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Case Report

Bilateral Neonatal Suppurative Parotitis in a Brazilian Preterm Infant: A Case Report

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Abstract: Neonatal suppurative parotitis is a rare bacterial infection of the salivary glands in newborns, often associated with risk factors such as prematurity, dehydration, and retrograde contamination from the oral cavity. To date, fewer than 100 cases of neonatal suppurative parotitis have been published worldwide. While uncommon, it requires prompt clinical recognition to ensure a favorable prognosis and prevent systemic complications. This report details a case of bilateral neonatal suppurative parotitis in a 10-day-old preterm female neonate (34 weeks of gestation). The patient presented with fever, irritability, and bilateral pre-auricular swelling with purulent drainage from Stensen's duct. Ultrasound confirmed the diagnosis, and cultures grew methicillin-sensitive *Staphylococcus aureus* (MSSA). The infant was successfully treated with a 10-day course of intravenous antibiotics (cefepime and clindamycin), resulting in complete resolution of symptoms. In conclusion, this represents a rare case of bilateral neonatal suppurative parotitis. Early diagnosis through clinical examination and imaging, followed by targeted antibiotic therapy, is essential for a full recovery and the prevention of complications like abscess formation or sepsis.

Keywords: Neonatal Suppurative Parotitis; Preterm Infant; Case Report.

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1. Introduction

Acute suppurative parotitis, a bacterial infection of the salivary gland, is rare in children and exceptionally uncommon in newborns [1]. Mori et al. [2] noted that only 72 cases had been reported up until 2022; an additional four cases were subsequently published according to an our recent search in MEDLINE [3-6]. Although some case reports and small case series exist, comprehensive knowledge of this infection during the neonatal period remains limited. While prematurity is a recognized risk factor, some reports describe healthy term infants being affected [5]. This report presents a case of bilateral suppurative acute parotitis in a preterm neonate treated in our pediatric department. We aim to report this rare case in Brazil, highlighting the diagnostic and therapeutic aspects of this clinical condition.

2. Case Report

A 10-day-old female infant was admitted to the emergency department presenting with fever, irritability, and bilateral pre-auricular edema of one day's duration. The patient was born preterm (34 weeks gestational age) via cesarean section. The mother had gestational diabetes and hypertensive disorders, managed with methyldopa during pregnancy, which progressed to severe pre-eclampsia requiring magnesium sulfate infusion.

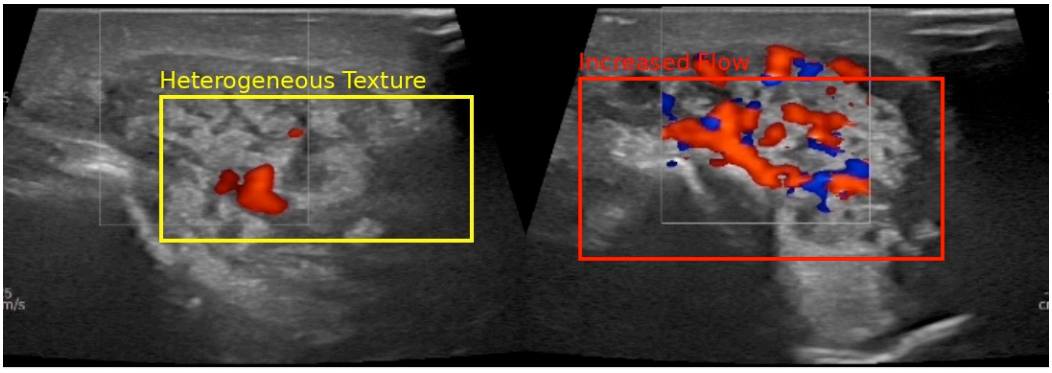
Additionally, the newborn had been exposed to syphilis, which was adequately treated in utero. Birth weight was 2,800 grams, with Apgar scores of 5 and 7 at the 1st and 5th minutes, respectively. At birth, the infant required positive pressure ventilation and remained in the neonatal intensive care unit (NICU) for two days, where an orogastric tube was used for feeding.

At home, the infant was exclusively breastfed. Upon admission, physical examination revealed an alert but irritable infant without signs of systemic toxicity. Bilateral edema was observed in the lateral neck region, extending to the angle of the mandible (Figure 1A and 1B). The area showed hyperemia, warmth, and tenderness upon palpation, with purulent exudate draining from Stensen's duct. Laboratory tests showed leukocytosis (18,400 cells/mm^3, with 1% metamyelocytes, 21% band neutrophils, and 45% segmented neutrophils) and an elevated C-reactive protein (CRP > 9 mg/L). Methicillin-sensitive *Staphylococcus aureus* was isolated from the collected purulent material. Blood culture and cerebrospinal fluir were negative.

Figure 1. A. Inflammatory preauricular edema, extending from the angle of the mandible to the auricular tragus. B. Purulent drainage through Stensen's duct.

Ultrasonography of the edematous region (Figure 2A and 2B) showed parotid glands with heterogeneous texture, increased dimensions, and increased flow on Doppler study, alongside edema of the skin and adjacent adipose tissue.

Figure 2. A. Ultrasonography of parotid glands with heterogeneous texture and increased dimensions. B. Increased flow on Doppler study.



These findings were consistent with neonatal suppurative parotitis. Intravenous antibiotic therapy was initiated with cefepime (150 mg/kg/day) and clindamycin (15 mg/kg/day) for 10 days, resulting in favorable clinical course and complete regression of the lesions. Investigations for inborn errors and immunity were conducted, including **a** complete blood count to assess the absolute lymphocyte count, serum immunoglobulin levels (IgG, IgA, and IgM), and lymphocyte immunophenotyping via flow cytometry**;** all results were within age-appropriate reference ranges, ruling out major primary immunodeficiencies.

3. Discussion and Conclusion

Neonatal suppurative parotitis (NSP) is an exceptionally rare clinical entity, with an estimated prevalence ranging from 3.6 to 14 per 10,000 neonatal admissions [1]. Despite being a known condition, it is infrequently reported in the literature; our extensive search in MEDLINE yielded no previous case reports from Brazil or other South American countries, highlighting the importance of this report for regional epidemiological data. A recent comprehensive review identified only 72 cases published globally up to 2022 [2], reinforcing the need for clinical awareness to ensure early identification and management.

The pathogenesis of NSP is primarily attributed to the retrograde migration of bacteria from the oral cavity through Stensen's duct into the parotid gland. This process is facilitated by factors that promote salivary stasis or reduce host resistance. The parotid gland is uniquely susceptible to infection because it produces exclusively serous secretions, which lack the potent bacteriostatic properties (such as high concentrations of lysozyme, sialic acid, and immunoglobulins) found in the mucoid components of the submandibular and sublingual glands [7].

In this case, several risk factors likely converged to predispose the neonate to infection. Prematurity and low birth weight are well-documented stressors that impair the neonatal immune response. Specifically, transient immunoglobulin A (IgA) deficiency, common in preterm infants, significantly weakens mucosal immunity and mucociliary clearance, facilitating bacterial ascent [8]. Additionally, the use of an orogastric tube during the NICU stay may have caused local trauma or served as a nidus for bacterial colonization, further obstructing salivary flow.

The bilateral presentation observed in our patient is particularly noteworthy, as over 80% of reported cases are unilateral [9]. Bilateral involvement often suggests a more profound systemic predisposition, such as significant dehydration or a high bacterial load in the oral cavity, and necessitates a rigorous clinical evaluation to exclude underlying immunodeficiencies. The investigation into inborn errors of immunity were only a baseline screening and we can not guaratee that some specific immunedeficiency has not been detected. While our patient was febrile, it is important to note that approximately 50% of neonates with NSP remain afebrile, which can sometimes lead to diagnostic delays.

The potential association with maternal methyldopa use warrants attention. Although data are limited, methyldopa has been theoretically linked to neonatal parotitis due to its side effect profile, which includes xerostomia (dry mouth). Reduced salivary flow in the neonate, potentially influenced by maternal medication during late pregnancy, could facilitate the retrograde migration of *Staphylococcus aureus*, which remains the most common pathogen, accounting for roughly 60% of cases [9].

Diagnosis of NSP is primarily clinical, characterized by the pathognomonic sign of purulent material exuding from Stensen's duct upon glandular expression. Ultrasonography remains the gold-standard imaging modality; it allowed us to rule out important differential diagnoses such as hemangiomas, lymphangiomas, and sialolithiasis, while confirming glandular inflammation and the absence of abscesses without exposing the neonate to ionizing radiation.

In conclusion, although neonatal suppurative parotitis is rare, it must be considered in any neonate presenting with facial or parotid swelling. This case emphasizes that bilateral presentation, while unusual, can occur in the context of prematurity and systemic risk factors. Prompt diagnosis through clinical examination and ultrasound – revealing glandular hypertrophy, and a heterogeneous parenchymal pattern without abscess formation - followed by targeted intravenous antibiotic therapy, may ensure an excellent prognosis and prevents invasive surgical drainage or severe systemic complications like sepsis and meningitis. Pediatricians and neonatologists must remain vigilant, particularly in NICU survivors, to ensure timely intervention.

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Research Ethics Committee Approval: Written informed consent for publication of clinical data and images was obtained from the patient's legal guardians.

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Conflicts of Interest: All other authors declare no conflicts of interest.

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