



Acute Bacterial Parotitis in Early Infancy: A Case Report and Review of the Literature

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Received 2019 July 10; Revised 2019 August 22; Accepted 2019 August 24.

Abstract

Introduction: Acute parotitis is known as an uncommon disease in children and a rare condition in infancy. Dehydration, prematurity, immune deficiency, congenital anomalies of the parotid gland or ducts, and oral trauma are some of its important risk factors. The most common bacteria contributing to this condition is *Staphylococcus aureus*. Acute parotitis is managed with intravenous antibiotic therapy and surgery in complicated cases. Favorable prognosis is reported in early diagnosis and proper antibiotic therapy.

Case Presentation: The present report presents the case of a 60-day-old breastfed female infant with a chief complaint of agitation referred to the Department of Pediatrics in a university-affiliated hospital in Tehran, Iran, in 2018. She underwent treatment for the infantile colic diagnosis.

Conclusions: Timely diagnosis and treatment of acute bacterial parotitis prevented suppurative parotitis and formation of abscess.

Keywords: Abscess, Acute Parotitis, Agitation, Early Diagnosis, Infant, Newborn, Parotid Gland, Preauricular Swelling, Risk Factors, *Staphylococcus aureus*

1. Introduction

Acute parotitis is known as a rare condition in the neonates. Dehydration, prematurity, immune deficiency, congenital anomalies of the parotid gland or ducts, and oral trauma are some of its important risk factors (1).

Clinical manifestations include fever, agitation, localized tenderness and/or erythema, swelling of parotid glands, and finally, pus exuded from the Stensen duct. The most common causative bacteria is *Staphylococcus aureus*. Acute parotitis is managed with intravenous antibiotic therapy, and surgery in complicated cases. Favorable prognosis is reported in early diagnosis and proper antibiotic therapy (1, 2). The majority of previously reported cases presented septic parotitis in infantile after abscess formation. The current report also discussed diagnosis in early stages.

2. Case Presentation

A 60-day-old female infant with a chief complaint of agitation referred to the Department of Pediatrics in Firoozabadi Hospital (a specialty state referral center), Tehran,

Iran, in 2018. She was the firstborn from a nonconsanguineous marriage. After an uncomplicated pregnancy at the 38th week of gestation, she was born with a birth weight of 2000 g, head circumference of 33 cm, height of 46 cm, and normal Apgar score. Except for the unclear death of her uncle in infancy, she had no family history of congenital disorders.

The umbilical cord was separated in-time, and her immunization records were up-to-date. She had no health issue up to three days before the day of referral, when she started receiving infantile colic treatment because of sudden onset of agitation. High-grade fever (39.5°C) and lack of appetite gradually appeared. On the first visit, general physical examination revealed no remarkable matter, except for slight tenderness in the left preauricular region. Results of oral cavity examination were normal; no organomegaly or lymphadenopathy was noticed, and BCG (Bacillus Calmette-Guérin) scar was found. Her weight was 3340 g on arrival.

For further examinations and appropriate treatment, she was admitted to the Department of Pediatrics in Firoozabadi Hospital.

Based on patient's age and symptoms, after taking the

needful specimen for sepsis work-up, appropriate antibiotic therapy (including ampicillin and gentamycin) at correct doses was started. Her laboratory data are shown in Table 1.

Table 1. The Laboratory Test Results of the Patient

Characteristic	Value
ESR	72 mm/h
CRP	36.7 mg/L
CBC	
WBC	19800 /mL
PMN	43%
LYM	46%
Mix	10%
Hb	9.7 g/dL
Plt	218000 /mL
B/C (1st)	<i>Staphylococcus epidermis</i>
B/C (2nd)	Negative
U/A	Normal
BS	106 mg/dL
Biochemistry	
CSF	
WBC	< 5 / μ L
RBC	10 / μ L
Glucose	57 mg/dL
Protein	70 mg/dL
CSF/C	Negative
U/C	Negative

Abbreviations: B/C, blood culture; BS, blood sugar; CBC, complete blood counts; CRP, C-reactive proteins; CSF, cerebrospinal fluid; CSF/C, cerebrospinal fluid culture; ESR, erythrocyte sedimentation rate; Hb, hemoglobin; LYM, lymphocytes; Plt, platelets; PMN, polymorphonuclear neutrophils; U/A, urine analysis; U/C, urine culture; WBC, white blood cells.

During hospitalization, tenderness in the left preauricular was progressive and swelling in the same region was also observed (Figure 1).

Ultrasonic evaluation of the left preauricular region showed an enlarged left parotid gland with an edematous and heterogeneous glandular structure; no lymphadenopathy was reported. The findings were consistent with acute parotitis.

For more consideration, cervical magnetic resonance imaging (MRI) was performed. Enlargement and increased enhancement of left parotid gland suggestive of parotitis and two small submandibular and parajugular lymph nodes (up to 6 mm) were reported (Figure 2).

Concerning the first blood culture (B/C) results, the



Figure 1. A 60-day-old infant with swelling in the left preauricular region

antibiotics were switched to intravenous cefotaxime (100 mg/kg/day) and vancomycin (40 mg/kg/day). Results of second B/C and cerebrospinal fluid culture (CSF/C) were negative.

Based on consultation in immunology and to rule out the innate immunodeficiency, NBT (the nitro-blue tetrazolium), DHR (dihydrorhodamine), and CD markers flow cytometry tests were performed.

After ten days of antibiotic therapy, the patient was discharged with complete recovery. Patient follow-up revealed no problem and the results of immunologic tests were reported normal.

It should also be reminded that a written informed consent was obtained from the patient's parents prior to gathering and publishing the data.

3. Discussion

The current case report described a 60-day-old female patient with acute bacterial parotitis initially presented with agitation and fever. Almost always, such cases in neonates or infants are diagnosed after apparent swelling and/or abscess formation, whereas the current case was diagnosed in early stages.

Acute bacterial parotitis is rare in newborns (2-4). The male to female prevalence ratio is 3:1 (5, 6). Although acute bacterial parotitis can be observed in normal healthy infants, it is reported more in dehydrated, premature, or

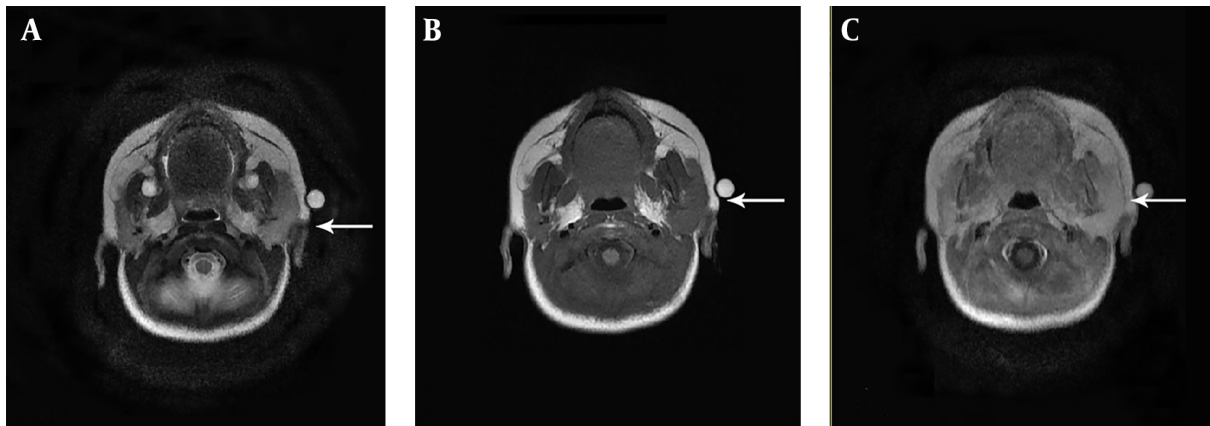


Figure 2. Cervical magnetic resonance imaging; axial views; enlargement and increased enhancement of the left parotid gland were determined by clinical history of acute parotitis; no collections or abscesses in the parotid space and no obvious stones or ductal dilatation were observed; left lymphadenopathy was found as two nodes; A, T2-weighted sequence; B, T1-weighted sequence; C, T1 IDEAL +C sequence

Table 2. Some of Studies Concerning in Acute Parotitis/Abscess

Author	Journal	Title
Kolekar et al.	African Journal Pediatric Surgery, volume 13, issue 4, Oct-Dec 2016	Acute neonatal parotid abscess: A rare case report
Decembrino et al.	International Journal of Pediatric Otorhinolaryngology, volume 76, issue 7, July 2012	Monolateral suppurative parotitis in a neonate and review of literature
Khan et al.	Ear, Nose & Throat Journal, volume 89 issue 4, March 1, 2010	Acute suppurative neonatal parotitis: Case report
Zurina et al.	Medical Journal of Malaysia, volume 67, issue 6, December 2012	Parotid abscess in a late premature infant: A case report
Spiegel Ronen et al.	The Pediatric Infectious Disease Journal, volume 23, issue 1, January 2004	Neonatal acute suppurative parotitis
Vorrasi et al.	Journal of Oral and Maxillofacial Surgery, volume 75, issue 3, March 2017	Concomitant Suppurative Parotitis and Condylar Osteomyelitis

immune-deficient ones (2, 3, 7). Also, congenital anomalies of the parotid gland or ducts and oral trauma are intended as the other risk factors (1). The most common bacterial agent is *Staphylococcus aureus* (2, 7), although some less common agents are other Gram-positive cocci, Gram-negative bacilli and, scarcely, anaerobic agents such as *Peptostreptococcus* spp., microaerophilic streptococci, and *Actinomyces* spp. (1, 5). The diagnosis was made by clinical findings; i.e., fever, agitation, tender erythematous, swollen parotid gland, and pathognomonic pus in the Stensen duct (5). Contrary to the current case, almost all

of the reported cases of newborn or early infancy were diagnosed at the terminal stages and after pus outflow from Stenson duct or abscess formation. Therefore, parotid gland examination in the child with agitation is essential and reasonable. In the laboratory data, leukocytosis, neutrophilia, and elevation of C-reactive protein are expected (2, 3, 8).

Ultrasonography is a noninvasive and cost-effective technique used to confirm the diagnosis of acute bacterial parotitis; it may reveal generalized edematous and heterogeneous gland, or evidence of abscess formation (1, 2).

Intravenous antibiotic therapy is the main treatment, and antistaphylococcal antibiotics are suggested as the initial empirical ones. Based on B/C results or culture of the ductus exudate, antibiotic switch may be necessary (9); in addition, 7-10 days of antibiotic therapy is needed. Though incision and drainage are cardinal part of the intraparotid abscess, surgical intervention is rarely required (10, 11).

With the proper antibiotic therapy, the prognosis is favorable and complications such as salivary gland fistula, facial palsy, mediastinitis, and appositional inflammation of the external ear rarely occur (10, 12).

3.1. Conclusions

In conclusion, although acute bacterial parotitis is a rare condition in neonates and infants, due to its nonspecific initial presentations and importance of early diagnosis, it should be considered in the diagnosis of all children with causeless agitation. With timely diagnosis and appropriate antibiotic therapy, acute suppurative parotitis and its complications such as recurrent parotitis can be prevented.

Footnotes

Conflict of Interests: The authors declared no conflict of interests.

Funding/Support: There was no financial support for the current study.

Patient Consent: A written informed consent was obtained from the patient's parents prior to gathering and publishing the data.

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