Pediatric Oncall Journal

DOI: https://doi.org/10.7199/ped.oncall.2026.32

CASE REPORTS

A RARE FINDING IN A PRETERM INFANT

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ABSTRACT

Neonatal acute parotitis is a rare condition, where high clinical suspicion is necessary to establish a timely diagnosis. The authors aim to describe a case report of a 10-day-old preterm newborn with clinical signs of acute parotitis confirmed by ultrasound and with isolation of a Staphylococcus aureus in a blood culture.

There was clinical improvement after a 10-day course of vancomycin, with no further complications or recurrences.

ARTICLE HISTORY

Received : 11 February 2024

Accepted : 22 July 2024

KEYWORDS

acute parotitis, preterm infant, staphylococcus aureus.

Case Report

A preterm newborn girl of 33 weeks and 2 days is delivered by emergent caesarean section due to bleeding per *vaginum*. The pregnancy was complicated with hospitalization at 32 weeks and 5 days due to blood loss in the context of placenta praevia, previously diagnosed at 21 weeks. Peripartum serologies were negative and lung maturation was completed with a full course of corticosteroid therapy two days before birth. The newborn weighing 2040 g required one cycle of positive pressure ventilation due to low heart rate, with good recovery and an Apgar score of 6 at 1 minute, 9 at 5 minutes, and 9 at 10 minutes. She was adapted to nasal continuous positive airway pressure (*nCPAP*) from 2 minutes of life with 0.4 maximum FiO2. Given the worsening signs of respiratory distress nasotracheal intubation was required at 25 minutes of life.

The newborn showed good evolution having been extubated to *nCPAP* 4 hours after admission to the Neonatal Intensive Care Unit (NICU) and remained in spontaneous ventilation since day two of life with no need for supplemental oxygen therapy. The laboratory blood test on admission revealed a white blood count (WBC) of 14.3x10^9/L cells (40.7% neutrophils, 49.6% lymphocytes), hemoglobin 15.6 g/dL and platelet count of 417 x 10^9/L. Serial C-reactive protein (CRP) monitoring and the blood culture obtained were negative. She remained clinically stable, under parenteral nutrition from day one of life. Partial enteric nutrition was started through a nasogastric tube on day two, which was fully completed on day five of life, with full feeding autonomy acquired from the 12th day of life. She also developed jaundice requiring intensive phototherapy, from day two to day seven of hospitalization, during which an increase in serum sodium was observed (maximum 146 meq/L on day 3) despite normal urine output and a maximum weight loss of 6.5%.

On the 10th day of hospitalization, fever (37.9ºC) and hypoactivity was noticed, as well as the appearance of a right preauricular and ear-jaw articulation swelling, with effacement of the mandibular angle, accompanied by erythema and pain/discomfort on palpation (Figure 1). No history of trauma, maternal skin infection, or mastitis was registered.

The remaining physical exam was unremarkable, including the oral cavity.

The laboratory blood test revealed a WBC of 29.2x10^9/L cells (79.1% neutrophils, 9.7% lymphocytes), platelet count of 846 x 10^9/L, CRP 14.5 mg/L (normal range values <3 mg/L). A blood culture was obtained with an aftergrowth for *Meticillin-Sensitive Staphylococcus aureus* (MSSA). Empirical antibiotic therapy was started with intravenous vancomycin (15 mg/Kg/dose q12h) plus amikacin (15 mg/Kg/dose q36h), later adjusted to monotherapy with vancomycin.

A local ultrasound scan was requested revealing an enlarged right parotid gland with globose morphology, heterogeneous texture, and increased vascularity, with no dilatation of the parotid duct and no observed collections. The findings were consistent with acute parotitis. On the fourth day of antibiotics, she repeated laboratory tests, with improvement of the platelet blood count, negative CRP, and vancomycin values within the therapeutic range. The blood culture collected at that time was negative.

She completed ten days of antibiotic therapy with vancomycin and was discharged home clinically stable on the 19th day of life with resolution of parotid swelling, presenting a normal physical exam, with adequate weight progression and exclusive breastfeeding.

At the follow-up examination, two months later, she was in good health and with no record of complications or recurrence.

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Figures 1. Asymmetrical face with effacement of the mandibular angle; swelling and erythema over the right side of the parotid region.

Discussion

Neonatal acute parotitis is a rare disorder, with limited cases described in the literature and a incidence of 3.8-14/10000 among neonatal admissions in diverse revisions.[1] It has been related to be more prevalent in males, with a rate of almost 3:1.[2] It is mainly unilateral (identical association of each parotid) and classically occurs between the seventh and fourteenth days until a month of age.[3]

Though acute parotitis might affect healthy newborns, it appears to be more common in preterm infants with low birth weight, apparently associated with prolonged hospitalization with potential trauma of the oral cavity by extended enteral nutrition through naso or orogastric tube, and higher risk for dehydration, resulting in decreased salivary discharge triggering salivary stasis, promoting bacterial ascension along the salivary duct.[2,3,4,5,6] Hematogenous bacterial seeding of the parotid gland may also happen.[2,5,6] Maternal causes like breast abscess, spread of bacteria over infected breast milk, or contaminated formula have additionally been related with parotid gland infection.[2,3,4,5,6] Structural malformations, ductal blockage, sepsis, and immunodeficiency/immunosuppression leading to defective mucociliary clearance are also identified risk factors[2,3,4,5,6] In our case report, there were several risk factors: prematurity, tube feeding for various days, and possible dehydration during phototherapy.

Staphylococcus aureus is the most usual pathogen isolated (accounting for a slightly more than half of the cases). To a lesser extent are other Gram-positive cocci, Gram-negative bacilli, and rarely anaerobic agents.[1,4,5,6,7]

In our case, the presence of bacterial isolation in the blood culture and the absence of purulent drainage through Stenon's canal may support the diagnosis via the hematogenous route.

The diagnosis is established upon clinical findings, essentially the presence of parotid swelling with inflammatory signs, which may be complemented by systemic symptoms such as fever (occurring in nearly 1/3 of cases), irritability, non-compliance to eat, and clinical signs of sepsis. The discharge of purulent content through the duct is a pathognomonic sign, however it may not be noted at presentation[4,5,6,7,8], as was the case in this newborn, requiring an ultrasound confirmation of diagnosis.

Analytically, leukocytosis with neutrophilia and a rise in acute phase reactants such as CRP might be present, as in our case, although these lab assessments are non-specific and may be normal.[4,6,8]

Ultrasound findings can confirm the diagnosis, as shown in this newborn, revealing an enlarged right parotid gland with globose morphology, heterogeneous texture, and increased vascularity, with no dilatation of the parotid duct and no observed collections, being also particularly valuable for differential diagnosis, excluding predisposing factors like anatomical malformations of Stensen's duct and mechanical salivary duct obstruction.[4,8,9]

The primary empiric treatment for acute bacterial parotitis consists of intravenous broad-spectrum antibiotic therapy with coverage for the most often involved agents, specifically *Staphylococcus aureus* with a combination of an antistaphylococcal agent and a third-generation cephalosporin or an aminoglycoside followed by an adjustment after cultures' products.[6,7,9] Additionally, adequate hydration and analgesia must also be offered. Surgical intervention is only for the occasional cases lacking a response to medical treatment or those with organized abscesses.[5,6,7,8,9]

The ideal treatment extent is not quite defined, but a minimum period of 7-10 days is generally sufficient or until the resolution of symptoms.[2,4,9] Usually within the first two days of antimicrobial treatment there is an improvement, with a diminution in parotid swelling. With prompt institution of targeted antibiotic therapy complications such as facial nerve paralysis, salivary fistula and dissemination of infection to the contiguous structures, and meningitis are rare.[2,4,9] In the cases

with absence of clinical improvement in the first 48-72 h hours, imaging should be repeated to exclude abscesses or other complications.[1,2] The prognosis for this pathology is promising in most cases, deprived of recurrence, as shown in our case report.[2,4,9]

Although acute bacterial parotitis is an uncommon condition in newborns, it must be considered in case of an erythematous pre-auricular mass, with or without predisposing factors, since a timely suspicion, diagnosis, and treatment are essential to avoid complications.

Compliance with Ethical Standards
Funding None
Conflict of Interest None

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