

CASE REPORT

Acute Suppurative Parotitis in a Newborn: Case Report and Review of Literature

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ABSTRACT

Acute neonatal parotitis is a rare entity, its diagnosis is essentially clinical with usual a good prognosis. We report the case of a 21-days-old female who has been treated in our department for neonatal suppurative parotitis presenting with feverish, hard, red and tender swelling of the parotid loge. The swelling displaced the right earlobe outward and associated with purulent exudate from Stensen duct. A cervical and cerebral computed tomography scan showed a swollen right parotid gland with heterogeneous density and enhancement without detectable collection. The patient received intravenous antibiotics with a favourable evolution within 48 hours and no need for surgical treatment was found.

The purpose of our work is to emphasize the diagnostic and therapeutic aspects of this clinical entity. The practitioner should suspect suppurative parotitis in newborns with an erythematous pre-auricular mass with or without any predisposing factors. Evolution is generally favourable and complications are rare with timely and appropriate medical treatment.

KEYWORDS

Neonatal; Acute suppurative parotitis; Sialadenitis; Treatment

INTRODUCTION

Parotitis is defined as an infection or inflammatory state of the parotid gland, which can be bacterial, viral, chronic, or recurrent [1]. While it is frequently seen in adults, suppurative acute parotitis is a rare condition in children, or even exceptional in newborns, isolated case reports and small case series describe acute neonatal parotitis (ANP) with a prevalence of 3.8/10 000 admissions in one report from Italy. Only 32 cases of NSP have been described

in the English language literature over the last 35-years, and the causative agent in most cases was *Staphylococcus aureus* [2]. Most cases are managed conservatively, with prompt antibiotic therapy and adequate hydration being essential for a good outcome. Surgical intervention is reserved for those rare cases with inadequate response to medical therapy or for those with organised abscesses. We report a case of neonatal suppurative parotitis in a newborn taken care of in our department. The purpose of our work is to emphasize the diagnostic and therapeutic aspects of this clinical entity.

CASE REPORT

A 21-days-old female presented to our ENT emergency with a 2-days history of irritability, decreased oral intake, and preauricular swelling, all in a feverish context. She is the result of an uneventful pregnancy followed by spontaneous vaginal delivery at term spontaneously without complications or intrapartum trauma. At home, she was well breastfed and was normally eliminating. Two days before admission, the mother observed acute onset of irritability while feeding and her time in the breast decreased followed by swelling in front of his right ear that increased rapidly in size associated with local inflammatory signs. At interrogation, the parents report that she had no history of trauma to the infant's face or head, the mother did not report any history of breast tenderness or skin infections, and denied taking any medication or giving medications to the patient. On physical examination, the newborn was feverish at 38,9. She was alert, nontoxic and well hydrated. Cervicofacial examination found a swelling in front of the infant's right ear, extending to the area underneath the ear lobe, over the angle of the mandible (Figure 1A). The swelling displaced the right earlobe outward. The swelling was hard, red, and tender. When crying, purulent exudate was found to drain from Stenson's duct. The rest of the physical examination was normal. Laboratory results were as follows: The PCR count was 250. A spinal tap was performed; results were normal. Purulent material from Stenson's duct; and cerebrospinal fluid, blood, and urine samples were sent for culture. A cervical and cerebral computed tomography (CT) scan was performed showing a heterogenous density swollen right parotid gland with enhancement without detectable collection with significant infiltration of the right parotid and masticator spaces. The findings were consistent with acute suppurative parotitis (Figure 2). The newborn underwent intravenous antibiotic therapy with ceftriaxon (100 mg/kg/d) and gentamycin (3 mg/kg/d). 48 hours after admission, the newborn improved clinically. The swelling had decreased, and the overlying skin was less erythematous (Figure 1B). The culture of the purulent material expressed from his parotid gland grew *Staphylococcus aureus* to be multi-sensitive. The other cultures did not produce pathogens and the newborn was discharged with oral cefpodoxime to complete 10 days of therapy. The follow-up examination 2 weeks later showed that she was in good health and that her parotid swelling had resolved completely.



Figure 1: (A) Inflammatory swelling of the parotid region with extension towards the auricle of the right ear; (B) Marked improvement in inflammatory swelling in the parotid region and total regression of inflammation in the right ear after 48 hours of intravenous antibiotic.

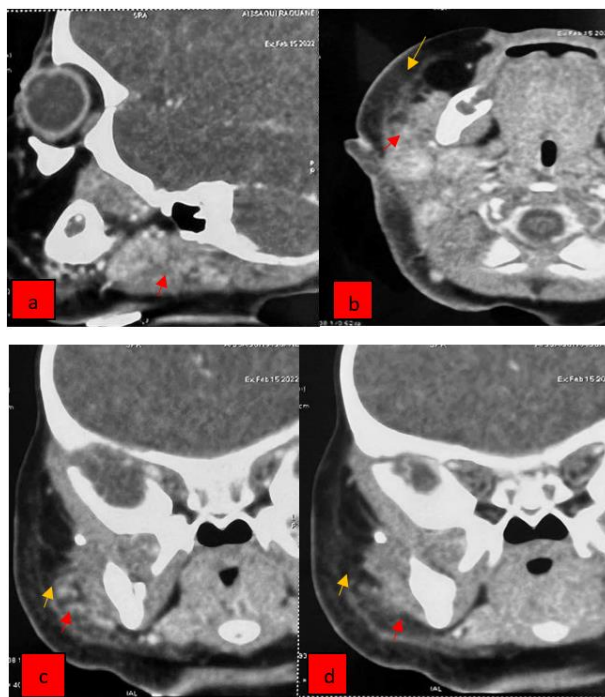


Figure 2: CT scan of the facial bones in sagittal (a), axial (b) and coronal (c,d) sections: Swollen right parotid gland with heterogeneous density and enhancement without detectable collection (red color arrow) significant edematous infiltration of the right parotid (yellow color arrow) and masticatory spaces.

DISCUSSION

Salivary gland infections are rarely observed in newborn; however, the parotid gland is the preferred site of this infection due to its exclusive production of serous secretions without the bacteriostatic properties of the mucoid component, typical of the submandibular gland that has a mixture of serous and mucous secretion containing IgA and lysozyme [2-4]. Despite this frequency, neonatal suppurative parotitis is characterized by a prevalence of 3.6-14/10 000 admissions [4-6]. In a review of the literature, only 32 cases of neonatal bacterial parotitis had been described over a period of 35 years [5]. It is characterized by a male predominance with a sex ratio of 3:1 [5]. Several risk factors have been identified in the literature as predictors of infant parotitis. It occurs more frequently in male sex infants, prematurity, dehydration, low birth weight, malnutrition, orogastric tube feeding and duct stasis [3,6].

Prematurity considered a major risk factor, usually due to prolonged hospitalization associated with procedures such as the use of an orogastric tube or catheter, nasopharyngeal and intra-oral aspiration that can induce trauma to the oral mucosa and Stensen canal [7]. Thus, these traumas could favour an ascending infection from the oral cavity [8], without forgetting the higher risk of dehydration inducing reduced salivary secretion and in saliva clearance [9,10].

Several mechanisms may be involved in ANP. First, it can occur retrogradely into the gland through decreased saliva production and stasis, dilatation of the ducts (sialectasis) through scarring or obstruction by a stone or mass, and congenital variations in ductal structure [2]. It can occur via the hematogenous route [10] or by transmission of bacteria during breastfeeding or through contaminated formula can be a potential [4,9]. Todoroki et al. described a case of neonatal suppurative parotitis in which stasis was probably due to congenital cytomegalovirus infection and maternal methylodopa treatment [11].

The diagnosis is essentially clinical, it is based on the association of a set of non-specific clinical signs. The most common presentation of NSP is fever which is found in less than half of the cases and swelling and erythema in the pre-auricular area beginning at between 7 and 14 days of life, the purulent drainage from Stenson's duct is pathognomonic but inconstant [1,2,6]. ANP is most often unilateral, bilateral is extremely rare [5,12].

The differential diagnosis arises with maxillary infections, trauma, lymphangiomas, hemangiomas, lipomas and adenomas [2,9].

The germs responsible for infectious parotitis are the saprophytic germs of the oral cavity, but also the germs responsible for invasive infections [6]. The most common pathogen often implicated is *Staphylococcus aureus*. Less common isolates were other Gram-positive cocci (e.g.; *Viridians streptococci*, *Streptococcus pyogenes*, *Peptostreptococcus spp.* and coagulase negative *Staphylococcus spp.*), Gram-negative bacilli are, however, more often implicated in nosocomial and hematogenous infections secondary to sepsis (*Pseudomonas aeruginosa*, *Klebsiella pneumonia*, *Escherichia coli*, and *Moraxella catarrhalis*) and rarely anaerobic bacteria [3,13].

'Multi-R' resistant strains have been isolated in recent observations [10]. Only a few observations of suppurative parotitis due to *streptococcus agalactiae* (group B *streptococcus*) have been reported, whereas this germ is responsible for 25% to 40% of infections of the newborn [6]. In our case, we isolated a multi-sensitive *Staphylococcus aureus*.

Parotid ultrasound allows the appearance a sialolith or parotid abscess, and if the patient does not show no improvement after 48 hours, further imaging studies should be performed to rule out abscess formation or the tracking of infection in retropharyngeal areas should be conducted [2]. It reveals hypoechogenicity with heterogeneous areas within the gland. Parotid ultrasound is the examination to be preferred, especially in children, because it is rapid and noninvasive. It may also eliminate a differential diagnosis such as a cyst or another tumor-like mass [6]. CT and magnetic resonance imaging (MRI) are performing better for adults. For our case, CT was performed, in front of the redness of the pavilion and the associated retroauricular region raising suspicion of associated mastoiditis.

Some complications such as fistula formation, facial nerve palsies, mediastinitis, and extension to the auditory canal are rare since the introduction of antibiotics [2]. We did not observe any complication.

Therapeutic management is essentially medical. It includes the correction of a possible dehydration and immediate intravenous antibiotic therapy, a penicillinase resistant penicillin or first-generation cephalosporin to effectively cover *S. aureus* along with clindamycin or a similar medication to cover possible anaerobic infection are good initial choices until better direction can be obtained from the study of cultures of expressed material from Stenson's duct [4,6]. The pressure of methicillin-resistant staphylococci may require the use of vancomycin. An adequate coverage for anaerobic and aerobic, bacteria is provided with clindamycin, cefoxitin, imipenem or the combination of metronidazole and a macrolide or a penicillin plus beta-lactamase inhibitor [4].

Surgical drainage is reserved for complicated forms of an abscess or in the absence of clinical improvement after 24 hours to 48 hours of medical treatment [5,9,11]. Our patient underwent intravenous antibiotic therapy without surgical drainage and the evolution was favourable.

The duration of antibiotic therapy is not precisely defined, but a treatment of 7 days to 10 days is essential until local inflammatory signs disappear. It is prolonged in premature infants, in the event of failure of other organs or when an anaerobic germ has been isolated [10]. Our case had a favourable evolution within 48 hours of intravenous antibiotic and no need for surgical treatment was found.

CONCLUSION

Although ANP is rare, the practitioner should suspect suppurative parotitis in newborns presenting with an erythematous pre-auricular mass with or without any predisposing factors. The diagnosis depends on clinical findings, with ultrasound confirmation, if needed. Cultures are essential for an accurate diagnosis and optimal therapy. Prompt antibiotic therapy and adequate hydration are essential for a good outcome, with surgical intervention being reserved for drainage of abscesses.

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ETHICAL APPROVAL

Ethical approval is not applicable for this article.

STATEMENT OF INFORMED CONSENT

There are no human subjects in this article and informed consent is not applicable.

DECLARATION OF CONFLICT OF INTEREST

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DATA AVAILABILITY STATEMENT

Data will be made available on request.

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