

Neonatal Suppurative Parotitis and Shoulder Arthritis Following Nasal Prong and Orogastric Tube

Jayendra R Gohil¹, Monil B Shah², Atul M Sheladiya³

¹Professor, ^{2,3}Residents, Department of Pediatrics, Govt Medical College and Sir Takhtasinhji Hospital, Bhavnagar, Gujarat 364002, India.

How to cite this article:

Jayendra R Gohil, Monil B Shah, Atul M Sheladiya. Neonatal Suppurative Parotitis and Shoulder Arthritis Following Nasal Prong and Orogastric Tube. *Pediatr Edu Res.* 2019;7(4):157-159.

Abstract

With the use of non invasive nasal devices to augment ventilation in neonates complications of parotitis or arthritis may occur. If bacterial than it should be considered as nosocomial or HAI hospital acquired infection. A 16-day male neonate was admitted with swelling on right side of face and excessive crying for 2 days, and restricted movement of right shoulder. Pus came out from parotid duct opening and grew staph Methicillin-resistant *Staphylococcus aureus* (MRSA) sensitive to vancomycin; he also needed surgical drainage of swelling. Stringent and monitored aseptic precautions and oral toilet will prevent such cases.

Keywords: Neonatal; Parotitis; Shoulder arthritis; Nasal prong; Orogastric tube; Sialadenitis.

Introduction

Neonatal suppurative parotitis (NSP) is an uncommon disease with prevalence of 3.8/10000 admissions in one report.¹ Only 32 cases of NSP have been described in English literature over the last 35 years and causative agent in most cases was *Staphylococcus aureus*.² We report a case of acute suppurative parotitis caused by methicillin resistant *Staphylococcus aureus* (MRSA) in 16-day old full-term neonate leading to arthritis of the shoulder joint.

Case Report

A 16-day-old male newborn presented with swelling on right side of face and excessive crying

for 2 days. He was delivered full term via cesarean section with history of meconium stained liquor, delayed cry and bag and tube ventilation for 10 seconds. History of NICU (Neonatal Intensive Care Unit) hospitalization was for 9 days due to respiratory distress and metabolic acidosis; treated with intravenous fluids, sodium bicarbonate, orogastric tube feeding and oxygen 1 L/min with nasal prong. No history suggestive of infection in mother. The baby was exclusively breastfed at home.

On examination he had 7 x 5 cm, oval, erythematous, tender, indurated swelling over right cheek anterior and below right ear. Pus exuded from right Stensen's duct when pressure applied over inflamed gland. Cry, activity, vitals, sucking and neonatal reflexes were normal.

Corresponding Author: Jayendra R Gohil, Professor, Department of Pediatrics, Govt Medical College and Sir Takhtasinhji Hospital, Bhavnagar, Gujarat 364002, India.

E-mail: jayukids@yahoo.com

Received on 30.10.2019, **Accepted on** 28.11.2019

Investigations revealed total leukocyte count (TLC) of $14 \times 10^3/\text{mm}^3$ with 70% neutrophils and band cell 2%, hemoglobin 9.8 g/dl. Ultrasonography (USG) suggested right side parotitis. Needle aspiration of parotid swelling revealed pus which was sent for gram-staining and culture-sensitivity.

Amoxicillin plus clavulanic acid (100mg/kg/day) along with ibuprofen and paracetamol as analgesic were started. Next day mother complained that baby had restricted movement of right upper limb at the shoulder joint. On examination passive movement at right shoulder joint was associated with excessive crying and painful facial expressions. CT scan suggested septic arthritis (increased joint space, fluid and echogenic septa). Investigations on D8 revealed increase in TLC (36×10^3 -80% neutrophils, 8% band). Culture from aspirate showed MRSA resistant to penicillin, cloxacillin, macrolides, and sensitive to vancomycin.

Vancomycin was started and amoxicillin plus clavulanic acid stopped. Vancomycin continued for 28 days. Incision and drainage of parotid abscess was done on D12 under general anesthesia, following which parotid swelling rapidly regressed and movement at the right shoulder joint started improving from D17.

He was discharged after 4 weeks on exclusive breastfeeding with no residual deformity. Follow up after 8 weeks showed no swelling of parotid gland and no restriction of movement.

Discussion

NSP is an uncommon infection. Predisposing factors include prematurity, dehydration and ductal stasis. Although bacterial seeding of the parotid can occur hematogenously, infection is more common from oral or nasal flora tracking retrograde into the gland. Possible etiologies of retrograde flow from oral and/or nasal cavity include dehydration and gavage feeding with resultant decrease in saliva production and stasis, dilatation of the ducts (sialectasis) through scarring or obstruction by stone or mass, nasal instrumentation (e.g., nasal prong), and congenital variations in ductal structure like atresia/stenosis.^{3,5} Other risk factors include mastitis in mother and formula feeding.^{5,6} NSP is reported as more prevalent among boys.^{1,4}

This patient was full-term male with history of gavage feeding of breast milk by oral infant feeding tube and oxygen with nasal prong.

Common presentation of NSP is fever, swelling and erythema in the preauricular area. Purulent drainage from Stensen's duct is pathognomonic of this condition and culture of the exudate will help guide treatment. USG reveal enlarged gland with coarse echo pattern. Laboratory findings are nonspecific. Leukocytosis with neutrophilic predominance was found in 71% of cases and ESR was elevated in only 20%. Serum amylase levels were elevated in 45%.^{1,7}

This patient had parotid swelling, purulent exudate from Stensen's duct and growth of pathogenic organism from pus. He had neutrophilic lymphocytosis and USG was suggestive of parotitis.

Staphylococcus aureus is the usual causative organism. Other isolated organisms are streptococci, *Pseudomonas aeruginosa*, *Escherichia coli* and *Moraxella catarrhalis*. Suppurative sialadenitis due to MRSA has also been described.^{5,8}

The MRSA was isolated from pus culture in this patient.

Mainstay of treatment of NSP is appropriate antibiotic to cover causative organism. A penicillinase-resistant penicillin or first-generation cephalosporin to effectively cover *S. aureus* is good initial choice until culture reports of pus are obtained. Infection with MRSA may require use of vancomycin. Treatment period of 7-10 days is adequate.³ Incision and drainage (I and D) is occasionally performed for abscess formation, but the need for such a procedure has declined as antimicrobial treatments have improved.^{2,3,8}

Amoxicillin-clavulanic acid was started in this patient, which was then changed to vancomycin because of the growth from pus showed MRSA. I and D was done due to progress of swelling in initial days.

Complication was noticed in form of arthritis of right shoulder joint, which is not mentioned in any previous study. Arthritis could be septic or inflammatory. Antibiotic was given for 28 days. Recovery was complete without any sequele.

Conclusion

Though NSP is rare, it should be suspected in neonates presenting with erythematous tender facial swelling with or without risk factors. With increasing use of nasal instrumentation like CPAP, an increase in incidence of NSP as HAI or hospital acquired infection is expected, nevertheless with stringent emphasis on aseptic precautions and oral

toilet, it is going to be remembered as a 'past era entity', that is our hope.

Effective treatment includes proper administration of antibiotics and drainage of abscess in some cases. MRSA should be considered in cases that do not respond to initial empirical antibiotic therapy. Sialadenitis can lead to complications like septic arthritis in which prolonged antibiotic treatment is required.

References

1. Sabatino G, Verrotti A, de Martino M, et al. Neonatal suppurative parotitis: a study of five cases. *Eur J Pediatr* 1999;158:312-14.
2. Spiegel R, Miron D, Sakran W, et al. Acute neonatal suppurative parotitis: case reports and review. *Pediatr Infect Dis J* 2004;23:76-78.
3. Schwab J, Baroody F. Neonatal suppurative parotitis: a case report. *Clinical Pediatrics (Philadelphia)* 2003;42:565-66.
4. Salaria M, Poddar B, Parmar V. Neonatal parotitis. *Indian J Pediatr* 2001;68:283.
5. Tapısız A, Belet N, Çiftçi E, et al. Neonatal suppurative submandibular sialadenitis. *Turk J Pediatr* 2009;51:180-82.
6. Davis TK, Pinheiro JM, Lepow M, et al. Submandibular Sialadenitis and Lymphadenitis in Neonates: Epidemiology and Relation of Secular Trends in the Incidence of Staphylococcus Aureus Sepsis. *Webmed Central Paediatrics*. http://www.webmedcentral.com/article_view/1873.
7. Özdemir H, Karbuz A, Ciftçi E et al., Acute neonatal suppurative parotitis: a case report and review of literature. *Int J Infect Dis*. 2011 Jul;15(7):e500-2.
8. Brook I. Aerobic and anaerobic microbiology of suppurative sialadenitis. *J Med Microbiol* 2002;51:526-29.

