



Acute Infantile Suppurative Parotitis: Case Report and Review of the Literature

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Introduction

Acute suppurative parotitis occurs primarily in infants under the age of one or in hospitalized older adults who are dehydrated or intubated during the postoperative period [1]. Acute suppurative parotitis is a rarely seen infection in childhood, which is characterized by parotid gland swelling and pus drainage from the Stenson's duct [2]. The microbiology of acute suppurative parotitis is quite variable and is often polymicrobial. *S. aureus* is by far the most frequently isolated pathogen, but anaerobes are also common [3]. Treatment consists of parenteral antibiotics (usually Intravenous). Rarely, parotid abscess can develop in patients who are unresponsive to antibiotics alone and surgical drainage is required for complete recovery [4]. We are reporting a case of acute infantile suppurative parotitis that was severe to the degree of swelling being a threat to the airway, intravenous antibiotics were not enough and surgery was warranted twice. Early expectation of airway compromise and early intervention are lifesaving in such a case.

Case Presentation

An 8-month-old well thriving child presented with 2 days history of high-grade fever, and evolving swollen right side of the neck. Left side was clear. He is a product of FT NVD with uneventful neonatal period and no previous hospital admission. This patient was a conceived by non-consanguineous parents and was born at term. Perinatal course was uneventful.

Patient was admitted initially to pediatric inpatient facility and started on IV Cefotaxime. Initial CXR: No obvious abnormality detected. US Neck: Multiple enlarged lymph nodes were noted at the right side of the neck with the largest measuring 2.8 cm × 1.2 cm. Right-sided parotid gland was noted to be heterogeneous with increased vascularity. Blood Smear: Leukocytosis - Neutrophilia and Monocytosis and Microcytic Anemia.

Seen on the same day by the PICU team due to concerns on airway patency and was shifted to PICU immediately, we anticipated worsening of the condition and antibiotics were upgraded to IV Piperacillin/Tazobactam and Clindamycin.

On day 2 of admission, he was more sick looking and with increasing swelling. Fever spikes of up to 39°C were noted with rise in inflammatory. We proceeded to intubate him electively to secure his airway. This was done with Anesthesia assistance in OR where an Incision and Drainage were done at the same time. Patient returned to ICU intubated. After few hours in the PICU, patient self-extubated (due to inadequate sedation) and ET was re-cited. Larynx was noted to be inflamed and edematous. US neck showed enlarged right parotid gland and ill-defined localized collection measuring about 2.7 cm × 1.2 cm × 2.1 cm with perilesional increased vascularity (Figure 1). CT scan neck with contrast done post all above showed the abscess tracking posteriorly to the carotid sheath and medial to the pharyngeal wall (Figure 2).

ENT team was involved, who recommended IV Dexamethasone for 3 days. ID consultant has recommended adding Vancomycin if patient was persistently febrile and toxic. On Day 3 patient clinical condition improved, fever controlled. COVID PCR was negative. NBT test for CGD (Chronic Granulomatous Disease) was reported negative.

On day 4 Pus swab C&S showed: Heavy growth oxacillin sensitive *Staph aureus*, sensitive to Clindamycin. Tazocin sensitivity was not tested but expected to be well sensitive to Piperacillin too. Size of swelling started to reduce on day 4 and he was successfully extubated on Day 6. On day 9, right parotid swelling seemed to be increasing in size and uplifting the right ear pinna and he had spiking temperature up to 38.9°C. US scan revealed a smaller collection (Figure 3 & Table 1).

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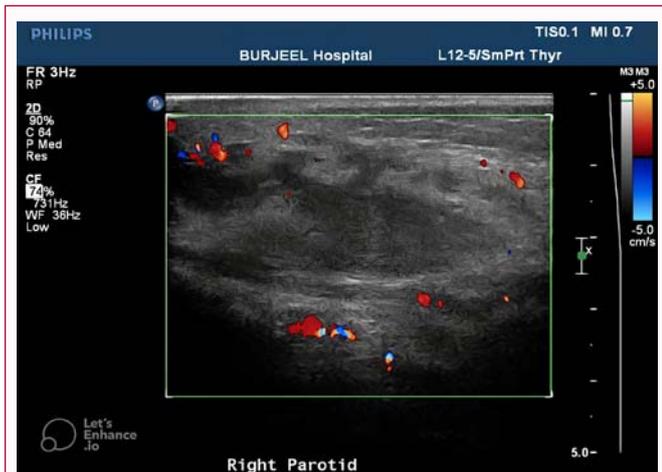


Figure 1: US neck showed enlarged right parotid gland and ill-defined localized collection measuring about 2.7 cm x 1.2 cm x 2.1 cm with perilesional increased vascularity, related soft tissue oedema.

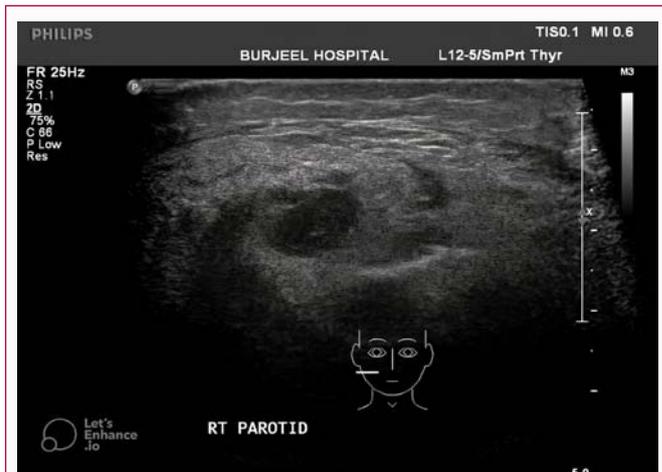


Figure 3: US neck showing reduction in the size of the previously imaged collection in the superficial lobe of the right parietal lobe.



Figure 2: Right parotid gland is noted to be swollen and enhancement with large fluid density surrounding it with multiple air loculi with extensive surrounding fat stranding and fascial thickening, it extends anteriorly to the right facial region, medially involving the deep parotid lobe occupying the right para pharyngeal space compressing the oropharynx and posteriorly compressing the right carotids heath.

immunosuppression, male gender and congestion in the parotid gland are known predisposing factors. However, like in our patient, it has been reported in healthy infants who had no risk factors [6]. The diagnosis of ASP is primarily clinical. Sonography of the parotid gland may help confirm the diagnosis and rule out abscess formation. Advanced imaging studies may be considered when the diagnosis is in doubt to rule out other congenital and inflammatory disorders of the parotid gland [7].

In the differential diagnosis, trauma, lymphadenitis, hemangioma, adenoma, lipoma, parotid gland duct anomalies, intraglandular abscess and neoplasia should be considered.

The polymicrobial nature of parotid space infections was illustrated in a study of 32 patients with acute suppurative parotitis. Aerobic bacteria were isolated in 34%, anaerobic bacteria in 41%, and mixed aerobic and anerobic bacteria in 25%. *S. aureus* was the predominant aerobe (in 10 patients), followed by viridans streptococci and *H. influenza* (in four patients each). Pigmented *Prevotella* and *Porphyromonas* spp, *Fusobacterium* spp, and *Peptostreptococcus* spp. were the predominant anaerobes. Although rare, risk of Enterobacterales and *Pseudomonas aeruginosa* is higher in immunocompromised patients and hospital-acquired infections [8].

Although bacterial seeding of the parotid can occur hematogenously, infection is more common from oral flora tracking in a retrograde fashion into the gland. Possible etiologies of retrograde flow from the oral cavity into the parotid include dehydration with resultant decrease in saliva production and stasis, dilatation of the ducts (sialectasis) through scarring or obstruction by stone or mass, and congenital variations in ductal structure. Other causes of facial swelling that may be confused with parotid enlargement include maxillary infections, trauma, lymphangiomas, hemangiomas, lipomas, and adenomas [9].

Osteomyelitis of the mandible or temporomandibular joint, thrombophlebitis of the jugular vein, respiratory obstruction and sepsis are potential complications associated with neonatal ASP, and should be considered in the infant with unchanged or worsening symptoms. Facial palsy, salivary fistula and mediastinitis can occur rarely. Mortality is primarily related to the general medical condition of the infant, and is higher in patients who develop complications.

Patient was taken to the OR; I&D was done with very small volume of thick pus aspirated by interventional radiologist and a Penrose drain left in situ by the pediatric surgeon to aid drainage of pus for 2 days. Vancomycin was started along with Clindamycin and Tazocin was discontinued. He was extubated on the same day.

Patient was discharged home on day 16 with advice to continue PO Clindamycin for total of 4 weeks. He was seen in pediatric clinic on day 21, no neck swelling was noted, US showed postoperative changes in the right parotid gland, no collection seen.

Discussion

Acute Suppurative Parotitis (ASP), an inflammatory and infectious process of the parotid gland, was a well-recognized complication of abdominal surgery before the advent of antibiotics. With the use of perioperative antibiotics, ASP has become a rare occurrence [5].

Prematurity, low birth weight, dehydration, oral trauma,

Table 1: The laboratory test results of the patient.

Characteristic	Value on day 1	Value on day 3	Value on day 21
CBC			
WBC	25660/ml	9300/ml	9090/ml
PMN	70.70%	61%	29%
LYM	12.70%	23%	54%
RDW	15.20%	16%	18%
Hb	8.70 g/dL	7.4 g/dL	11.2 g/dL
Plt	335000/ml	293000/ml	465000/ml
CRP	186.2 mg/L	82 mg/L	1.4 mg/L
Procalcitonin	13.2 ng/mL	5.1 ng/mL	-
Blood smear, peripheral	Leukocytosis – Neutrophilia and Monocytosis, Microcytic Anemia	-	-
B/C	No growth	No growth	-
Pus culture	Staphylococcus aureus, heavy growth	No growth	-
U/A	Normal	Normal	-
LFT	Normal	Normal	-
RBG	7.2 mmol/L	6.0 mmol/L	-
Biochemistry	Normal	Normal	-
Urine culture	No growth	Normal	-
Immunoglobulin A, G, M and E level	-	Normal	-
NBT test for CGD	-	Negative	-
COVID PCR	-	Negative	-

Table 2: Some of studies concerning acute suppurative parotitis in neonates and pediatrics.

Author	Journal	Title
Ismail et al.	Pediatrics International® 2012 Japan Pediatric Society	Neonatal suppurative parotitis over the last 4 decades: Report of three new cases and review
Spiegel et al.	The Pediatric Infectious Disease Journal Vol. 23, No. 1, January 2004	Acute neonatal suppurative parotitis: case Reports and review
Soltani et al.	Iran Red Crescent Med J. 2019;21(10):e96224. Published online 2019 November 3.	Acute Bacterial Parotitis in Early Infancy: A Case Report and Review of the Literature
Stoesser et al.	Pediatr Infect Dis J. Author manuscript; available in PMC 2013 Feb 1	Pediatric Suppurative Parotitis in Cambodia 2007-2011
Avcu et al.	Journal of Tropical Pediatrics, 2015, 61, 218–221	Acute suppurative parotitis in a 33-day-old patient
BROOK et al	J. Med. Microbiol. Vol. 51 (2002), 526–529	Aerobic and anaerobic microbiology of suppurative sialadenitis
Moradi et al.	Iran J Pediatr Aug 2014; Vol 24 (No 4), Pp: 451-456	Neonatal Suppurative Parotitis: A Case Report
Jill et al.	Am J Case Rep, 2012; 13: 41-43	Neonatal parotid gland enlargement: Is it suppurative parotitis? A case report

However, most patients who receive appropriate parenteral antibiotic therapy recover fully [5] (Table 2).

Initial treatment includes aggressive rehydration and electrolyte replacement, reversal of salivary stasis and maintenance of oral hygiene. The sequential management of parotitis involves a general sepsis work-up, ultrasound of the parotid gland, as well as Otolaryngology and Infectious Disease consults [5].

Intravenous antibiotic therapy is the main treatment, and anti-staphylococcal antibiotics are suggested as the initial empirical. Incision and drainage of the affected parotid is occasionally performed for abscess formation [10,11].

Conclusion

Acute suppurative parotitis is rare in early infancy. It should be considered in patients presenting with fever and erythematous pre-auricular mass with or without any predisposing factors. Diagnosis

is mainly clinical and can be supported by sonography and cultures. Complete recovery can be achieved with hydration, appropriate antibiotic therapy and I&D might be necessary more than once. Due to the changing nature of the bacterial isolates, we emphasize the importance of culture driven antibiotic therapy and the probable need for antibiotics upgrade during the course of treatment.

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