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Case Report

Odontogenic submandibular abscess in a diabetic patient with autism and incidental diffuse idiopathic skeletal hyperostosis: a case report

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ABSTRACT

Odontogenic infections are a leading cause of deep neck space infections, with potential to progress rapidly and cause life-threatening complications if untreated. Herein this report presents the case of a 63-year-old male with a history of diabetes mellitus, autism spectrum disorder, and tobacco chewing who developed a submandibular and sublingual abscess secondary to dental caries. The patient presented with progressive dysphagia, swelling, and fever. Laboratory investigations revealed anemia and a markedly elevated C reactive protein level, while imaging demonstrated diffuse soft tissue edema and an abscess in the left masseter muscle, along with incidental findings of diffuse idiopathic skeletal hyperostosis (DISH). Surgical incision and drainage were performed, followed by extraction of the diseased tooth and intravenous antimicrobial therapy, leading to clinical resolution. This case emphasizes the importance of early recognition and multidisciplinary management of odontogenic infections, particularly in patients with comorbidities such as diabetes and autism, and draws attention to the perioperative implications of incidental DISH in airway management.

Keywords: Odontogenic infection, Submandibular abscess, Diabetes mellitus, Autism spectrum disorder, Diffuse idiopathic skeletal hyperostosis, Deep neck space infection

INTRODUCTION

Odontogenic infections are among the most common sources of deep neck space infections, often arising from untreated dental caries or periodontal disease. These infections can spread rapidly through the fascial planes of the neck, resulting in abscess formation, airway compromise, and systemic sepsis if not managed promptly.[1] The submandibular and sublingual spaces are particularly vulnerable, with odontogenic abscesses in these regions carrying the risk of evolving into Ludwig's angina, a potentially life-threatening condition.[2]

The incidence and severity of odontogenic infections are influenced by various comorbidities. Diabetes mellitus is a well-recognized predisposing factor due to impaired host immunity, poor glycemic control, and microvascular complications.[2] In addition, lifestyle factors such as tobacco chewing contribute to compromised oral health, increasing the risk of dental infections.[3] Autism spectrum disorder presents unique challenges in both diagnosis and management, as communication barriers and atypical pain perception may delay clinical recognition of evolving infections.[4]

An incidental but clinically relevant finding in our patient was diffuse idiopathic skeletal hyperostosis (DISH), a systemic condition characterized by calcification and ossification of spinal ligaments. While usually asymptomatic, DISH may complicate airway management

due to reduced cervical spine mobility and distorted airway anatomy.[5] The coexistence of odontogenic abscess, diabetes mellitus, autism spectrum disorder, and incidental DISH is rare and highlights the need for careful multidisciplinary evaluation.

Herein, we present a case of odontogenic submandibular abscess in a diabetic male with autism spectrum disorder, complicated by incidental DISH, managed successfully with surgical drainage and antimicrobial therapy.

CASEC REPORT

A 63-year-old male with a past medical history of autism spectrum disorder and type 2 diabetes mellitus presented to the emergency department with complaints of dysphagia and progressive swelling in the submandibular and sublingual regions for one day, accompanied by fever. The patient had sustained a fall one week earlier, resulting in a chin laceration requiring six sutures. His social history was notable for chronic tobacco chewing. There was no history of vomiting. A clinical photograph demonstrated diffuse swelling in the left submandibular region (Figure 1).

Figure 1: Clinical photograph showing swelling in the left submandibular region at presentation.

On examination, the patient was febrile with a temperature of 99.3 °F. Vital signs revealed blood pressure 120/80 mmHg, pulse 100 bpm, respiratory rate 18/min, and oxygen saturation of 95% on room air. General examination showed generalized lymphadenopathy. Local examination of the oral cavity revealed poor oral hygiene with multiple dental caries. Systemic examination was otherwise unremarkable, with a Glasgow coma scale score of E4 V5 M6.

Laboratory evaluation demonstrated anemia (Hb 10.4 g/dl) with normocytic hypochromic indices. Total leukocyte count was within normal limits (7,200 cells/cumm), but C-reactive protein was markedly elevated (192.3 mg/dl). Serum electrolytes showed mild hyponatremia (Na^+ 134 mmol/l), while renal and liver function tests were within normal limits.

Ultrasound of the neck revealed bilateral cervical and submandibular lymphadenopathy with preserved hilum. Contrast-enhanced computed tomography (CT) of the neck demonstrated diffuse soft tissue edema in the left mandibular and submental regions, with an ill-defined hypodense collection in the left masseter muscle measuring 30×9 mm, consistent with abscess formation (Figure 2). Multiple cervical lymph nodes were enlarged bilaterally, without necrosis. Additionally, flowing ossifications along the anterior aspect of the cervical and upper thoracic vertebrae (C3–D1) were noted, characteristic of DISH (Figure 3). CT of the paranasal sinuses revealed multiple anatomical variants with mild mucosal thickening but no destructive changes.

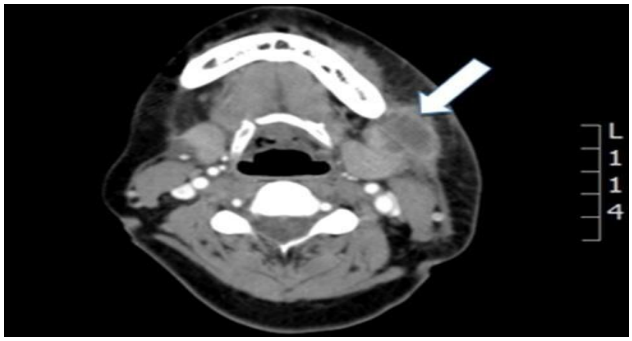

Figure 2: Contrast-enhanced CT scan of the neck demonstrating hypodense abscess within the left masseter muscle (arrow).

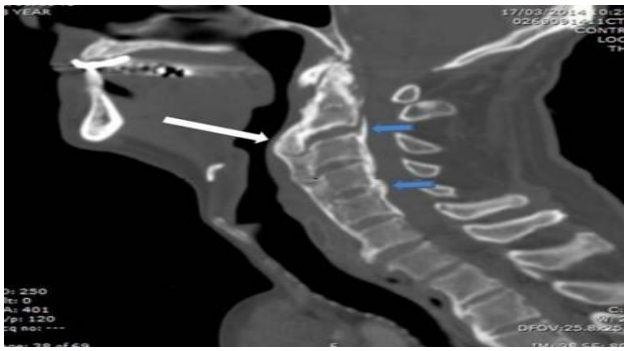

Figure 3: Scan of the cervical spine showing flowing ossification along the anterior longitudinal ligament (C3–D1), consistent with diffuse idiopathic skeletal hyperostosis (DISH).

Based on clinical and radiological findings, a diagnosis of odontogenic submandibular abscess was established. The patient underwent incision and drainage of the submandibular and sublingual swelling under appropriate antibiotic coverage. The odontogenic source was identified as a carious upper left first molar, which was subsequently extracted as part of definitive management.

During hospitalization, the patient was managed with intravenous piperacillin–tazobactam (4.5 g TID), amikacin (750 mg OD), and metronidazole (500 mg BD), along with supportive therapy including paracetamol, vitamin

supplementation, antihistamines, mucolytics, and intravenous fluids. Clinical improvement was noted with resolution of fever and reduction in neck swelling.

Follow-up

The patient was discharged in stable condition with oral antibiotic therapy (amoxicillin-clavulanate and metronidazole), analgesics, antihistamines, and supportive medications. At follow-up two weeks later, the surgical site had healed well, and there was no recurrence of swelling or fever. Cervical lymphadenopathy had significantly regressed. The patient was counseled regarding strict glycemic control, cessation of tobacco chewing, and the importance of regular dental check-ups to prevent recurrence of odontogenic infections.

DISCUSSION

Odontogenic infections account for a significant proportion of deep neck space infections, with the submandibular and sublingual spaces being frequent sites of involvement. These infections typically originate from dental caries or periodontal disease that extend beyond the alveolar bone, spreading along fascial planes.[6] If untreated, such infections can lead to severe complications including airway compromise and septicemia. Early recognition and conservative management remain the cornerstone of favorable outcomes.[7]

Our patient presented with classical features of submandibular space involvement, including swelling, dysphagia, and fever, in the context of poor dental hygiene and established caries (Figure 1). Definitive dental intervention through extraction of the carious tooth was essential to achieve source control and prevent recurrence.[8] The combination of incision, drainage, and antibiotic therapy led to rapid clinical improvement, underscoring the importance of early, targeted management in odontogenic infections.[9]

Several comorbidities likely influenced the clinical course. Diabetes mellitus is a well-established risk factor for severe odontogenic infections due to impaired neutrophil function, reduced tissue perfusion, and altered healing responses.[10] In our case, markedly elevated inflammatory markers such as C-reactive protein reflected the systemic burden of infection, even in the absence of leukocytosis. Lifestyle factors, including chronic tobacco chewing, further compromise oral mucosal defenses, contributing to chronic poor oral health and increased susceptibility to odontogenic sepsis.[11]

Autism spectrum disorder added an additional layer of complexity. Patients with autism may present atypically due to communication barriers and altered pain perception, delaying diagnosis and intervention.[12] Caregiver involvement and a high index of suspicion are therefore essential for timely recognition of evolving infections. An incidental finding of DISH was noted on imaging (Figure 3). While frequently asymptomatic, DISH in the cervical spine can restrict neck mobility and complicate airway management during surgical procedures.[13] In our patient, the abscess drainage was performed without anesthetic difficulty, but this finding underscores the importance of preoperative airway assessment and planning in similar scenarios.

This case is noteworthy for the convergence of multiple factors such as diabetes mellitus, autism spectrum disorder, tobacco use, and incidental DISH complicating what is otherwise a relatively common clinical entity. Early surgical drainage, appropriate antimicrobial therapy, and definitive dental extraction led to complete recovery. The case highlights the need for individualized care planning, particularly in patients with comorbidities that increase both diagnostic and management challenges and highlights how imaging and careful evaluation can lead to safe and effective treatment.

CONCLUSION

Odontogenic infections remain a common yet potentially life-threatening cause of deep neck space infections. This case highlights how coexisting comorbidities such as diabetes mellitus, autism spectrum disorder, and lifestyle factors like tobacco use can complicate the clinical course and delay recognition. The incidental presence of DISH further underscores the importance of careful airway assessment and perioperative planning. Prompt diagnosis, surgical drainage, and definitive dental extraction, combined with targeted antimicrobial therapy, remain the cornerstone of management. Clinicians should maintain a high index of suspicion in high-risk individuals and adopt a multidisciplinary approach to optimize outcomes and prevent serious complications.

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