

Recognizing Juvenile Recurrent Parotitis Early in Childhood: A Case Report Highlighting Conservative Care and Antibiotic Stewardship

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ABSTRACT

To highlight early recognition and successful conservative management of juvenile recurrent parotitis (JRP) in a preschool-aged child, emphasizing diagnostic accuracy and antibiotic stewardship and its direct implications for pediatric clinical decision-making and antimicrobial prescribing practices. This case emphasizes the importance of early recognition of JRP to prevent unnecessary antibiotic exposure in pediatric patients. Single-patient case report with literature review of recent pediatric studies. Pediatric infectious diseases clinic in Saudi Arabia. A 4-year-old boy presented with recurrent unilateral parotid swelling. Comprehensive laboratory testing excluded infectious and immunologic causes. High-resolution ultrasonography and MRI confirmed punctate sialectasis without obstruction or abscess. Conservative management included analgesia, hydration, and gland massage, with no antibiotic therapy. Relevant literature from 2015–2025 was reviewed to contextualize diagnostic approaches, management strategies, and outcomes. The patient experienced resolution of the index episode within five days and remained asymptomatic at six months follow-up. Literature review indicates that while sialendoscopy achieves 35–50% complete resolution in severe or refractory cases, the majority of pediatric patients respond well to non-invasive, supportive care. Ultrasonography reliably confirmed the diagnosis, and conservative management was effective without antibiotics. Early recognition of JRP based on clinical and imaging findings allows safe, effective management without antimicrobial therapy, minimizing unnecessary antibiotic exposure. This case demonstrates the feasibility of a structured conservative approach in preschool-aged children, provides a reproducible diagnostic framework, and underscores the importance of clinician awareness and family-centered education in optimizing care and supporting pediatric antimicrobial stewardship with potential relevance for shaping future pediatric practice recommendations.

Keywords: Juvenile recurrent parotitis; pediatric salivary gland; conservative management; antibiotic stewardship; sialectasis

INTRODUCTION

Juvenile recurrent parotitis (JRP) is the second most common inflammatory salivary gland disorder in children, characterized by recurrent, non-suppurative parotid swelling that typically resolves spontaneously within days to weeks¹. Although benign, recurrent episodes cause significant pain, anxiety, and repeated healthcare visits, affecting children and families alike². Early recognition is clinically important for both healthcare providers and parents, as timely diagnosis allows appropriate reassurance, reduces anxiety, and prevents unnecessary interventions. A major clinical challenge is frequent misdiagnosis as acute bacterial parotitis, resulting in unnecessary antibiotic use, inappropriate imaging, and delayed long-term management, thereby contributing to antimicrobial overuse in pediatric care³. Delayed recognition of JRP often leads to repeated courses of antibiotics, increased parental anxiety, and unnecessary healthcare utilization, underscoring the importance of early and accurate diagnosis for both clinicians and caregivers. Early identification allows timely reassurance of families, supports shared decision-making, and reduces exposure to avoidable **interventions**. The pathophysiology of JRP is multifactorial, involving congenital ductal anomalies (sialectasis), genetic susceptibility, and localized immune dysregulation^{4,5}. Diagnosis is primarily clinical, supported by ultrasonography showing hypoechoic, ill-defined areas within a hypervascular parotid gland, helping exclude stones, tumors, or bacterial infection⁶. Management ranges from conservative measures—hydration, analgesia, sialogogues, and gland massage—to invasive interventions such as sialendoscopy

or duct ligation for refractory cases^{7,8}, with international guidelines advocating a stepwise approach⁹. However, data on preschool children remain limited^{10,11}. A review of literature spanning the past ten years was undertaken to capture evolving diagnostic strategies and management trends, particularly the increasing use of minimally invasive techniques such as sialendoscopy, and to reflect contemporary clinical practice. This report describes a 4-year-old boy with early, multimodally confirmed JRP successfully managed without antibiotics, highlighting early recognition, conservative care, and antimicrobial stewardship, in accordance with CARE guidelines¹².

LITERATURE REVIEW

To synthesize contemporary approaches, literature on juvenile recurrent parotitis (JRP) published from 2015 onwards was reviewed, focusing on pediatric populations (<18 years)⁵. This ten-year timeframe was deliberately selected to capture clinically relevant advances in diagnostic imaging and the evolution of minimally invasive interventions, particularly sialendoscopy, ensuring applicability to current pediatric practice. This ten-year timeframe was selected to reflect modern diagnostic imaging standards and the evolution of minimally invasive interventions like sialendoscopy. Eligible studies included case reports, series, and cohorts reporting clinical data on presentation, diagnosis, management, or outcomes. Studies without clinical correlation or focusing solely on basic science were excluded. The characteristics and findings of key studies are summarized in Table 1¹³⁻¹⁷. Analysis indicates

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Table 1. The table summarizes the characteristics of included studies.

Study	Region/Setting	Design/Type	Age Range (yrs)	n	Diagnostics	Management	Key Findings
Singh et al., 2017 ¹³	India, tertiary hospital	Retrospective cohort	3–11	17	Clinical assessment, sialendoscopy	Sialendoscopy with duct dilatation and steroid instillation	50% complete resolution, 6 had mild attacks, no complications
Berlucchi et al., 2018 ¹³	Italy, tertiary referral hospital	Retrospective cohort	3–16	23	Sialoendoscopy, clinical records	Operative sialoendoscopy with steroid irrigation	Significant reduction in episodes; 35% complete resolution; short hospitalization and safe procedure
Papadopoulou-Alataki et al., 2015 ¹⁵	Greece, university hospital	Case series	2–16	23	Clinical, laboratory, ultrasonography	Sialendoscopy and conservative management	Mean episodes/year decreased from 3.9 to 0.4 post-sialendoscopy; improved clinical outcomes
Cullas İlarslan et al., 2019 ¹⁶	Turkey, Ankara University Children's Hospital	Retrospective review	2.5–13.5	11	Ultrasonography, physical exam	Conservative management with analgesics ± antibiotics	Recurrences 1–12 episodes; ultrasonography confirmed diagnosis; conservative care effective
Andueza Guembe et al., 2024 ¹⁷	Spain	Retrospective cohort	2–16	48	Clinical, ultrasonography	Conservative ± sialendoscopy	Significant reduction of episodes post-sialendoscopy

yrs, years; n, number of patients; MRI, magnetic resonance imaging.

that sialendoscopy has become a cornerstone for both diagnosis and therapy. Reported rates of complete symptomatic resolution following the procedure range from 35–65%^{13,14}, with significant reductions in annual episode frequency documented in cohorts combining sialendoscopy with conservative care^{15,17}. In contrast, studies of purely conservative management (analgesics, sialogogues) report a wider range of recurrence rates (1–12 episodes per year) but confirm its role in mild cases¹⁶. Ultrasonography is consistently reported as a reliable first-line diagnostic tool^{16,17}, and sialendoscopic procedures are noted for their safety and short hospitalization times^{13,14}.

Despite these encouraging findings, the majority of available studies are retrospective in design, with relatively small sample sizes and heterogeneous inclusion criteria. Direct head-to-head comparative studies evaluating conservative management versus invasive interventions such as sialendoscopy are notably lacking. Furthermore, reported outcomes are often limited to short- or medium-term follow-up, restricting conclusions regarding long-term disease control and recurrence. Critical limitations across the literature persist, including small sample sizes (n=11–48), heterogeneous diagnostic criteria, variable follow-up durations (6 months–3 years), and a lack of direct comparative studies between conservative and interventional strategies. Notably, the absence of randomized or head-to-head comparative studies limits definitive conclusions regarding superiority of invasive versus conservative management approaches. These gaps underscore the value of detailed longitudinal case reports to illustrate the natural disease course and real-world management outcomes. The present case addresses this need by providing comprehensive clinical, laboratory, and imaging data with 18-month follow-up, reinforcing the importance of early recognition and contributing to evidence for individualized management pathways.

PATIENT INFORMATION

A 4-year-old boy presented to the pediatric infectious diseases clinic with a four-day history of painful swelling in the left parotid region. His

family reported three prior episodes over the past year, all affecting the same gland, with at least one episode resolving spontaneously without antibiotics. Previous treatments included short courses of antibiotics and analgesics, although resolution patterns were inconsistent. The patient had experienced only mild, low-grade fevers during these episodes and denied recent upper respiratory symptoms, otologic complaints, or dental infections. He had no history of allergies, chronic illnesses, or hospitalizations. Perinatal and developmental histories were unremarkable, and there was no family history of autoimmune disease, immunodeficiency, or recurrent infections. The recurrent, unilateral, non-suppurative pattern of parotid swelling in an otherwise healthy preschool-aged child raised suspicion for juvenile recurrent parotitis, highlighting the diagnostic challenge in this age group where bacterial infections are commonly presumed.

Clinical Findings: On physical examination, the child appeared well and afebrile. There was visible swelling of the left parotid region, firm and mildly tender on palpation, without fluctuation or overlying erythema. Gentle massage of Stensen's duct did not produce any purulent discharge. The oral mucosa and dentition were healthy, and tympanic membranes were intact bilaterally. No cervical lymphadenopathy was palpable. Systemic examination, including cardiopulmonary and abdominal findings, was normal.

Timeline: The patient's disease course and corresponding management decisions are summarized in Table 2 highlighting clinical features, diagnostic evaluations, and management decisions over an 18-month period. The timeline illustrates the recurrent nature of unilateral parotid swelling, the evolution of therapeutic approaches, and the clinical rationale for transitioning from antibiotic-based treatment to strictly conservative management. The inclusion of specific dates facilitates clearer understanding of disease progression and clinical decision-making. Early episodes were initially treated with oral antibiotics and analgesia, reflecting the common misdiagnosis of bacterial parotitis in preschool-aged children. Subsequent episodes resolved spontaneously or with analgesia and hydration alone, supporting a conservative,

Table 2. Timeline of Recurrent Parotid Episodes, Investigations, and Management in Juvenile Recurrent Parotitis

Specific Date	Event / Findings	Management
January 10, 2024	First episode of left parotid swelling	Oral antibiotics and analgesia prescribed
April 18, 2024	Second episode (same side)	Treated with antibiotics; spontaneous resolution in one week
August 22, 2024	Third episode	Conservative management only; resolved in 5 days
December 5, 2024	Fourth episode (index episode)	Analgesia and hydration; no antibiotics
June 10, 2025	Follow-up	No recurrence; asymptomatic

JRP: Juvenile Recurrent Parotitis; US: Ultrasonography; n: Number of patients; MRI: Magnetic Resonance Imaging.

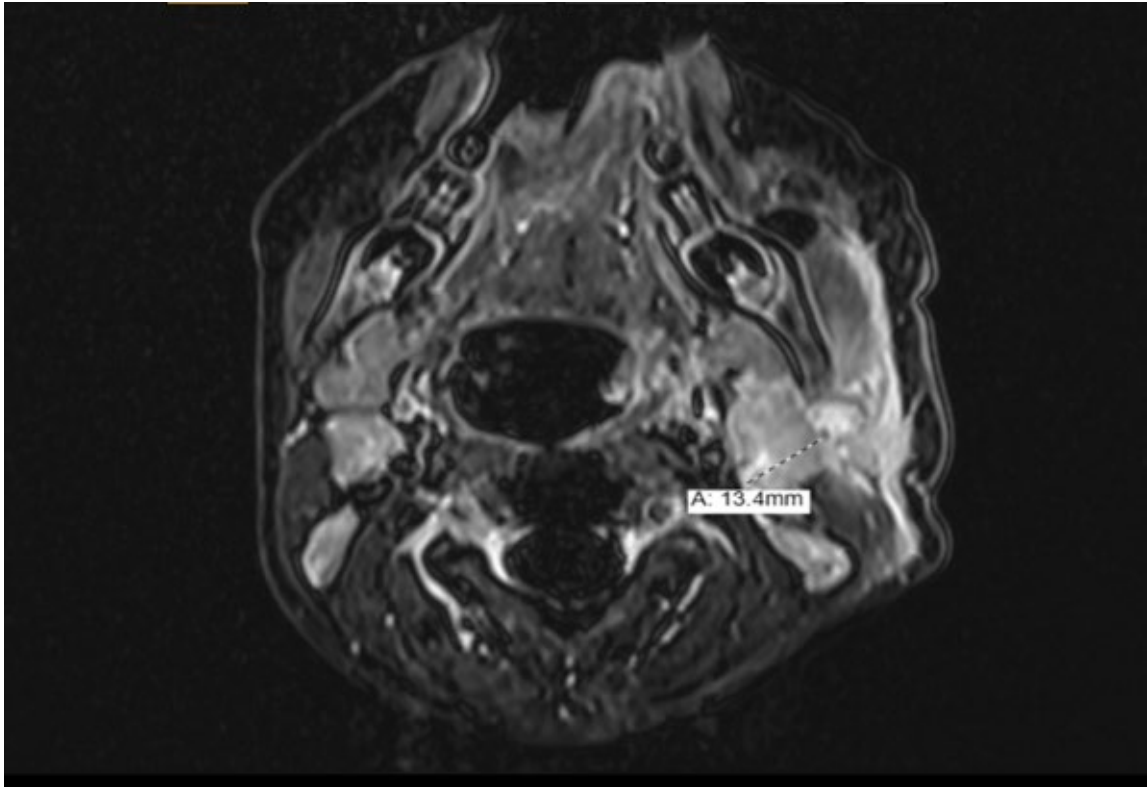


Figure 1. Axial post-contrast T1-weighted MRI of the parotid glands.

antibiotic-sparing approach. At six months follow-up, the patient remained asymptomatic, demonstrating the favorable prognosis of juvenile recurrent parotitis (JRP) when managed appropriately.

Diagnostic Assessment: A structured diagnostic evaluation was performed to exclude infectious, immunological, and obstructive causes of recurrent parotid swelling. Laboratory studies demonstrated normal inflammatory markers, with erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) within reference ranges. Quantitative immunoglobulin measurements, including IgG, IgA, IgM, and IgE, were normal, and lymphocyte subset profiling revealed no abnormalities. Comprehensive infectious serology was negative for HIV, Epstein–Barr virus (EBV), cytomegalovirus (CMV), and mumps virus. These findings effectively ruled out acute bacterial infection, primary immunodeficiencies, and common viral etiologies, narrowing the differential diagnosis to a recurrent, non-suppurative inflammatory process consistent with juvenile recurrent parotitis (JRP).

High-resolution ultrasonography demonstrated a heterogeneous left parotid gland with multiple scattered hypoechoic foci, characteristic of punctate sialectasis, accompanied by mild reactive cervical lymphadenopathy. High-resolution ultrasonography was selected as the first-line imaging modality due to its non-invasive nature, lack of radiation exposure, accessibility, and established diagnostic reliability

in pediatric JRP. These sonographic findings were pivotal in confirming the diagnosis and excluding suppurative complications. Figure 1 the axial post-contrast T1-weighted MRI of the parotid glands shows pronounced hyperenhancement (bright signal) and enlargement of the left parotid gland (yellow arrow) compared with the normal right side. The bright signal represents active inflammatory enhancement of the glandular tissue, and associated soft tissue edema in the surrounding subcutaneous fat (arrowhead) is also evident, consistent with active glandular inflammation without abscess formation. Associated soft tissue edema in the surrounding subcutaneous fat (arrowhead) is also evident, consistent with active glandular inflammation without abscess formation.

Subsequent magnetic resonance imaging (MRI) further confirmed acute-on-chronic inflammation. MRI was employed selectively rather than routinely, in this recurrent presentation to exclude alternative or coexisting pathology, including abscess formation, neoplastic processes, or obstructive disease, rather than as a routine diagnostic investigation. MRI was used selectively to exclude abscess or obstructive pathology rather than as a routine diagnostic tool. Coronal T2-weighted images revealed diffuse swelling and intense T2 hyperintensity of the left parotid gland, indicating edema and inflammation. No focal fluid collections or sialoliths were observed, effectively excluding abscess or obstructive etiologies. Figure 2 the **coronal T2-weighted MRI**

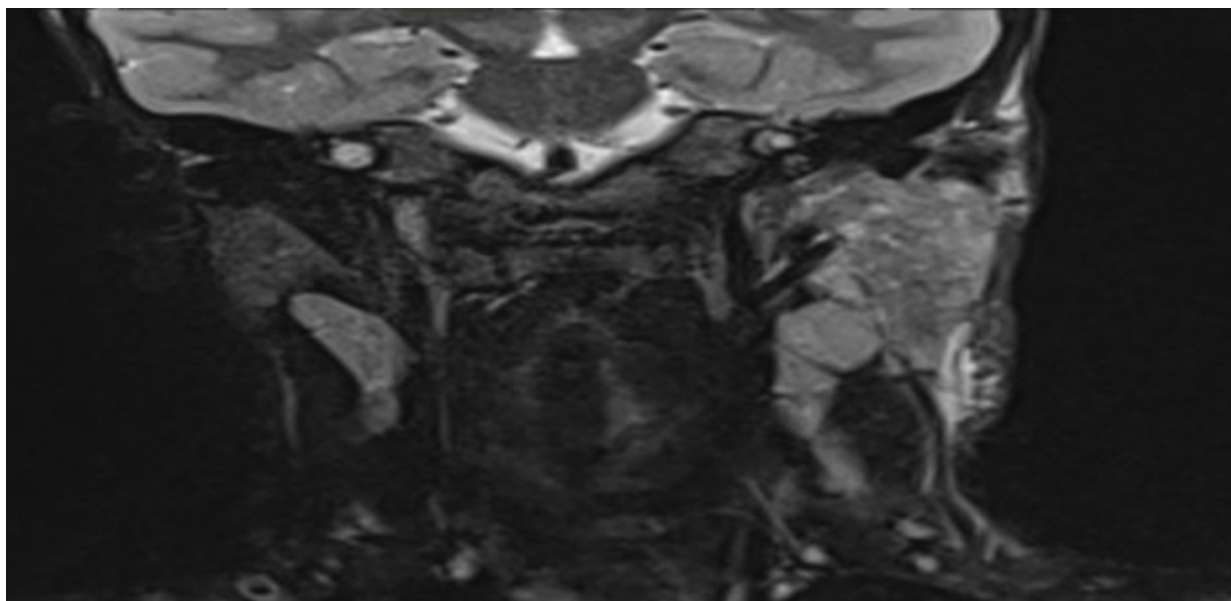


Figure 2. Coronal T2-weighted MRI of the parotid glands.

of the parotid glands demonstrates diffuse T2 hyperintensity (bright signal) and enlargement of the left parotid gland (yellow arrow), with surrounding soft tissue edema. The absence of discrete fluid collections further supports a non-suppurative inflammatory process characteristic of JRP. The absence of discrete fluid collections supports a non-suppurative inflammatory process consistent with JRP.

The combination of recurrent clinical episodes, normal inflammatory and immunological markers, negative infectious serology, and pathognomonic imaging findings established a definitive diagnosis of juvenile recurrent parotitis. This integrated assessment excluded primary bacterial parotitis, autoimmune sialadenitis, and obstructive sialolithiasis. Explicit consideration of these alternative diagnoses strengthens diagnostic confidence and supports conservative management decisions. Importantly, the use of multimodal imaging and laboratory evaluation in a preschool-aged child provides a reproducible diagnostic pathway, supporting early recognition and management of JRP without antibiotics, emphasizing both clinical accuracy and antimicrobial stewardship.

Therapeutic Intervention: The patient was managed conservatively, emphasizing symptom relief and supportive care. Analgesia was provided with **acetaminophen at 15 mg/kg per dose every 6 hours as needed**, not exceeding the recommended daily maximum. Adequate hydration and gentle massage of the affected parotid gland were advised to facilitate ductal clearance. No antibiotics were administered, as there was no evidence of purulent discharge or systemic infection. The family received counseling regarding the **self-limiting nature of juvenile recurrent parotitis, the importance of oral hygiene, and avoidance of unnecessary antimicrobial therapy**. Family education was emphasized as a core component of care, focusing on the benign, self-limiting nature of JRP and the risks associated with unnecessary antibiotic use. Structured follow-up was arranged to monitor symptom resolution and detect any recurrence.

Follow-Up and Outcomes: During follow-up at one, three, and six months, the patient exhibited no recurrence of symptoms. The patient tolerated conservative management well, with no adverse or unanticipated events. Both the physician and the family reported satisfaction with the outcome, and the child resumed normal daily activities without discomfort.

DISCUSSION

This case exemplifies the classic presentation and favorable prognosis of juvenile recurrent parotitis (JRP) when managed conservatively. Observations from recent case reports and series¹⁸⁻²³ consistently demonstrate that the majority of pediatric patients achieve symptomatic control with supportive measures, including hydration, analgesics, and close monitoring. Recurrent parotid swelling in children requires careful consideration of differential diagnoses, including acute bacterial and viral parotitis, autoimmune sialadenitis, obstructive sialolithiasis, and neoplastic processes, all of which were excluded in this case through normal inflammatory and immunologic markers, negative infectious serology, and characteristic ultrasonographic and MRI findings. Explicit exclusion of these alternative diagnoses strengthened diagnostic confidence, supported conservative management, and avoided unnecessary escalation to antibiotic or invasive interventions¹⁸. In these reports, ultrasonography reliably confirmed the diagnosis by visualizing hypoechoic foci and sialectasis. More invasive procedures, notably sialendoscopy, are generally reserved for severe or refractory cases, with studies reporting substantial reductions in attack frequency and complete resolution in a significant proportion of patients¹⁹.

The present case reinforces the efficacy of a rigorous, non-invasive diagnostic protocol. Managed in a pediatric infectious diseases setting where bacterial parotitis is the primary concern, a definitive diagnosis was achieved without antibiotics through comprehensive evaluation. This included high-resolution ultrasonography, confirmatory MRI, and detailed laboratory testing to exclude infectious and immunological etiologies. This approach underscores the critical importance of early, accurate recognition to avoid unnecessary antimicrobial therapy, aligning with core principles of antibiotic stewardship. Parental education played a pivotal role in this process, as clear communication regarding the benign, self-limiting nature of JRP empowered caregivers to accept conservative management and reduced expectations for antibiotic prescribing during recurrent episodes. Compared to prior case reports²⁰⁻²⁴, which primarily utilized ultrasonography and clinical follow-up, our case adds novel clinical value by providing longitudinal follow-up data, multimodal imaging correlation, and extensive laboratory exclusion of differential diagnoses. It confirms that a conservative, antibiotic-free strategy is effective, including within the Middle Eastern population²². Integrating family-centered education into routine care directly supports antimicrobial stewardship

Table 3. Case Reports and Case Series on Juvenile Recurrent Parotitis (JRP) (2015–2025)

Study	Region/ Setting	Design/Type	Age (yrs)	n	Diagnostics	Management	Key Findings
Papadopoulou-Alataki et al., 2015 ¹⁹	Greece, Aristotle University	Case series	2–16	23	Clinical assessment, ultrasonography, laboratory tests	Sialendoscopy and conservative care	Mean episodes/year decreased from 3.9 to 0.4 post-sialendoscopy; improved clinical outcomes
Nouha Dammak et al., 2021 ²⁰	Tunisia, University Dental Clinic of Monastir	Case report	4	1	Ultrasonography, clinical examination	Conservative	Diagnosis confirmed by ultrasonography; recurrence observed and resolved
Bufalino et al., 2021 ²¹	Brazil, São Paulo State University	Case report	5	1	Ultrasonography, panoramic X-ray	Conservative	Recurrent swelling; ultrasonography showed sialectasis; symptom-free on follow-up
Alkusayer et al., 2023 ²²	Saudi Arabia	Case report	8	1	Ultrasonography	Conservative	Symptom resolution; ultrasonography effective for diagnosis
Vaishnavi et al., 2024 ²³	India	Case report	6	1	Ultrasonography	Conservative	Complete resolution; rare association with geographic tongue
Nusrath et al., 2025 ²⁴	UAE	Case report	5	1	Ultrasonography	Conservative	Typical JRP presentation; managed with supportive care
Current Study, 2025	Saudi Arabia, Pediatric Infectious Diseases Clinic	Case report	4	1	High-resolution ultrasonography, MRI, comprehensive laboratory workup (immunology and serology)	Conservative (analgesia, hydration), antibiotic-free	Definitive diagnosis via multimodal imaging; highlighted antibiotic stewardship; 6-month symptom-free follow-up

JRP: Juvenile Recurrent Parotitis, yrs: years, n: number of patients, US: ultrasonography, MRI: magnetic resonance imaging

by fostering informed decision-making, improving adherence to conservative treatment plans, and minimizing pressure on clinicians to prescribe antibiotics unnecessarily. Collectively, the evidence confirms that JRP management should prioritize accurate imaging and clinical assessment, reserving invasive interventions for select cases. Detailed case reporting, as summarized in Table 3, remains vital for refining diagnostic pathways, guiding safe treatment, and enhancing global clinical awareness of this condition.

CONCLUSION

Early recognition of juvenile recurrent parotitis based on clinical features and appropriate imaging allows effective conservative management without antimicrobial therapy. This case highlights the importance of clinician awareness, structured diagnostic evaluation, and family-centered education in minimizing unnecessary antibiotic exposure. By reinforcing a stepwise, imaging-guided approach, this report may help inform future clinical guidelines and support standardized management strategies for children presenting with recurrent parotid swelling.

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