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Case Report

A rare case of congenital nasopharyngeal teratoma causing airway obstruction in the newborn

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ABSTRACT

Teratomas are the most common congenital tumors, but teratomas of the nasopharynx are rare in neonates. The present report is about 23 days new born with a nasopharyngeal teratoma protruding from the oral cavity. The mass lesion nearly total obstructed the airways and demand immediate intervention. The nasopharyngeal mass was successfully excised by the transpalatal route. Histological examination showed that it was a mature teratoma. Although nasopharyngeal teratoma is a benign tumor, it may lead to urgency of airway management in the newborn. In this rare case presentation, the differential diagnosis and treatment of nasopharyngeal teratoma has been discussed in accompaniment with the literature information.

Keywords: Nasopharynx, Teratomas, Airway and neoplasm

INTRODUCTION

The most common extragonadal germ cell tumors are teratomas which are frequently seen in the childhood. Benign mature teratomas contains mature tissues at least two of the three germ layers.[1] Teratomas are mostly seen in the very different organs although sacrococcygeal region is the most common location. Teratomas of the nasopharynx are rare and exclusively occur in neonate. They typically present as a masses and lead to severe upper airway obstruction in the early life.[2] We describe a Radiological imaging finding along with clinical and histopathological correlation of post-op nasopharyngeal mass causing airway obstruction.

CASE REPORT

Twenty-three days old female newborn presented in emergency with feeding and breathing difficulties. A nasogastric tube was passed with difficulty through both nostrils, therefore an anatomical blockage was suspected. The mother antenatal history was uneventful and the prenatal ultrasonography was unremarkable. She was delivered at 39 weeks gestation by assisted breech vaginal delivery, at a local hospital with a birth weight of 2.26 kg. Brain US was unremarkable. Laboratory studies and echocardiography were normal and diagnostic nasal endoscopy was performed revealing a cystic to firm mass blocking the nasopharynx and the soft palate (Figure 1). The neonate was transferred to NICU for further management for upper airway obstruction. The baby was intubated because of respiratory distress and difficult airway found. Head and neck CECT was done, which revealed-A well defined solid-cystic space-occupying lesion measuring approximately 1.4x1.6x2 cm in the midline of posterior nasopharynx and bulging antero-inferiorly into posterior oropharynx and superiorly its reaching up to base of skull. No e/o bony defect. No e/o any calcification and fat component (Figure 2).

Head and neck MRI demonstrated a well defined lobulated solid-cystic thick peripheral enhancing lesion measuring approximately 1.6x1.5x2.1 cm in the midline of posterior nasopharynx with enhancing thin internal septae and internal hemorrhage and soft calcification

within and its bulging antero-inferiorly into posterior oropharynx. No e/o any intracranial extension (Figure 3).

The mass of the baby was removed completely by transpalatal route under general anesthesia. The mass was punctured primarily and it was found that it did not contain cerebrospinal fluid and removed completely (Figure 4). The baby was continued to be followed up in the intensive care unit. Respiratory distress or disruption in oxygen saturation was observed in the patient who was extubated on the 2nd day after operation. Pathologist received a grey white to grey brown soft tissue measuring approximately 2.1x2.5x0.6 cm which on HPE lined by stratified squamous epithelium and core of element contained all three germ layers. (Figure 5). The histopathological examination of the mass revealed "Teratoma with immature neural origin tissue".

Endoscopic findings

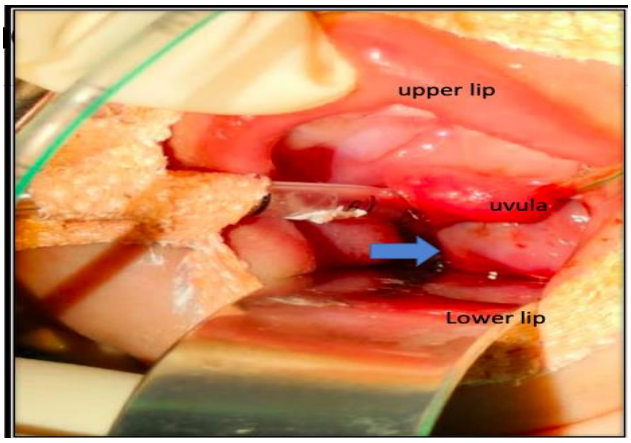

Figure 1: Endoscopic appearance of lesion (blue arrow).

CECT imaging findings

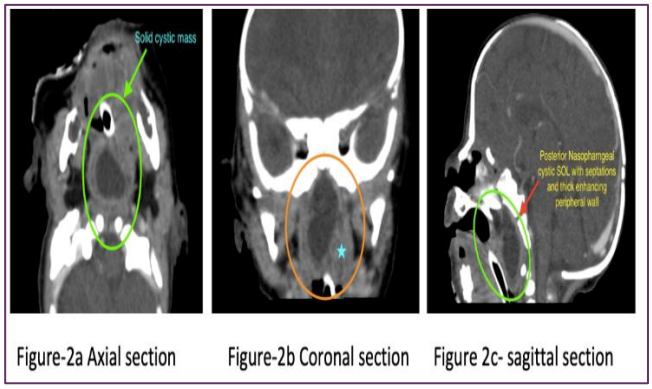

Figure 2 (A-C): Well defined solid-cystic space-occupying lesion in the midline of posterior nasopharynx and bulging antero-inferiorly into posterior oropharynx and superiorly its reaching up to base of skull. No e/o bony defect. No e/o any calcification and fat.

MRI imaging finding

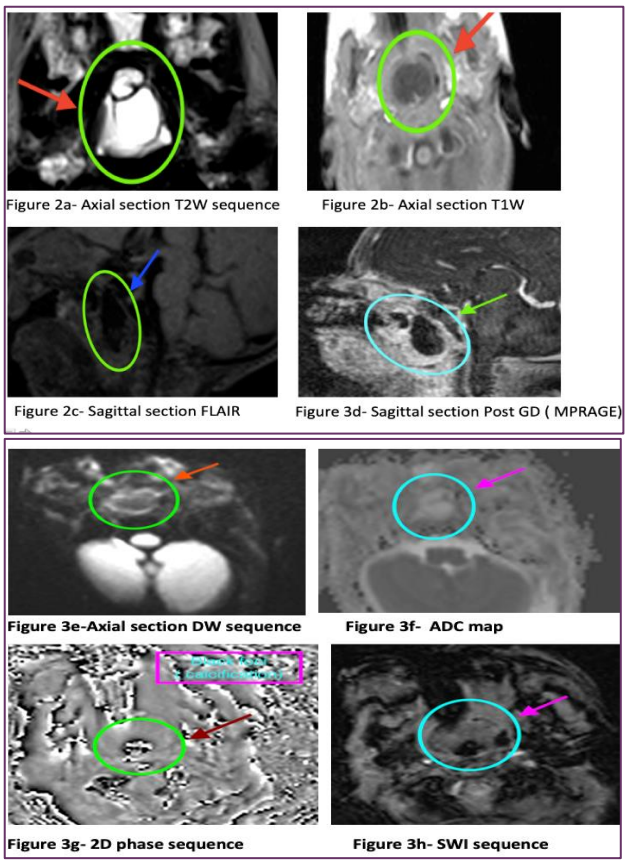

Figure 3 (A-H): Axial T2W sequence shows well defined lobulated hyperintense lesion with thin internal septation. Axial T1W sequence shows hyopintense lesion. Axial flair sequence shows suppression. Sagittal MPARGE sequene the lesion shows thick peripheral enhancement and enhancing thin internal septation. DWI and ADC sequence- no restriction seen. 2D phase sequence shows few bright and dark signal (soft calcification) within the lesion. SWI sequence shows few dark areas within s/o bleed.

Post operative mass excision

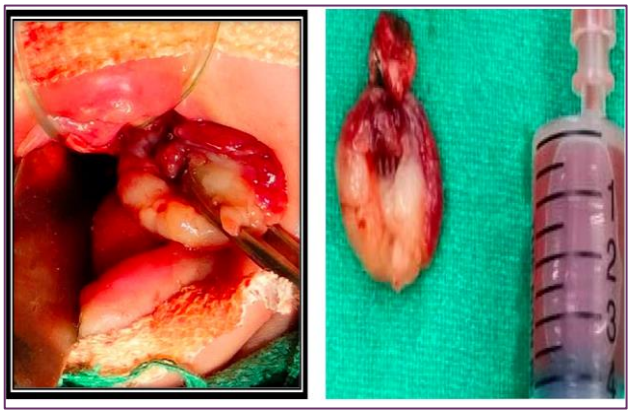

Figure 4: The base was cauterized and swelling removed into sent for HPE.

Histopathological imaging

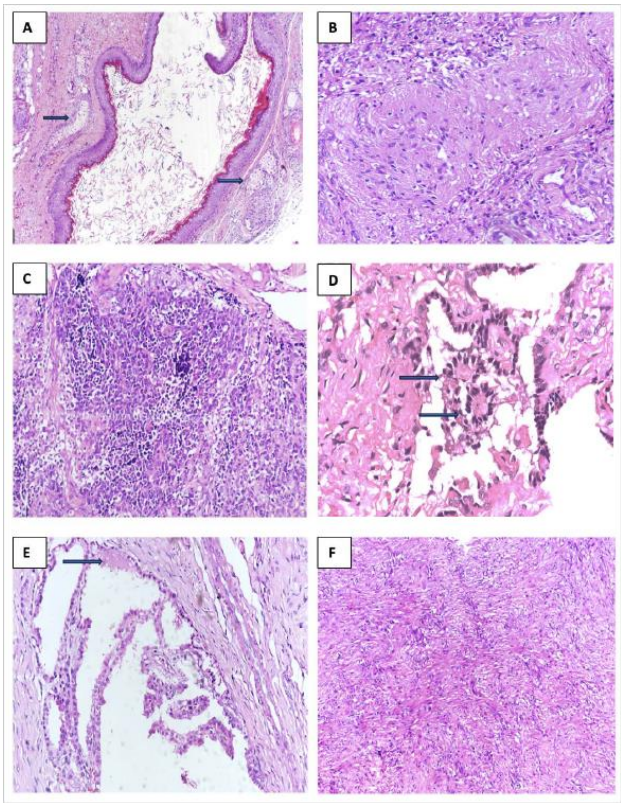

Figure 5 (A-E): Histopathological findings showed components derived from all 3 germ layers; (a) Epidermis lined by keratinized stratified squamous epithelium with underlying dermis showing sebaceous glands (arrows) [H&E, x100]; (b) mature glial tissue [H&E, x200]; (c) immature neural tissue comprising of undifferentiated cells with small round to oval hyperchromatic nuclei and scant cytoplasm [H&E, x200]; (d) neuroepithelial tissue with focal areas showing rosette formation (arrows) [H&E, x200]; € glands lined by cuboidal to low columnar epithelium with mucin secretion in the lumen (arrow) [H&E, x200]; (f) muscle fibres [H&E, x100]

DISCUSSION

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.[3,6,7] These differentials are included meningoencephalocele, encephalocele, dermoid cyst, glioma, hemangioma and rhabdomyosarcoma.[1] Pre-operative CT showed well defined cystic lesion in posterior nasopharynx. it was observed that the skull base was intact. After that CE- MRI was done it revealed well defined lobulated solid-cystic thick peripheral enhancing lesion in the midline of posterior nasopharynx with enhancing thin internal septae and internal hemorrhage and soft calcification within

Teratomas are observed most frequently in the sacrococcygeal region (one in every 4 000 live births). The second most common site is head and neck region and its constitute 6-10% of all teratomas.[3,4] Nasopharyngeal teratomas occur very rarely. Sacrococcygeal and head-neck teratomas are generally detected in the first two months of life while nasopharyngeal teratomas may lead to complaints at birth as seen in our subject.[5]

According to an assumption, an error occurs during migration of embryonic 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 embryonic germ cells in these areas. According to another assumption, it has been reported that embryonic cells other than germ cells have all genetic codes and teratomas may also develop from these cells.[7]

Pharyngeal teratomas may cause to respiratory distress by leading to upper airway obstruction in the early period after delivery.[2,3] 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 teratoma is considered during the pregnancy follow-up. urgery 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.[3] Surgically, it is aimed to remove the tumor completely. Recurrence may be observed in teratomas which have not been removed completely.[2] In our patient, the teratoma was removed completely and send for histopathological examination it will comes. Regular follow-up visits are being performed to look for recurrence.

There are two groups of teratomas one is mature and immature. Mature teratomas are benign and they do not lead to invasion or metastasis in the surrounding tissues. Mature teratomas may contain hair, sweat gland, adipose gland, tooth, nail, nerve, muscle, cartilage, bone. Adipose tissues originating from the three germ layers, representative of organs including exocrine glands, liver, pancreas and thyroid and respiratory tract and gastrointestinal tract epithelium.[6,7] The histopathological examination of my case revealed teratoma with immature neural origin tissue.

CONCLUSION

Nasopharyngeal teratomas are otolaryngology urgency in terms of localization and clinical picture especially in newborns, although they are found considerably rarely

and have benign in nature. They should be removed completely as soon as possible. Otolaryngologists, radiologist, pediatricians and obstetricians should be in close collaboration for a successful diagnosis and treatment of teratomas localized in the head and neck region.

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REFERENCES

1. Izadi K, Smith M, Askari M, Hackam D, Hameed AA, Bradley JP. A patient with an epignathus: management of a large oropharyngeal teratoma in a newborn. J Craniofac Surg. 2003;14(4):468-72.
2. Bayır O, Güneri EA, Dilek M, Özer E, Çakmakçı H, Kemal ET. Nasopharyngeal Mature Teratoma in Newborn. Turk Ped Ars. 2014;49(1):257-60.
3. Wong BY, Ng RW, Yuen AP, Chan PH, Ho WK, Wei WI. Early resection and reconstruction of head and neck masses in infants with upper airway obstruction. Int J Pediatr Otorhinolaryngol. 2010;74(3):287-91.
4. Tonni G, De Felice C, Centini G, Ginanneschi C. Cervical and oral teratoma in the fetus: a systematic review of etiology, pathology, diagnosis, treatment and prognosis. Arch Gynecol Obstet. 2010;282(4):355-61.
5. Hossein A, Mohammad A. Huge teratoma of the nasopharynx. Am J Otolaryngol. 2007;28(3):177-9.
6. Smirniotopoulos JG, Chiechi MV. Teratomas, dermoids, and epi-dermoids of the head and neck. Radiographics. 1995;15(6):1437-55.
7. Varras M, Akrivis Ch, Plis Ch, Tsoukalos G. Antenatal sonographic diagnosis of pharyngeal teratoma: our experience of a rare case with review of the literature. Obstet Gynecol Int. 2009;2009:180643.

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