

CASE REPORT

Acute suppurative parotitis in a 33-day-old patient

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ABSTRACT

Acute suppurative parotitis is a rare disease in childhood. Its incidence is higher in premature newborns. Parotid swelling and pus drainage from Stenson's duct is pathognomonic, and *Staphylococcus aureus* is the causative agent in most cases. Here, a 33-day-old patient with acute suppurative parotitis is presented.

KEYWORDS: suppurative parotitis, infant, *Staphylococcus aureus*.

INTRODUCTION

Acute suppurative parotitis is a rarely seen infection in childhood, which is characterized by parotid gland swelling and pus drainage from the Stenson's duct. It is usually unilateral, and its prevalence is reported as 3.8–14/10 000 in early infancy [1, 2]. Prematurity, low birth weight, dehydration, local trauma, immunosuppression, parotid duct obstruction and male gender are known as the risk factors of the disease. *Staphylococcus aureus* is the most common agent, but both gram-positive and gram-negative microorganisms can be causative agents [1]. In the treatment, appropriate antibiotic therapy should be given by the parenteral route. Rarely, parotid abscess can develop in patients who are unresponsive to the treatment and with surgical drainage complete recovery can be achieved. In this article, a 33-day-old baby who developed unilateral acute suppurative parotitis due to *S. aureus* is presented.

CASE REPORT

A 33-day-old baby was brought to our hospital with a 2-day history of right preauricular swelling, irritability and poor sucking. She was born by caesarean section at 39 weeks of gestation and her birth weight was 4300 g. Prenatal and postnatal history was unremarkable. She was breast-fed, and there was no history of trauma. On admission, the baby was irritable, her body weight was 5000 g (90–97 percentile), height 57 cm (90–97 p), head circumference 36.5 cm (25–50 p), heart rate 140/min and body temperature 38.2°C, respectively. Examination revealed a painful and hyperaemic swelling approximately 4 × 5 cm in size over the right parotid gland (Figs 1 and 2). When external compression was applied to the gland, pus drained into the oral cavity from Stenson's duct. Laboratory tests revealed a hemoglobin of 13.4 g/dl, white blood cell count 12 080/mm³, platelet count 412 000/mm³, C-reactive protein



Fig. 1. Photographs showing the parotid gland swelling.



Fig. 2. Right facial swelling.

23 mg/l and erythrocyte sedimentation 55 mm/h. In peripheral blood smear, 48% polymorphonuclear leukocytes, 46% lymphocytes and 5% monocytes were observed. Biochemical parameters were normal. Ultrasonography (USG) of right parotid and preauricular region showed an enlarged right parotid gland with heterogeneous structure and hypoechoic areas. Also, several reactive lymph nodes were observed around the gland and submandibular area, which were consistent with parotitis. Pus, blood and urine cultures were sent. Cefotaxime and teicoplanin treatment was started. On the third day of treatment, regression on the swelling was observed, pus drainage disappeared and she was afebrile. Blood and urine cultures were negative. Penicillin-sensitive *S. aureus* was detected in the pus culture. Teicoplanin therapy

was stopped, and ampicillin was started. After 10 days of treatment with cefotaxime and 7 days of treatment with ampicillin, she was discharged on the 10th day of hospitalization. Tenth day after the discharge, she was very well, had no abnormalities of the parotid gland and she did not show recurrent parotitis during the follow-up.

DISCUSSION

Acute suppurative parotitis is a rarely seen infection in children. It is characterized by parotid gland swelling and pus drainage from Stenson's duct. Its prevalence in early infancy was reported as 3.8–14/10 000. However in another study, hospital admission rate was 7/100 000, and the age distribution of cases was reported to be 7 months–14.6 years [3]. Prematurity, low birth weight, dehydration, oral trauma, immunosuppression, male gender and congestion in the parotid gland are known as predisposing factors. However, it was reported in healthy ones who had any risk factors before [4], and it was reported to be three times more in boys than girls [1].

Suppurative parotitis can develop with retrograde flow into the parotid gland after colonization by microorganisms of the oral cavity or spread by hematogenous route from another focus. Infection of the parotid gland is more frequent than the other salivary glands because of containing any bacteriostatic agents. Dehydration, stasis as a result of a decrease in production of saliva or congestion in the channel also contributes to this situation. Suppurative parotitis is more frequent in preterm babies because of the reasons such as prolonged hospitalization with increased bacterial colonization, oral cavity traumatization associated with oral tube feeding and dehydration due to nutritional problems. In addition, the infected breast milk or formula feeding can also lead to infection [5]. Our patient was born at term, had no history of hospitalization and dehydration was not detected. There was no evidence in favor of mastitis in the mother and therefore a predisposing cause for suppurative parotitis was not found in our patient.

The diagnosis of acute suppurative parotitis is based on parotid gland swelling, pus drainage from Stenson's duct with the growth of microorganisms in the pus culture. It is usually unilateral, but bilateral

cases were also reported in the literature [6, 7]. Forty-one percent of cases may be accompanied by fever and clinically erythema and tenderness can also be observed with the parotid swelling. Laboratory findings are nonspecific; increased acute phase reactants and neutrophils predominance can be determined. In about half of the cases, serum amylase values may increase, and this is thought to be because of the immature salivary gland activity of neonates.

Staphylococcus aureus is the responsible microorganism for 55% of the cases [1, 7]. Other less common organisms are Gram-positive cocci and Gram negative microorganisms such as *Escherichia coli*, *Klebsiella pneumoniae* and *Pseudomonas aeruginosa* which can be the responsible factors in cases secondary to sepsis or nosocomial infection. Anaerobic organisms such as *Bacteroides melaninogenicus* and *Fusobacterium nucleatum* are also more rarely known to cause acute suppurative parotitis. Özdemir *et al.* [8] reported a 20-day-old infant with a history of premature birth and hospitalization, who developed acute suppurative parotitis due to *P. aeruginosa*. Methicillin-resistant staphylococcus (MRSA) has been identified as a factor for acute suppurative parotitis in two of three cases in the article of Ismail *et al.* [4]. In our case, *S. aureus* growth in the pus culture was detected similarly to the literature.

In the differential diagnosis, trauma, lymphadenitis, hemangioma, adenoma, lipoma, parotid gland duct anomalies, intraglandular abscess and neoplasia should be considered. USG is an important, noninvasive, inexpensive, easily accessible investigation, which supports the diagnosis and helpful in differential diagnosis. Determination of parotid gland enlargement, hypoechoic areas in the gland, is evaluated in favor of suppurative parotitis. Rarely, intraparenchymal lymph nodes may occur. In our patient, USG showed enlarged and heterogeneous parotid gland, reactive lymph nodes were detected in the neighborhood, and also the other causative parotid channel blocking factors were excluded.

In the treatment of acute suppurative parotitis, firstly patients should be hydrated, empirical antibiotic therapy should be initiated to cover possible agents after obtaining pus and blood cultures. Cultures are necessary for accurate diagnosis and

treatment. Pus culture can be obtained directly from the Stenson's duct or by needle aspiration of the gland. Treatment for the isolated microorganism should be continued for 7–10 days. In 94% of cases, aerobic gram-positive cocci and gram-negative bacilli have been determined as a factor so that antistaphylococcal agent combination with aminoglycosides is recommended for initial treatment [1]. In the presence of MRSA, vancomycin should be preferred. With proper treatment, significant improvement in 78% of cases and complete remission in 83% of cases within 24–48 h have been reported [1, 9]. In patients who are unresponsive to treatment, parotid gland abscess development should be considered and ultrasound should be repeated. Abscess should be drained surgically [7]. In the literature, it was mentioned that 23% of patients required surgical drainage [4]. The prognosis is usually good. Fistula formation in the gland, facial paralysis, mediastinitis, septicemia and meningitis are known as the complications of suppurative parotitis but serious complications have not been reported so far.

In our case, considering the possibility of MRSA, cefotaxime and teicoplanin treatment was given initially but then antibiotic treatment with ampicillin was continued for 10 days because of penicillin-sensitive *S. aureus* growth in the pus culture. On the third day of treatment, significant regression was observed in gland. There were no complications or recurrent parotitis during the follow-up.

As a result, acute suppurative parotitis is rare in early infancy but it must be remembered in patients presenting with swelling in the preauricular region. The classic triad of acute suppurative parotitis consists of parotid swelling, pus drainage from Stenson's duct and growth of pathogenic microorganism in culture of the pus. Complete recovery can be achieved with hydration and appropriate antibiotic therapy.

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