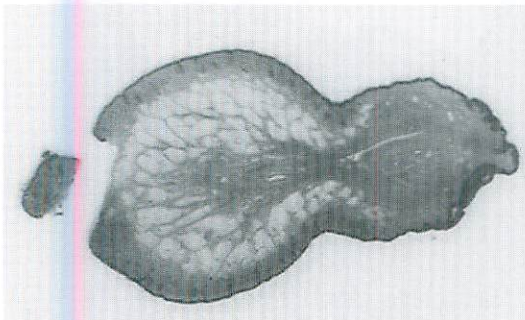
Similar to the sagittal images, fat intensity surrounds the muscle intensity-core.

The mass (arrows) seems to have continuity to the left lateral oropharyngeal wall.



and approximately 140 cases were reported in English literature<sup>1)</sup>. The clinical presentation depends on the size, shape, and location of the lesion. Large lesions can cause acute airway obstruction and, less commonly, feeding difficulty, hemoptysis, unilateral nostril drainage. The lateral wall of the nasopharynx and the upper surface of the soft palate are the most common sites of origin.

In earlier reports, hairy polyp was referred to as "teratomas", "dermoids", or "hamartomas". The confused nomenclature for developmental tumors has been clarified by Batsakis. He classified them into five subgroups; hamartoma,

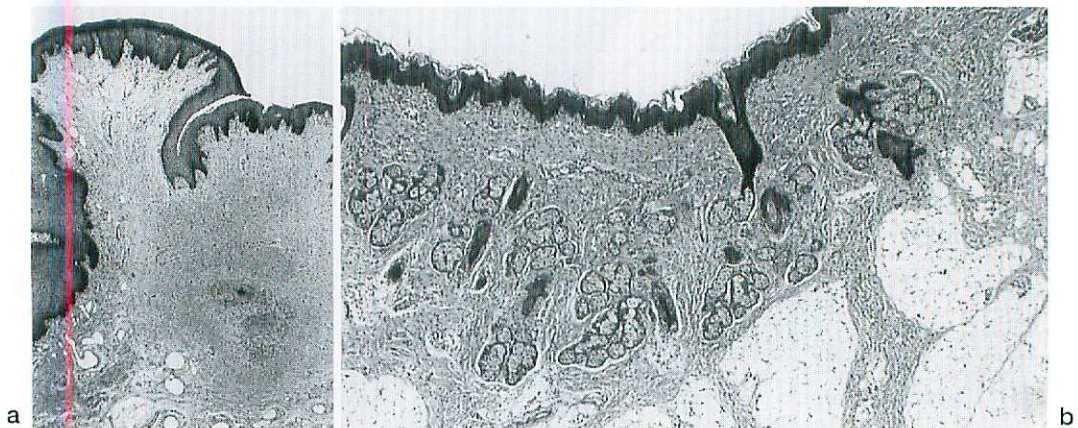


**Fig.3** Cross sectional appearance of the polyp

The polyp is covered with keratinized skin, and had a core of fibromuscular tissue surrounded by mature adipose tissue.

choristoma, embryoma, teratoma, and dermoid<sup>2)</sup>. The most appropriate designation for the hairy polyp is a choristoma, since it is composed of tissue foreign to the site but it is otherwise histologically normal as in our case. Hamartoma is similar malformations but differ in being composed only tissues indigenous to the site. Teratoma is regarded as true neoplasm, which differentiate towards tissues of all three germ layers. Dermoid cyst is composed of enclaved ectodermal tissue and is found at point of developmental fusion. Except for a small part of the teratomas, these developmental tumors do not have growth or malignant potential. Histologically, hairy polyp is covered by squamous epithelium including hair follicles and sebaceous glands. The deeper parts are consisted of fatty connective tissue with smooth and striated muscle, minor salivary glands, nerves, cartilage, and bone<sup>3)</sup>. Surgical excision results in a complete cure.

Preoperative radiological studies are crucial to delineating the location, extent, and characteristic of the lesion. The differential diagnosis of nasopharyngeal mass in the neonate includes teratoma, hemangioma, neuroblastoma, glioma, meningoencephalocele, and foregut, thymic, thyroglossal, and lingual cysts. In our case, MR



**Fig.4** Photomicrographs of the specimen stained with hematoxylin and eosin

The central part of the mass contains cartilaginous tissue (a). The core of adipose tissue is covered with keratinized epidermis and dermis. This contains hair follicles and sebaceous glands (b).

image revealed the precise tissue characteristics of the mass ; a muscular core surrounded by fat intensity as in another case reported previously<sup>4)</sup>. The presence of fat within a nasopharyngeal mass indicates teratoma, hamartoma, or choristoma. Once the absence of intracranial extension has been confirmed, surgical excision should be conducted.

In our present case, although the location of the pedicle attachment seemed to be lateral oropharyngeal wall on MR, surgical operation reveled to have its origin on the soft palate. Because hairy polyp often has a peduncle, it should be noted that it might be difficult to identify its origin correctly even utilizing MR.

The hairy polyp of the nasopharynx is a rare malformation which may cause airway obstruction but can be completely cured by surgical excision. In a newborn with a naso-

oropharyngeal mass, MR is recommended to prospectively differentiate a benign fat-containing mass from a cyst or lesion of vascular or neurogenic origin.

## ●References

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