

# The most common Salivary Gland Neoplasm in Children and Adolescents

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## Abstract

The prevalence of Salivary gland neoplasm is rare in children. The first decade of life, particularly the first 2 years of childhood, has benign neoplasm predominance, while with the second decade; carcinomas could rise in incidence, and it may change to the malignant form. Pleomorphic adenoma is the most frequently encountered benign neoplasm; while Mucoepidermoid carcinoma and Acinic Cell Carcinoma are the most frequent malignant that is seen in children and adolescents. Because infection and inflammation are more common in the salivary glands of children than in adults, it is important to differentiate them from neoplasm in children.

**Keywords:** Salivary gland; neoplasm; Pleomorphic adenoma; Mucoepidermoid carcinoma; Rhabdomyosarcoma; malignant; benign; children and adolescents

## Introduction

One of the most important causes of mortality in children is the malignant neoplasm [1]. Salivary gland tumors in children are divided into benign and malignant groups. The most common malignant tumors in children include *Adenoid cystic carcinoma*, *undifferentiated carcinoma*, *Acinic cell carcinoma*, and *Mucoepidermoid carcinoma*. Among them, Mucoepidermoid carcinoma has the most prevalence [1]. Benign tumors include *Pleomorphic adenoma*, *Basal cell adenoma*, *Warthin tumor*, and *Adenoma cyst*. Although most children's head and neck masses are inflammatory, they can also appear as neoplastic lesions. The most common sites for this type of malignant tumor are the skin, nasopharynx, thyroid, and salivary glands [1]. It should be noted that not all salivary gland tumors have a glandular origin [2]. Next, common salivary gland tumors in children are studied.

### Parotid infantile Hemangiomas

This type of tumor in the parotid gland is one of the most common tumors in infants, which usually appears in the first month [3], which is more common in girls and whites [4,5]. It demonstrates

rapid growth in the first months of life but usually regresses after 18 months [6]. It has a distinct radiographic appearance that distinguishes it from parenchymal tumors. A bluish discoloration may also be seen on the skin [7]. Colonna reported that placental anomalies, such as retroplacental hematoma, infarction, and dilated vascular communications, have also been associated with IH development [8]. Malignant changes are very rare.

### Pleomorphic adenoma

The term Pleomorphic adenoma was suggested by Willis [9]. Mixed salivary gland tumors are common in adults but rare in children. This tumor is the most common salivary gland epithelial neoplasm in young people. It is a benign tumor consisting of cells that can be differentiated from epithelial cells and mesenchymal cells [10]. In general, Pleomorphic adenoma grows slowly and asymptotically; and is more common in females [10]. It is found in the parotid tail and the ear lobe. More recurrences are seen in children [11]. It is also known as "Mixed tumor, salivary gland type". The tumor is usually solitary and presents as a slow-growing,

painless, firm single nodular mass [12]. Though it is classified as a benign tumor, Pleomorphic adenomas can grow to a large extent and may undergo malignant transformation, to form carcinoma ex-Pleomorphic adenoma [13]. The oncogenic DNA virus may play a role in onset or progression. Also, prior head and neck irradiation is a risk factor for the development of these tumors [14].

The first important step in diagnosis in young children is parotid ultrasound sonography.

### Mucoepidermoid Carcinoma

Stewart et al. identified Mucoepidermoid carcinoma of the salivary glands as salivary gland neoplasia in 1945 [15]. This tumor is the most common parotid gland malignancy in children and is usually observed between the ages of 5 and 15 [16]. However no particular etiological factor has been proved, some researchers have suggested exposure to ionizing radiation as a factor [17]. After Pleomorphic adenoma, this tumor is the most common salivary gland tumor in children and adolescents, which accounts for 39.6% of all tumors [18]. The majority of Mucoepidermoid carcinomas in children are histologically classified as low, moderate malignancy, or even have a good prognosis [19]. Gustafson has reported the prognosis of this type of tumor is good in children because most of these cases are well-differentiated, or grade 1 neoplasm [20].

### Acinic Cell Carcinoma

The occurrence of acinic cell carcinoma is relatively common in children. This tumor is more common in the parotid gland. Acinic cell carcinoma is the second most frequent parotid malignancy in the pediatric age group after Mucoepidermoid carcinoma [21]. In one study, Squires and et.al indicated the possible causes of ACC may include previous radiation therapy [22]. In another research, Betkowski and colleagues mentioned the familial predisposition factor can be another factor [23]. Females are more prone to have this malignancy [24]. Other possible areas of the primary tumor include the submandibular gland and other major and secondary salivary glands [25]. Cases of primary tumors in the parapharyngeal space and sublingual gland have also been reported [26]. This tumor is a slow-growing mass that is sometimes accompanied by pain and tenderness, and its behavior can vary from local invasion to severe malignancy.

Patients with ACC may be prone to other malignancies. Omlie and Koutlas reported 21 cases of ACC that one patient developed renal cell carcinoma; another was found to have non-Hodgkin lymphoma [27].

### Final Remarks

Pediatric parotid neoplasm is rare, but it can appear in a variety of pathological diagnoses, including malignancy. Salivary glands are one of the most common sites of head and neck tumors in children and dentists need to be familiar with these tumors. The most common salivary tumors include Mucoepidermoid carcinomas, Pleomorphic adenoma, Parotid infantile Hemangiomas and Acinic

Cell Carcinoma. Because inflammatory infections of the salivary glands in children are more common than in adults, it is important to differentiate between them in children. Almost all benign tumors are Pleomorphic adenomas and are more common in females and whites. Malignant tumors are more common in Mucoepidermoid carcinomas. Although most are low-grade, recurrence and even death may occur.

### References

- Perez DE, Pires FR, Alves FA, Almeida OP, Kowalski LP (2004) Salivary gland tumors in children and adolescents: a clinicopathologic and immunohistochemical study of fifty-three cases. *Int J Pediatr Otorhinolaryngol* 68(7): 895-902.
- Lopes MA, Kowalski LP, Santos GC, Almeida OP (1999) A clinicopathologic study of 196 intraoral minor salivary gland tumors. *J Oral Pathol Med* 28: 264-267.
- Cheng L, Botstwick DG (2002) *Essentials of Anatomic Pathology*, chapter 5, Humana Press, Totowa, NJ, USA.
- Lack EE, Upton MP (1988) Histopathologic review of salivary gland tumors in childhood. *Arch Otolaryngol Head Neck Surg* 114: 898-906.
- BG Bentz, C Anthony Hughes, JP Lüdemann, J Maddalozzo (2000) Masses of the salivary gland region in children. *Archives of Otolaryngology-Head and Neck Surgery* 126(12): 1435-1439.
- Bruyn R (2007) *Pediatric ultrasonography*. Tunaci A, Yekeler E (Eds.), *Trans Pediatric Ultrason*. Istanbul Medikal pp. 287-289.
- RL Goldman, SL Perzik (1969) Infantile hemangioma of the parotid gland; a clinicopathological study of 15 cases. *Archives of Otolaryngology* 90(5): 605-608.
- Colonna V, Resta L, Napoli A, Bonifazi E (2010) Placental hypoxia and neonatal Hemangiomas: clinical and histological observations. *Br J Dermatol* 162(1): 208-209.
- Rajendran S, Sivapathasundaram S (2009) *Shafer's Textbook of Oral Pathology*, 6th Ed. New Delhi, Elsevier pp. 219-224.
- Neville B, Damm D, Allen C, Bouquot (2008) *J Oral and Maxillofacial Pathology*, 3<sup>rd</sup> ed, Saunders.
- Orvidas J, Kasperbauer JL, Lewis JE, Olsen KD, Lesnick TG (2000) Pediatric parotid masses. *Arch. Otolaryngol. Head Neck Surg* 126: 177-184.
- Callender DL, Frankenthaler R, Aluna MA, Lee H (1992) Salivary gland neoplasms in children. *Arch Otolaryngol Head Neck Surg* 118: 472-476.
- SA Nouraei, MS Ferguson, PM Clarke (2006) Metastasizing Pleomorphic salivary adenoma. *Arch Otolaryngol, Head, Neck Surg* 132: 788-793.
- Maria R Bokhari, Joshua Greene (2019) Pleomorphic Adenoma.
- Stewart FW, Foote FW, Becker WF (1945) Mucoepidermoid tumors of salivary glands. *Ann Surg* 122: 820-844.
- Baker SR, Malone B (1985) Salivary gland malignancy in children, *Cancer* 55: 1730-1736.
- Spitz MR, Batsakis JG (1984) Major salivary gland carcinoma: descriptive epidemiology and survival of 498 patients, *Arch Otolaryngol* 110: 45-49.
- Eveson JW (2005) *Pathology and genetics of head and neck tumors*, World health organization classification of tumors, L Barnes, JW Eveson, P Reichart and Sidransky (Eds) IARC Press, Lyon. pp: 134.
- Hicks J, Flaitz C (2000) Mucoepidermoid carcinoma of salivary glands in children and adolescents: assessment of proliferation markers. *Oral Oncol* 36: 454-460.

20. Gustafson H, Dahlqvist A, Anniko M, Carlsoo B (1987) Mucoepidermoid carcinoma in a minor salivary gland in childhood. *J Laryngol Otol* 101: 1320- 1323.
21. Nabil Al-Zaher (2009) Acinic cell carcinoma of the salivary glands: A literature review. *Hematology/Oncology, and Stem Cell Therapy* 2(1): 259-264.
22. JE Squires, SE Mills, PH Cooper, DJ Innes Jr, WC McLean (1981) Acinic cell carcinoma: its occurrence in the laryngotracheal junction after thyroid radiation. *Arch Pathol Lab Med* 105(5): 266-268.
23. A Betkowski, A Cyran Rymarz, W Domka (1998) Bilateral acinar cell carcinoma of the parotid gland. *Otolaryngol Pol* 52(1): 101-104.
24. HT Hoffman, LH Karnell, RA Robinson, JA Pinkston, HR Menck (1999) National Cancer Data Base Report on cancer of the head and neck: Acinic Cell Carcinoma. *Head and Neck* 21(4): 297-309.
25. Galer C, Santillan AA, Chelius D (2012) Minor salivary gland malignancies in the pediatric population. *Head Neck* 34 (11): 16: 48-51.
26. Chiosea SI, Griffith C, Assaad A, Seethala RR (2012) The profile of acinic cell carcinoma after recognition of mammary analog secretory carcinoma. *The American Journal of Surgical Pathology* 36(3): 343-350.
27. Omlie JE, Koutlas IG (2010) Acinic cell carcinoma of minor salivary glands: a clinicopathologic study of 21 cases. *J Oral Maxillofac Surg* 68: 2053-2057.



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