

Systemic Infections with Odontogenic Source: A Case Series

Case #1

Incidental Odontogenic Findings in a Young Adult with Orbital Proptosis

A 35-year-old female, previously healthy, presented with a brief history of headaches lasting several days. She awoke one morning with sudden left-eye proptosis and associated orbital discomfort. Initial imaging of the head and neck revealed multiple concerning findings in her face, lungs, and brain, prompting suspicion of a systemic infectious agent such as *Nocardia* (Flynn, 2007). Although she reported undergoing a recent root canal therapy (RCT), she had no ongoing dental pain, so no immediate concern was raised for a dental source.

New left ear and neck pain prompted her medical team to order a computed tomography (CT) of her soft tissue of the neck which, incidentally, identified multiple radiopaque lesions in the maxilla. The largest lesion was markedly deviating from normal anatomy and in communication with the apex of the right lateral incisor, which was notably carious. It was initially presumed to be part of the infectious process. Subsequent evaluation, however, revealed the lesion to be an unrelated neoplasm—likely an adenomatous odontogenic tumor (AOT) or a similar benign pathology (Luchhart et al., 2012). In contrast, the actual source of her systemic infection originated from a smaller, subdermal dental infection at the apex of the left central and lateral incisor. Despite the absence of dental pain, a localized infection in the left maxilla had likely spread, causing orbital involvement and suspected pulmonary and intracranial complications (Li, Kollivrit, Tronstad, & Olsen, 2000).

This case underscores the challenge of identifying odontogenic infections when overt dental symptoms are absent. The large, “red herring” lesion emphasized the possibility of an extensive pathology but was ultimately unrelated. Only detailed assessment, including further imaging and specialized consultation, clarified the true odontogenic source. This case highlights the importance of maintaining a high index of suspicion for dental etiologies, even in seemingly healthy patients without notable dental complaints.

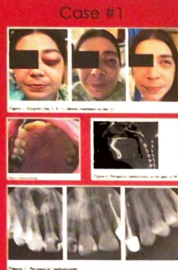


Figure 1: Maxillary radiographs

Figure 2: Maxillary radiographs

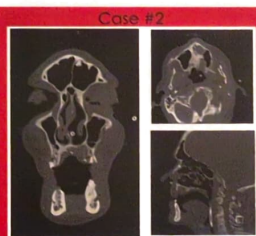


Figure 3: CT sections of maxillary odontogenic infection

Case #2

Overlooked Dental Disease During Prolonged Pulmonary Hospitalization

A 55-year-old male presented with severe respiratory failure and was admitted to the intensive care unit (ICU) for suspected bilateral pneumonia. Despite broad-spectrum antimicrobial therapy and a comprehensive infectious disease workup, his condition deteriorated over the next three weeks. As his pulmonary status worsened, clinicians prioritized respiratory interventions—including mechanical ventilation and prone positioning—while delaying any formal assessment of his oral health. This delay occurred despite an initial physical exam that identified advanced dental disease as a potential source of infection.

Although poor dentition and periodontal disease were documented as a possible infectious etiology early in his hospitalization, a dental consult was not ordered until 35 days later. Upon evaluation, multiple nonrestorable teeth with extensive periodontal lesions were identified, including long-standing and likely infectious dental pathology (Li, Kollivrit, Tronstad, & Olsen, 2000). The patient was promptly taken to the operating room, where extractions and debridement were performed. Within 72 hours postoperatively, he exhibited marked clinical improvement, including fever resolution, normalization of leukocyte counts, and stabilization of respiratory symptoms. He was transferred out of the ICU later that week and ultimately discharged seven days after oral surgery. However, the delayed intervention resulted in irreversible right lung damage, leaving him functionally dependent on his left lung indefinitely.

This case highlights the consequences of overlooking dental pathology in critically ill patients with prolonged hospitalizations (Flynn, 2007). Earlier recognition and treatment of the odontogenic source may have mitigated the severity of his pulmonary disease and shortened his ICU stay (El-Rabbany, Zaghlol, Bhandari, & Azarpazhooh, 2015). Integrating routine dental evaluations into systemic infection workups could expedite diagnosis, optimize resource utilization, and improve overall patient outcomes.



Figure 4: Maxillary radiographs

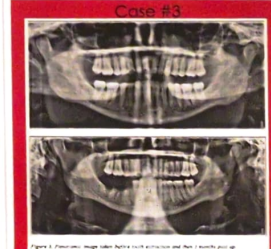


Figure 5: Maxillary radiographs

Case #3

Chronic Low-Grade Infection from a Cracked Mandibular Tooth Leading to Deep Space Abscess

A 50-year-old male presented with severe submandibular swelling and early signs of airway compromise. Computed tomography (CT) imaging identified a parapharyngeal abscess with a tract extending from the lingual aspect of the mandible, strongly suggesting an odontogenic source. Despite the absence of visible caries and minimal radiographic abnormalities, the patient's lower right molars (#29-31) exhibited mobility, and purulent discharge was expressed upon palpation of the buccal and lingual sulci. Given the atypical presentation, initial hesitation regarding immediate extractions was noted, however, due to the patient's worsening airway status, urgent intervention was necessary. Awake intubation was performed because of the patient's large body habitus and difficult airway.

Surgical extraction of the affected teeth yielded approximately 8 cc of purulent fluid, and the mandible exhibited signs of suppuration, raising suspicion for osteomyelitis. Culture swabs were obtained to guide targeted antimicrobial therapy, and the patient was started on broad-spectrum antibiotics, leading to successful infection resolution. This case was particularly challenging due to the absence of classical dental decay and the complexity of the patient's systemic condition. Sixteen months later, the patient developed a nearly identical infection on the contralateral side, again involving noncarious teeth. Further evaluation revealed a microfracture extending into the pulp, which was likely the overlooked etiology of the prior infection on the right side.

This case highlights the necessity of prompt dental evaluation in deep neck space infections, even in the absence of traditional dental pathology. Early intervention, including extraction, drainage, and antimicrobial therapy, is essential to prevent airway compromise and systemic deterioration. These findings emphasize the critical role of hospital dentistry in the multidisciplinary management of complex infections.

Background: Systemic infections of unknown origin (SIUO) often lead to extensive medical workups, prolonged hospitalizations, and unnecessary antibiotic use. However, odontogenic infections are frequently overlooked as a potential primary source of systemic illness.

Objective: This case series highlights three patients in whom dental infections were ultimately identified as the primary infectious source.

Methods: A retrospective review of three cases was performed. All cases were hospitalized patients with severe systemic infections in which odontogenic pathology was a contributing factor. Diagnostic trends, laboratory findings, imaging studies, and clinical outcomes were analyzed.

Results: All three cases demonstrated significant clinical improvement following the removal of odontogenic infection sources, as reflected in laboratory markers such as WBC count normalization, radiographic resolution of pulmonary/soft tissue infections, and cessation of prolonged antibiotic therapy.

Conclusion: The lack of routine dental evaluations in hospitalized patients with systemic infections represents a critical gap in interdisciplinary care. Incorporating dental consultations into infection workups could lead to earlier source control, reduced hospital stays, and improved patient outcomes.

References

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Case #2

