



Inflammatory diseases of the salivary glands in infants and adolescents

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Summary

Objective: To determine retrospectively the localization, etiology and treatment of inflammatory diseases of the salivary glands in infants and children and to evaluate treatment outcome.

Patients and methods: Forty-five patients were treated in our institution in the period 1966–2000. The patients' records were evaluated and the results and side-effects of therapy were documented by a controlled follow-up study.

Results: Twenty-five of our patients were females (55.6%) and 20 males (44.4%). Inflammatory disorders figured most prominently in the group of patients between 12 and 16 years ($n = 14$). Inflammation of the submandibular glands was the most common disease with 53.3% ($n = 24$). The most frequent underlying cause in this subgroup of acute and chronic sialadenitis was sialolithiasis of the submandibular gland (40%). All patients were symptom-free in the long-term follow-up and all were symptom-free after surgical intervention.

Conclusions: The present study shows that diseases of the salivary glands are rare among infants and children. Acute and chronic sialadenitis not responding to conservative treatment requires an appropriate surgical approach.

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1. Introduction

Diseases of the salivary glands are rare in infants and children (with the exception of diseases, such as parotitis epidemica and cytomegaly) and the

therapeutic regimen differs from that in adults. It is, therefore, all the more important to gain exact and extensive insight into general and special aspects of pathological changes of the salivary glands in these age groups. Previous studies [1–3] have dealt with the clinical distribution pattern of the various pathological entities in infants and older children.

According to these studies, important pathologies in these age groups are acute and chronic

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sialadenitis (with special regard to chronic recurrent parotitis) and secondary inflammation associated with sialolithiasis [2,4–6]. The etiology and pathogenesis of these entities in young patients, however, are still not yet sufficiently understood, so that therapeutic strategies based on extensive clinical experience cannot be defined, particularly in view of the small number of patients in the relevant age groups. The acute forms of sialadenitis are mainly caused by viral or bacterial infections. The predominant cause of parotid swelling in infancy is parotitis epidemica [7]. This disease has its peak incidence between the ages of 2 and 14 years [8]. Acute inflammation of the parotid gland, with evidence of *Staphylococcus aureus*, is often seen in neonates and in children with an underlying systemic disease accompanied by fever, dehydration, immunosuppression and general morbidity [4,9]. Acute inflammation of the submandibular gland, as opposed to that of the parotid is usually due to a congenital anomaly of a salivary duct or an excretory duct obstruction [4,10]. Reports on sialolithiasis in infants and adolescents, however, are very scarce and are mostly presented as rarities in clinical case reports [6]. For chronic sialadenitis, the predominant etiological factors are secretion disorders and immunological reactions [11]. The pathogenesis of chronic recurrent parotitis has still not been completely elucidated and is, next to mumps, the most frequent sialadenitis in infancy [12].

Our report presents the cases of acute and chronic inflammation of the cephalic salivary glands in infants and children treated in the Department of Otolaryngology, School of Medicine, University of Göttingen, in the period from 1966 to 2000 and describes the localization, therapy and outcome.

2. Patients and methods

Our study deals in particular with the age distribution pattern of acute and chronic sialadenitis, the surgical technique chosen for treatment and the post-operative outcome of the patients treated in the period from 1966 to 2000 who were from 0- to 18-year old at the time of diagnosis. Patients with viral sialadenitis were excluded.

Compilation and retrospective evaluation of the case records was performed by a computer-based procedure in cooperation with the Department of Medical Documentation and Statistics of the University of Göttingen. The parameters used for analysis were age and gender of the patients, the initial symptoms of the specific salivary gland disorders,

their localization, the therapeutic procedures performed, post-operative complications and the results of long-term follow-up.

Until 1985, primary diagnosis involved bimanual palpation, smears for diagnosis of bacterial infection, photographs of the floor of the mouth and/or a lateral–oblique photograph of the mandible to examine the submandibular gland and a radiograph of the gland's excretory duct system after retrograde instillation of a contrast medium for sialography of the parotid gland. Starting in the mid-1980s, B-mode sonography and fine-needle aspiration biopsy were established as standard diagnostic procedures and screening techniques in the routine diagnostic work-up in the Department of Otolaryngology of the University of Göttingen. In the following years, computer tomography and MRI supplemented this diagnostic inventory, permitting an extensive assessment of salivary gland regions, which improved pre-operative diagnosis when more complex surgical approaches were required. All salivary gland specimens obtained at surgery were subjected to histological examination.

During a variable follow-up period ranging from 5 days to 26 years depending on the kind of salivary gland disease, all 45 patients were sent a standardized questionnaire with a return envelope. For the evaluation of the post-operative outcome, all patients were questioned with regard to complications occurring either directly after surgery or later and about details of their present subjective assessment of operation success. We also asked if there had been recurrences after the end of therapy in the hospital and if further treatment, particularly revision operations, had been necessary. In addition, as not all patients responded, information on post-operative complications and possible recurrences in the post-hospital course was requested from their family physicians and ENT specialists. In ambiguous cases, a follow-up examination was performed at our clinic whenever possible.

A dependable assessment of therapy results, including long-term post-operative courses, was possible in 32 patients (71%). Complications arising within the first 4 post-operative weeks were regarded as early post-operative complications of salivary gland surgery. Surgical complications beginning in the fourth post-operative week and lasting throughout follow-up were defined as persisting complications. With regard to neurophysiology, complete recovery of motor function of the facial nerve, in this context, particularly of its marginal mandibular branch, is still possible much later. This is why we cannot speak of a persistent complication after 4 weeks in such cases.

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