

Oral pain, fever in teens: Is it more than just a sore throat?

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When a seemingly healthy teenager presents with acute onset of fever and debilitating mouth pain, the diagnostic pathway can quickly become complex. The clinician must consider a range of possibilities, from common infections to less frequent but more serious systemic conditions. Rapid and accurate diagnosis is essential to prevent complications and ensure effective treatment.

The presentation of oral lesions, particularly when accompanied by systemic symptoms like fever, demands a thorough clinical examination and a structured approach to differential diagnosis. This case highlights the importance of integrating patient history, physical findings, and laboratory results to arrive at the correct conclusion.

KEY TAKEAWAYS

- **The Pivot:** Oral pain and fever in adolescents can mask systemic disease, requiring a broad differential beyond common infections.
- **The Data:** Clinical presentation, including lesion morphology and distribution, alongside systemic symptoms, guides the diagnostic process.
- **The Action:** Consider viral, bacterial, and autoimmune etiologies, and be prepared for specialist referral if initial management fails or atypical features emerge.

A 15-year-old girl presents to the emergency department with a 3-day history of high-grade fever, severe mouth pain, and difficulty swallowing. Her parents report she has been refusing food and drink due to the pain, leading to concerns about dehydration. She denies any recent travel, new medications, or known exposures to illness. Her medical history is otherwise unremarkable, and she is up to date on immunizations. This clinical picture immediately raises a red flag for a systemic process with prominent oral manifestations.

On examination, the patient appears lethargic and febrile, with a temperature of 39.5°C. Her heart rate is elevated at 110 bpm, and blood pressure is 100/60 mmHg. Oral examination reveals diffuse erythema of the buccal mucosa and gingiva, with multiple discrete, shallow ulcers ranging from 2-5 mm in diameter, primarily on the soft palate, tonsillar pillars, and posterior pharynx. Several vesicles are also noted on the lips and perioral skin. Cervical lymphadenopathy is present, with tender, enlarged nodes bilaterally. The remainder of the physical examination is unremarkable. This constellation of symptoms and signs points towards a specific group of conditions that affect both the oral cavity and systemic health.

Distinguishing Viral from Bacterial Etiologies

The initial challenge in such a presentation is to differentiate between viral and bacterial causes, as their management strategies diverge significantly. Viral infections are a common cause of oral lesions and fever in adolescents. Herpes simplex virus (HSV) primary gingivostomatitis, for instance, typically presents with widespread painful vesicles and ulcers on the oral mucosa, often accompanied by fever, malaise, and lymphadenopathy. The lesions can be quite extensive, making eating and drinking difficult. Another common viral culprit is coxsackievirus, responsible for hand-foot-and-mouth disease (HFMD) or herpangina. HFMD usually involves vesicles on the hands, feet, and oral cavity, while herpangina is characterized by painful vesicles and ulcers primarily in the posterior oropharynx, often with high fever.

But the distribution and morphology of the lesions are key discriminators. HSV lesions tend to be more diffuse and can involve the gingiva, whereas herpangina is typically confined to the posterior pharynx. The presence of perioral vesicles also strongly suggests HSV. Epstein-Barr virus (EBV), the cause of infectious mononucleosis, can also present with pharyngitis, fever, and lymphadenopathy, sometimes accompanied by palatal petechiae or exudative tonsillitis. While oral lesions are not its primary feature, the systemic symptoms overlap. A thorough history, including exposure to sick contacts and vaccination status, can provide valuable clues. For a deeper dive into managing childhood infections, clinicians might consult resources like the Oxford Handbook of Paediatrics.

Bacterial infections, while less common as primary causes of diffuse oral ulcerations, must also be considered. Streptococcal pharyngitis, for example, can cause severe sore throat and fever, but typically lacks the widespread vesicular or ulcerative lesions seen in this patient. Rarely, severe bacterial infections or secondary bacterial superinfections of viral lesions can occur, complicating the picture. Diphtheria, though rare due to vaccination, presents with a pseudomembrane in the throat and systemic toxicity. Necrotizing ulcerative gingivitis, a severe bacterial infection, is usually localized to the gingiva and associated with poor oral hygiene, which does not fit the diffuse nature of this patient's presentation.

The patient's clinical presentation, with diffuse oral ulcers, vesicles on the lips, high fever, and cervical lymphadenopathy, strongly points towards a primary viral infection. The rapid onset and severity of symptoms are consistent with an acute viral syndrome. While laboratory tests can confirm the diagnosis, empirical treatment often begins based on clinical suspicion. Viral cultures or PCR for HSV, and serology for EBV, can be performed if the diagnosis remains uncertain or if the patient's condition does not improve as expected. The management of other pediatric conditions also benefits from a systematic diagnostic approach.

Considering Less Common but Critical Diagnoses

While viral infections are the most probable cause, a clinician must always consider less common but potentially more severe conditions, especially when a patient is severely symptomatic or fails to respond to initial supportive care. Autoimmune diseases, though rare in this age group, can manifest with oral ulcerations. Behçet's disease, for instance, is characterized by recurrent oral aphthous ulcers, genital ulcers, and ocular lesions. The oral ulcers in Behçet's are typically painful, recurrent, and can be multiple, resembling the lesions seen in this patient. But the absence of genital or ocular involvement in the initial presentation makes it less likely, though it should remain on the differential for recurrent cases. Still, other systemic inflammatory conditions, such as inflammatory bowel disease (IBD), can sometimes present with oral manifestations, including aphthous ulcers. These are usually chronic or recurrent, rather than acute and widespread as seen here. Drug-induced reactions, like erythema multiforme or Stevens-Johnson syndrome, can also cause severe

mucocutaneous lesions, including oral ulcerations, often preceded by a prodrome of fever and malaise. A careful medication history is essential to identify the cause in these cases. The patient denies any new medications, making this less likely. The impact of health literacy on diagnosis highlights the need for clear communication with patients and families about medication use.

Haematological malignancies, such as leukaemia, can sometimes present with oral lesions, including gingival hypertrophy, ulcerations, or petechiae, often accompanied by fever, fatigue, and bruising. A complete blood count (CBC) would be essential to rule out such conditions, particularly if the patient's symptoms are persistent or atypical. Nutritional deficiencies, such as severe iron or vitamin B12 deficiency, can also lead to oral ulcerations, but these are typically chronic and not associated with acute high fever. The genetic underpinnings of some chronic pain conditions also highlight the complexity of diagnosis.

The patient's acute presentation, with a clear febrile prodrome and vesicular lesions, strongly argues against most chronic autoimmune or malignant conditions as the primary diagnosis. But if the patient's condition deteriorates, or if the lesions do not resolve within a typical viral course (7-10 days), further investigation, including a CBC, inflammatory markers, and potentially autoimmune serologies, would be warranted. For general practitioners, a comprehensive reference like the Oxford Handbook of Clinical Medicine can be invaluable for navigating these complex differentials.

The Likely Diagnosis and Management

Given the clinical picture of high fever, diffuse painful oral ulcers, vesicles on the lips, and cervical lymphadenopathy in an adolescent, the most probable diagnosis is primary herpes simplex gingivostomatitis. This is a common manifestation of initial HSV-1 infection, particularly in children and adolescents, and can be quite severe. The vesicles on the lips and perioral skin are characteristic of herpes labialis, which often accompanies or follows the oral lesions.

Management is primarily supportive. Pain control is paramount, often requiring systemic analgesics such as ibuprofen or paracetamol. Topical anaesthetics, such as lidocaine viscous, can provide temporary relief, allowing the patient to eat and drink. Hydration is critical, especially given the patient's refusal of fluids. Intravenous fluids may be necessary if oral intake remains insufficient. Antiviral therapy, such as acyclovir, can be considered, particularly if initiated within 72 hours of symptom onset. Acyclovir can reduce the duration and severity of symptoms, but its benefit diminishes significantly if started later. The decision to initiate antivirals should weigh the severity of symptoms against the potential for self-limited resolution.

Patient education is also vital. Parents should be advised on infection control measures, as HSV is highly contagious. The patient should avoid sharing utensils or drinks. Reassurance about the self-limiting nature of the disease, while emphasizing the importance of hydration and pain management, is key. Follow-up should be arranged to ensure resolution of symptoms and to address any lingering concerns. If the patient's condition worsens or new symptoms develop, a re-evaluation of the diagnosis and management plan would be necessary. The diagnosis and management of other inflammatory conditions also relies on careful monitoring and reassessment.

CLINICAL IMPLICATIONS

This case highlights that a seemingly straightforward presentation of fever and mouth pain in a teenager can quickly become a diagnostic puzzle. Clinicians must resist the urge to dismiss oral lesions as mere 'canker

sores' when systemic symptoms are present. The severity of the patient's symptoms, particularly the refusal of fluids, demands immediate attention and a structured diagnostic approach to avoid dehydration and other complications.

The differential diagnosis for oral lesions with fever is broad, but a careful history and physical examination, focusing on lesion morphology and distribution, can narrow the possibilities considerably. While primary herpes simplex gingivostomatitis is the most likely culprit here, maintaining a high index of suspicion for less common conditions, especially in cases of atypical presentation or treatment failure, is non-negotiable. This includes autoimmune conditions and, rarely, haematological malignancies.

For general practitioners, the ability to differentiate between viral and bacterial causes, and to recognize when a referral to a specialist is warranted, is of great importance for patient outcomes. Supportive care remains the cornerstone of management for most viral etiologies, but timely initiation of antivirals can mitigate symptom severity. The emphasis on hydration and pain control cannot be overstated, as these directly impact patient comfort and recovery.

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