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Case Report

Nasopharyngeal mature teratoma in the newborn

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Abstract

Teratomas which originate from two or three germ layers are the most common congenital tumors of the childhood and are usually observed in the sacrococcygeal region. The nasopharynx is a considerably rare localization. Nazopharyngeal tumors may lead to significant findings including apnea, respiratory distress and stridor in newborns. In this study, a female newborn who developed respiratory distress minutes after cesarean delivery was presented. Examination following a difficult intubation and radiological examination revealed presence of a nasopharyngeal mass in the baby who was born at the 30th gestational age from a 30-year old primipar woman. The nasopharyngeal mass was excised and histopathological examination revealed mature teratoma. Although nasopharyngeal teratoma is a benign tumor, it may lead to urgency of airway management in the newborn. In this case presentation, the differential diagnosis and treatment of nasopharyngeal teratoma was discussed in accompaniment with the literature information.
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Key words: Nasopharynx, teratoma, newborn

Introduction

Teratomas are one of the most common extragonadal germ cell tumors observed in the childhood. Mature teratoma is benign and contains the mature tissues of at least two of the three germ layers (1-3). Although teratomas may be observed in very different organs, the most common localization is the sacrococcygeal region. Although nasopharyngeal teratomas are observed considerably rarely, they usually appear as large tumoral masses and lead to severe upper airway obstruction in the first minutes of life (2, 3). In our study, a case of nasopharyngeal teratoma which is encountered very rarely was presented in the light of the literature and the clinical, radiological and histopathological findings and treatment were reviewed.

Case

A male baby was born with a birth weight of 1 490 g by urgent cesarean section performed because of breech presentation at the 30th gestational age from a 30-year old healthy mother who was not followed up during pregnancy and who was found to have polyhydramniosis on ultrasonography (USG) performed before delivery. The baby was intubated because of respiratory distress and difficult airway found after delivery. At this time, it was observed that a soft mass with a smooth surface which exuberated from the posterior part of the soft palate towards the oropharynx and oral cavity obstructed the airway on oropharyngeal examination (Figure 1). On non-contrast computerized tomography (CT) of the neck of the baby who was born preterm and admitted to the intensive care unit, a mass filling the oropharynx with a diameter of 5 cm with adipose tissue and occasional calcific areas in the middle was observed; the bone structures of the skull base were intact (Figure 2). On thoracal CT, a cystic structure with a thin wall including divisions which had no solid component and which contained air was observed in the mediastinum.

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The mass of the patient was removed completely under general anesthesia on the second day after birth. The mass was punctured primarily and it was found that it did not contain cerebrospinal fluid. Afterwards, aspiration catheters delivered through the nasal passages were drawn from the oral cavity and the soft palate and uvula were made to be separated anteriorly. The origin of the mass was tried to be visualized by examining the oral cavity and nasal passage with 0° rigid endoscope with a diameter of 2.7 mm. The tumoral mass which was found to have originated from the left posterior lateral wall of the nasopharynx was removed with the help of a bipolar cautery. The baby who could not be extubated after operation because of the cystic structure in the mediastinum was continued to be followed up in the intensive care unit. Respiratory distress or disruption in oxygen saturation was not observed in the patient who was extubated on the third day after operation. The histopathological examination of the mass revealed "mature teratoma" (Figure 3).

In the follow-up, the cystic structure in the lung regressed. On follow-up magnetic resonance imaging (MRI) of the neck performed at the first and 12th months after surgery, an excessively dense remnant tissue with a diameter of 0.5 cm was observed in the posterior lateral wall of the nasopharynx on the left side where the teratoma had originated (Figure 4).

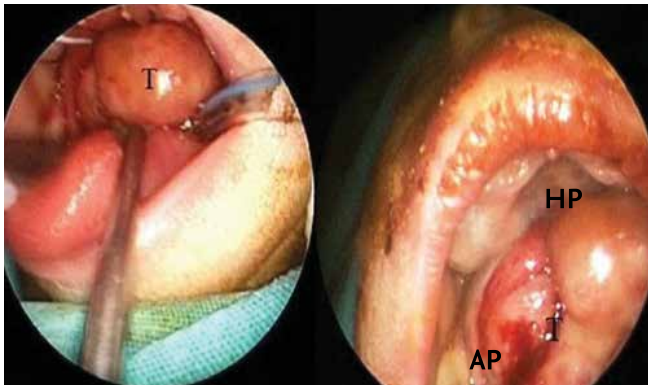

Figure 1. Endoscopic appearance of teratoma
T: teratoma; HP: hard palate; AP: anterior plica

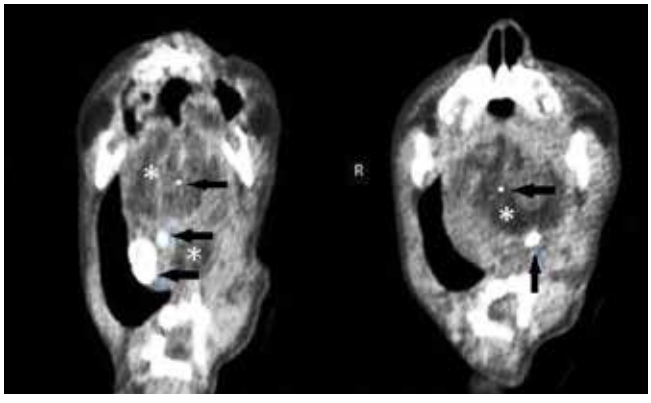

Figure 2. Non-contrast CT appearance before operation
Arrow: calcified areas; *: hypodense areas

Although no problem occured during the 12-month follow-up of the patient, ventilation tube was placed in the left ear in the 16th month because of unresponsive otitis with effusion. Simultaneously, multiple "punch" biopsy samples were obtained from the tuberance in the left posterior lateral wall of the nasopharynx because the remnant tissue with a diameter of 0.5 cm observed on MRI. However, no tumor was found on histopathological examination. No other problem was found on the 20th month follow-up visit of the patient whose growth and development was normal. Informed consent was obtained for publication of this case in the literature.

Discussion

Teratomas are observed most frequently in the sacrococcygeal region (one in every 4 000 live births). The head and neck region is the second most common site. Head and neck teratomas constitute 6-10% of all teratomas (4, 5). Nasopharyngeal teratomas occur more rarely. While sacrococcygeal and head-neck teratomas are usually observed in the first two months of life, nasopharyngeal teratomas may lead to complaints at birth as seen in our patient (6).

Teratomas are divided into two groups as mature and immature teratomas. Mature teratomas are benign and they do not

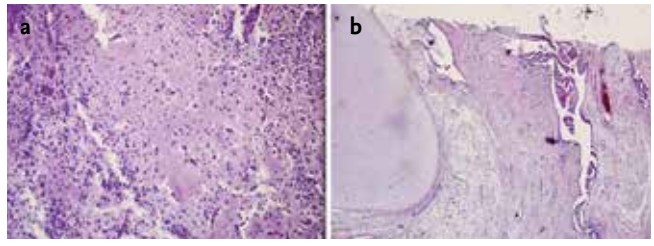

Figure 3. Histopathological appearance of the subject. Histologically, mature glial tissue (a) and mature cartilage and glandular areas (b) were observed
a: H&Ex200; b: H&E x40

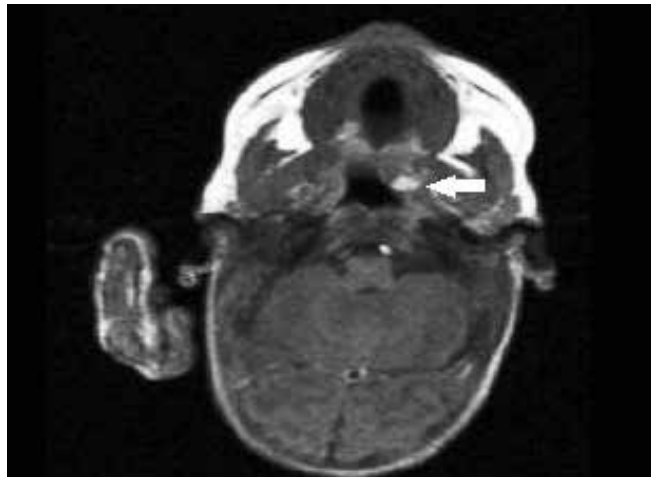

Figure 4. Cervical MR, T1 sequence appearance after operation
White arrow: residual tissue with a diameter of 0.5 cm

lead to invasion or metastasis in the surrounding tissues. Mature teratomas may contain hair, sweat gland, adipose gland, tooth, nail, nerve, muscle, cartilage, bone and adipose tissues originating from the three germ layers, samples of organs including exocrine glands, liver, pancreas and thyroid and respiratory tract and gastrointestinal tract epithelium (7, 8). The histopathological examination of our case revealed tooth, adipose tissue, mature cartilage and glandular and glial tissues.

According to an assumption, an error occurs during migration of embrionic germ cells to the gonadal protuberance and migration to localizations including the sacrococcygeal region, head and neck or mediastinum occurs. It has been reported that teratomas may develop as a result of development of embrionic germ cells in these areas. According to another assumption, it has been reported that embrionic cells other than germ cells have all genetic codes and teratomas may also develop from these cells (8).

USG may be used in radiological evaluation of congenital head and neck teratomas. However, in localizations where USG can not be used including the nasopharynx, it is important to evaluate teratomas with CT and MRI in terms of differential diagnosis. The relation of the mass with the brain tissue is evaluated with MRI and its relation with the skull base bones is evaluated with CT (4, 7, 8). Meningoencephalocele, encephalocele, dermoid cyst, glioma, hemangioma and rhabdomyosarcoma are included in the differential diagnosis (1). On CT examination performed before operation in our patient, calcifications (tooth) and soft tissue (adipose tissue) were observed inside the mass; it was observed that the skull base was intact. On the 1st ans 12th month follow-up MRI examinations after the tumor was removed, a remnant tissue with a diameter of 0.5 cm was observed in the nasopharynx, but biopsy samples obtained from this area in the 16th month after operation revealed no tumor.

In the period of pregnancy, USG may be used for early diagnosis. Especially three dimensional USG may give information about external fetal anatomy. In pharyngeal teratomas, polyhydramniosis is observed frequently on USG (6-8). It has also been reported that maternal -fetoprotein levels may be increased in teratomas (8, 9). In the patient we presented, the mother was not followed up by a physician during pregnancy and polyhydramniosis was found on USG performed before cesarean section.

Pharyngeal teratomas may cause to respiratory distress by leading to upper airway obstruction in the early period after delivery (2-4). Although nasopharyngeal teratomas are benign tumors, they have a high morbidity and mortality risk. Therefore, one should be prepared for possible airway urgency by making a careful planning in patients in whom teratoma is considered during the pregnancy follow-up. Early surgery is preferred in these babies. It has been reported that surgery performed in the early period shortens the period of intubation and the duration of hospital stay and intensive care unit stay (4). Surgically, it is aimed to remove the tumor completely. Recurrence may be observed in teratomas which have not been removed completely (1-5). In our patient, the teratoma was removed nearly completely and tumor was not found on histopathological examination of the biopsy samples obtained from the remnant tissue observed on radiologic follow-up examinations. Regular follow-up visits are being performed in terms of recurrence in our patient who is 20 months old yet.

In the literature, there is no information about potential problems which may develop in the long-term follow-up after surgery in nasopharyngeal teratomas. Our patient needed placement of ventilation tube in the left ear because of chronic otitis media with effusion secondary to eustachian tube dysfunction which developed because the tumor originated from the posterior lateral wall of the nasopharynx.

Conclusively, nasopharyngeal mature teratomas are an otolaryngology urgency in terms of localization and clinical picture especially in newborns, although they are observed considerably rarely and have benign properties. They should be removed completely as soon as possible. Otolaryngologists, pediatricians and obstetricians should be in close collaboration for a successful diagnosis and treatment of teratomas localized in the head and neck region.

Informed Consent: Written informed consent was obtained from patient's parents.

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