Benign Pediatric Salivary Gland Lesions

Eric R. Carlson, DMD, MD[a,*], Robert A. Ord, DDS, MD, FRCS, MS, MBA[b]

KEYWORDS

• Mucocele • Ranula • Sialolithiasis • Sialadenitis • Pleomorphic adenoma • Hemangioma

KEY POINTS

- Salivary gland lesions are uncommonly observed in the pediatric population, and benign salivary gland lesions are more common than malignant salivary gland lesions in children.
- The mucocele is the most common salivary gland lesion encountered in pediatric patients.
- Mumps has historically been the most common form of sialadenitis diagnosed in children internationally.
- Chronic recurrent parotitis is the second most common form of sialadenitis in children.
- The pleomorphic adenoma is the most common pediatric salivary gland tumor and the most common benign tumor in children. Together with the hemangioma, these benign tumors account for nearly 90% of all benign salivary gland tumors in children.

INTRODUCTION

Diseases of the salivary glands are uncommonly observed in pediatric patients. In 1972 the Armed Forces Institute of Pathology (AFIP) identified 430 salivary gland lesions in children younger than the age of 15 years in their study of 9983 salivary gland lesions, accounting for only 4.3% of the total.[1] This study identified 262 nonneoplastic lesions (61%), among which there were 185 mucoceles (71%) and 67 inflammatory lesions (26%). Of the 430 salivary gland lesions, 168 salivary gland tumors (39%) were noted, of which 114 tumors were benign (68%) and 54 tumors were malignant (32%). Sixty of the 114 (53%) benign tumors in this series were epithelial in nature and 39 (34%) represented vascular proliferations. Pleomorphic adenoma was the most common benign tumor in this series and the most common malignant tumor was mucoepidermoid carcinoma. In 1991, Ellis and colleagues[2] reviewed benign and malignant salivary gland tumors in patients less than the age of 17 years and compared these tumors and their frequency with patients of all ages. These pediatric patients accounted for only 4.5% of all patients with salivary gland lesions in their series. A total of 494 salivary gland tumors were reviewed, of which 271 (55%) were benign tumors. These tumors included 210 (78%) benign epithelial tumors and 61 (22%) benign mesenchymal tumors. Pleomorphic adenomas accounted for 193 cases (39%) occurring in this age group and 71% of all benign tumors in this series. The pleomorphic adenomas represented only 3.9% of these tumors occurring in all age groups, owing to the greater percentage of other benign tumors occurring in patients younger than 17 years of age. Two-hundred and twenty-three tumors were malignant (45%), with 212 (95%) being malignant epithelial tumors and 11 (5%) being malignant mesenchymal

[a] Department of Oral and Maxillofacial Surgery, University of Tennessee Medical Center, 1930 Alcoa Highway, Suite 335, Knoxville, TN 37920, USA; [b] Department of Oral and Maxillofacial Surgery, Baltimore College of Dental Surgery, University of Maryland and the Greenbaum Cancer Institute, Suite 1402, 650 W Baltimore Street, Suite 1218, Baltimore, MD 21201, USA

* Corresponding author. Department of Oral and Maxillofacial Surgery, University of Tennessee Medical Center, Suite 335, 1930 Alcoa Highway, Knoxville, TN 37920.

E-mail address: ecarlson@mc.utmck.edu

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tumors. Mucoepidermoid carcinoma accounted for 123 cases (25%) occurring in this age group and 55% of all malignant tumors in this series. Similarly, the mucoepidermoid carcinomas represented only 7.7% of these tumors occurring in all age groups owing to the greater percentage of other malignant tumors occurring in patients younger than 17 years of age.

Craver and Carr[3] reviewed 213 pediatric salivary gland lesions over a 17-year period and identified 173 nonneoplastic lesions (81%), of which there were 137 mucoceles (64% of total in series) and 26 inflammatory lesions (12% of total in series). There were 40 neoplasms, of which 36 (90%) were benign and 4 (10%) were malignant. The most common benign neoplasm was pleomorphic adenoma, accounting for 17 of the 36 cases (47%), followed by 12 cases of lymphangioma (33%). Of the 17 cases of pleomorphic adenoma, 11 were located in the parotid gland and 3 cases each were located in the submandibular gland and minor salivary glands.

In the African pediatric population, salivary gland neoplasms constitute 10% of all pediatric neoplasms. Most are reported to be benign, with the most common benign neoplasm being pleomorphic adenoma. Mumps has been reported as the most common inflammatory salivary gland lesion in Africa, but in the developed world only sporadic cases of mumps are now reported.[4]

In their series of 2135 patients with tumors of the major salivary glands from 1930 to 1964, Castro and colleagues[5] identified 38 patients (1.7%) 16 years of age and younger who were observed to have epithelial tumors. Thirty-three (87%) of the tumors were located in the parotid gland and 5 tumors (13%) were located in the submandibular gland. The most common benign tumor was pleomorphic adenoma and the most common malignant tumor was mucoepidermoid carcinoma. Lack and Upton[6] reported 80 salivary gland tumors in patients 18 years of age or younger during a 58-year period from 1928 to 1986. Twenty-five (31%) epithelial tumors were diagnosed and 55 (69%) nonepithelial tumors were diagnosed. Capillary hemangioma was the most common tumor diagnosed in this series, accounting for 27 (34%) of the 80 cases, followed by 19 cases of lymphangioma (24%), 10 cases (12.5%) of pleomorphic adenoma, and 6 cases (7.5%) of mucoepidermoid carcinoma.

NONNEOPLASTIC SALIVARY GLAND LESIONS

Nonneoplastic salivary gland lesions in children are associated with a wide spectrum of diagnoses and causes (**Box 1**). Congenital abnormalities, acute and chronic suppurative infections and other inflammatory disorders, obstruction, neoplastic disease, and degenerative disorders should be considered as part of a differential diagnosis for a child with salivary gland swelling (**Fig. 1**). These nonneoplastic pathologic entities are less common in pediatric patients than in adults.[7] Inflammatory disorders of the salivary glands in children may be infectious or noninfectious. Infectious disorders may involve the parenchyma of the salivary gland as a sialadenitis, or the intrasalivary gland lymph nodes, as occurs in mycobacterium tuberculosis or with nontuberculous mycobacteria. Infectious disorders more commonly involve a single gland, as occurs in an acute bacterial parotitis, or a pair of major glands, as most commonly occurs in viral parotitis, such as that caused by paramyxovirus. Noninfectious inflammatory disease tends to involve multiple salivary glands, as occurs in Sjögren syndrome and sarcoidosis as a pansialadenitis.

Box 1
Inflammatory and infectious diseases of the salivary glands in children

Viral infections
Paramyxovirus (mumps)
Coxsackie A and B
Echovirus
Influenza A
Cytomegalovirus
Epstein-Barr virus
Human immunodeficiency virus

Bacterial infections
Acute pyogenic infection
Recurrent parotitis
Intraparotid lymphadenopathy
Mycobacterium tuberculosis
Nontuberculous mycobacteria
Cat-scratch disease (*Bartonella henselae*)
Actinomycosis

Noninfectious disorders
Sarcoidosis
Sjögren syndrome
Pseudolymphomas

Mucus Escape Reaction

The mucocele and ranula, collectively referred to as the mucus escape reaction, are most commonly diagnosed in the first and second