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Case Report

An Uncommon Presentation of Enteric Fever with Acute Bilateral Parotitis in a Pediatric Patient

Aizaz Ur Rahman, Fatima Shafiq, Taiseem Aslam, Haseena Ali Palwasha Rasool, Awais Ahmad & Shahid Ali
Lady Reading Hospital, Peshawar, Pakistan

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Abstract

Background: Enteric fever, caused by Salmonella enterica serovar Typhi, is a significant infectious disease in endemic regions, typically presenting with prolonged fever and gastrointestinal manifestations. Although extra-intestinal complications are well documented, involvement of the salivary glands is exceedingly rare. Parotitis in children is most commonly viral in origin, particularly due to mumps, and its association with enteric fever remains uncommon and underreported.

Case Presentation: We report the case of a 7-year-old previously healthy boy who presented with a 20-day history of persistent high-grade fever and a 2-day history of painful right-sided parotid swelling, which subsequently progressed to bilateral involvement. The patient had received multiple empirical treatments, including antimalarials and oral antibiotics, without clinical improvement. On examination, he appeared febrile, ill-looking, and had tender right sided parotid enlargement without signs of suppuration. Empirical intravenous ceftriaxone was initiated upon hospital admission.

Results: Laboratory investigations revealed mild anemia, normal leukocyte count, and mildly elevated liver enzymes. Viral serologies, including mumps, dengue, HIV, hepatitis B, and hepatitis C, were negative. Ultrasonography demonstrated bilateral parotid gland enlargement without abscess formation or ductal obstruction. Blood culture yielded extensively drug-resistant (XDR) Salmonella Typhi, sensitive only to azithromycin and meropenem. Following initiation of intravenous meropenem, the patient showed rapid clinical improvement, with complete resolution of fever and marked reduction in parotid swelling within three days.

Conclusion: Parotitis may represent a rare extra-intestinal manifestation of enteric fever, particularly in endemic settings with increasing antimicrobial resistance. Clinicians should maintain a high index of suspicion for enteric fever in children presenting with prolonged fever and atypical features such as parotid swelling to ensure timely diagnosis and appropriate targeted therapy.

Keywords: Antimicrobial resistance, Atypical presentation, Bilateral parotitis, Enteric fever, Pediatric infection, Salmonella Typhi.

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Corresponding Author:
Dr. Aizaz Ur Rahman
Postgraduate Resident,
Department of Pediatrics,
Lady Reading Hospital, Peshawar,
Pakistan
mr.aizazurrahman@gmail.com

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Introduction

Enteric fever is a systemic infection caused by Salmonella enterica serovar Typhi and remains a major public health concern in developing countries. It typically presents with prolonged high-grade fever, abdominal discomfort, anorexia, nausea, vomiting, and altered bowel habits [1]. In endemic regions, the diagnosis is often suspected clinically and confirmed through microbiological testing, particularly blood culture and antimicrobial sensitivity.

While the classical presentation is well recognized, enteric fever may also manifest with a wide range of extra-intestinal complications, including hepatitis, intestinal perforation, meningitis, myocarditis, pneumonia, osteomyelitis, pancreatitis, orchitis, splenic abscess, and sepsis [2]. These atypical manifestations can pose diagnostic challenges and may delay appropriate treatment.

Parotitis, particularly viral in origin (e.g., mumps), is a common condition in pediatric populations and is usually self-limiting [3]. In contrast, bacterial parotitis is rare and is infrequently associated with enteric fever [4]. The coexistence of parotitis with typhoid fever is extremely uncommon, especially in immunocompetent children. This case highlights a rare presentation of enteric fever with bilateral parotitis, emphasizing the importance of considering atypical manifestations in endemic settings.

Case Presentation

A 7-year-old previously healthy male child presented with a history of continuous high-grade fever for 20 days, accompanied by malaise. Two days prior to presentation, he developed painful swelling over the right side of the face, which progressively worsened. There was no history of trauma, dental infection, or recent travel.

The patient had received empirical treatment with oral antimalarial drugs (Artemether and Lumefantrine) and multiple antibiotics, including cefixime, ciprofloxacin, and co-amoxiclav, without clinical improvement.

On physical examination, the child appeared ill and febrile (103.2°F), with pallor. Local examination revealed a swollen, warm, and tender right parotid gland without fluctuation or discharge. Oral cavity examination showed patent Stensen's ducts, good oral hygiene, and no evidence of suppuration. Cervical lymphadenopathy was present. The remainder of the systemic examination was unremarkable.

During hospitalization, the parotid swelling progressed to involve the contralateral (left) gland, resulting in bilateral parotitis.



Figure. 1. The child with bilateral parotid glands enlargement.
(Informed written consent for publication of the photograph obtained from the child's guardian).

Diagnostic Assessment

Initial laboratory investigations demonstrated mild anemia (hemoglobin 9.7 g/dL) with microcytosis (MCV 72 fL), a normal total leukocyte count (7.8 × 10^9/L), and mild elevation of liver enzymes (ALT 68 U/L, AST 72 U/L). Platelet count was within normal limits (396 × 10^3/μL). C-reactive protein was mildly elevated (7 mg/L), indicating low-grade inflammation.

Serum amylase levels were within normal range, suggesting absence of pancreatic involvement. Screening for malaria (thick and thin smear) was negative. Viral serologies, including dengue, HIV, hepatitis B, hepatitis C, and mumps, were all negative.

Ultrasound examination of the parotid region revealed bilateral enlargement of the parotid glands with preserved echotexture and no evidence of abscess formation, ductal obstruction, or dilatation. Enlarged cervical lymph nodes were also noted.

Definitive diagnosis was established through blood culture, which grew extensively drug-resistant (XDR) Salmonella Typhi. The isolate demonstrated resistance to first-line antibiotics (ampicillin, chloramphenicol, co-trimoxazole), fluoroquinolones, and third-generation cephalosporins, while remaining sensitive only to azithromycin and meropenem. Antimicrobial susceptibility testing was performed using the Kirby–Bauer disk diffusion method in accordance with CLSI 2024 guidelines.

Therapeutic Intervention

Upon admission, empirical treatment with intravenous ceftriaxone (75 mg/kg/day) was initiated. However, due to lack of clinical improvement and subsequent culture results confirming XDR Salmonella Typhi, ceftriaxone was discontinued.

Targeted therapy with intravenous meropenem (30 mg/kg every 8 hours) was commenced. Following initiation of meropenem, the patient exhibited rapid clinical improvement. Fever subsided completely within three days, and there was significant reduction in parotid gland swelling and associated pain.

After achieving sustained defervescence for three consecutive days, the patient was transitioned to oral azithromycin (20 mg/kg/day) to complete a total antibiotic course of 14 days, in accordance with WHO and CDC recommendations.

Follow-up and Outcomes

The patient demonstrated marked clinical recovery during hospitalization, with complete resolution of fever and substantial regression of parotid swelling. No complications were observed during the treatment course.

He was discharged on oral antibiotics with advice for follow-up after one week. However, the patient did not return for the scheduled follow-up visit, limiting long-term outcome assessment.

Discussion

The association of enteric fever with parotitis is exceedingly rare, particularly in immunocompetent pediatric patients. In this case, the diagnosis was initially challenging due to the atypical presentation and prior exposure to multiple antibiotics, which may have masked classical features.

The differential diagnosis included viral parotitis (especially mumps), bacterial sialadenitis, and parotid abscess. However, negative viral serology and ultrasound findings excluded common causes such as mumps and abscess formation. Although polymerase chain reaction (PCR) testing for mumps and other viral etiologies (e.g., Epstein–Barr virus, adenovirus, influenza) was not performed, clinical and laboratory findings made these less likely.

Importantly, no microbiological sampling from the parotid gland was obtained, and therefore, direct confirmation of Salmonella Typhi infection in the gland was not established. This limitation necessitates cautious interpretation of the association.

Previous literature reports only a few cases of Salmonella-associated parotitis, predominantly in immunocompromised adults, including individuals with HIV infection [5,6]. Reports in immunocompetent pediatric populations remain extremely limited [7,8].

The emergence of multidrug-resistant and extensively drug-resistant typhoid strains has been associated with atypical and severe clinical presentations [9]. In endemic regions, clinicians must therefore maintain a high index of suspicion for enteric fever, even when patients present with unusual manifestations such as parotitis.

Conclusion

This case highlights a rare and atypical presentation of enteric fever as bilateral parotitis in a pediatric patient. In endemic areas, clinicians should consider enteric fever in the differential diagnosis of prolonged fever with salivary

gland involvement, particularly in the context of rising antimicrobial resistance. Early recognition and appropriate targeted therapy are essential to prevent complications and improve outcomes.

Learning Points

- Enteric fever can present with rare extra-intestinal manifestations, including parotitis.
- Bilateral parotid swelling in children is not always viral; bacterial and systemic causes should be considered.
- Persistent fever unresponsive to empirical therapy in endemic regions should prompt evaluation for typhoid fever.
- XDR Salmonella Typhi requires prompt identification and treatment with appropriate antibiotics such as meropenem or azithromycin.
- Atypical presentations may delay diagnosis; therefore, clinicians should maintain a broad differential diagnosis.

Authors' Contributions:

All authors meet the ICMJE criteria for authorship.

Author 1: Substantial contribution to conception and design, drafting the manuscript, final approval, agreed to be accountable for all the work.
Author 2: Substantial contribution to conception and design, data acquisition, drafting the manuscript, final approval, agreed to be accountable for all the work.
Author 3: Analysis and interpretation of data, drafting the manuscript, final approval, agreed to be accountable for all the work.
Author 4: Analysis and interpretation of data, critical revision, final approval, agreed to be accountable for all the work.
Author 5: Substantial contribution to conception and design, drafting the manuscript, final approval, agreed to be accountable for all the work.
Author 6&7: Substantial contribution to conception and design, data acquisition, drafting the manuscript, final approval, agreed to be accountable for all the work.

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