

Deep Neck Infection Caused By Wisdom Tooth

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Received: January 14, 2022; **Published:** January 31, 2022

Abstract

Our study was presented to increase the awareness of deep neck infection caused by wisdom tooth. Deep neck infections are not rare and occur as a result of the several etiologies (tonsillitis, pharyngitis, foreign body ingestion, odontogenic infections). Patient was transferred for oral and maxillofacial department for the evaluation of causative left mesiangular impacted wisdom tooth. Surgical removal of wisdom tooth was performed and surgical region was closed primarily under the antibiotic coverage. Patient was followed strictly after the removal of wisdom tooth. After two weeks following wisdom tooth extraction, neck swelling was resolved and patient returned to daily life. Odontogenic infections are the most common causes of deep neck infections in adults. Not only early diagnosis but also antimicrobial and surgical therapy need to treat deep neck infections of odontogenic origin. Early recognition of inflammation's focus is key for management of patient.

Keywords: Abscess; Wisdom tooth; Neck

Introduction

Deep neck infections (DNIs) is not rare and occur as a result of the several etiologies (tonsillitis, pharyngitis, foreign body ingestion, odontogenic infections). DNIs are dramatically decreased today due to use of antibiotics as it is compared to pre-antibiotic era [1, 2]. Tonsillar infections is main cause of DNIs in pre-antibiotic era, but now odontogenic source is the prevalent in the antibiotic era for the DNIs. Although tonsillitis is the most often cause of DNIs in children, odontogenic etiology plays important role in adults in terms of DNIs [3, 4] DNIs may result in abscess or cellulitis in the neck region. DNIs have potential to obstruct airway and can cause descending mediastinitis even if sepsis in patients who are immunocompromised. It sometimes can result in life threatening condition because of sepsis and airway compromise [5, 6].

Case Description

49 years old-male patient was consulted for Kütahya Health Science University, Dentistry faculty, oral and maxillofacial department for deep neck abscess which can be caused by odontogenic origin (Figure 1). Patient was sistemically unremarkable. He had story of abscess and pain related to lower left wisdom tooth region. He was smoker and had poor oral hygiene. Before the patient was referred our department, he was treated as inpatient basis at otolaryngology clinic. IV route was opened and antibiotic (avitaz [piperasilin+ta-zobactam]) and paracerol was prescribed for the patient during the inpatient process. Patient was instructed to quit smoking. He could not open his mouth because of severe trismus (Figure 2). Due to severe trismus, Patient was instructed to clorhexidine spray. After seven days of follow up at otolaryngology clinic, patient managed to open his mouth and orthopantomograph was taken. Radiograph

showed lower left wisdom tooth which exposed to oral cavity (Figure 3). When the neck abscess was palpated extraorally, pus came from the lower left wisdom tooth region. Patient was under the antibiotic coverage.



Figure 1: Neck abscess discharge point.



Figure 2: Severe Trismus.



Figure 3: Arrow showed left mandibular mesioangular impacted wisdom tooth causing neck abscess.

Early diagnosis and intervention is the key for management of DNIs. All facial planes should be palpated to evaluate whether or not swelling is firm or fluctuant. Sinus tracts should be evaluated and patients' oral cavities should be examined in terms of carious, periodontally involved and wisdom teeth. Palate, tonsils and airway should be examined for patency. If such parameters are not assessed due to trismus, nasal endoscopic examination can be beneficial. CT scanning is the most used imaging modality to estimate severity of DNIs. It provides clinician with valuable information to assess the involved spaces of neck. Although it helps the clinician to assess the patient, clinician should be aware of the risks of such imaging. Supine position while imaging can put patient risk for airway compromise. Therefore, airway patency should be provided while performing CT imaging [5].

CT of the reported patient showed that left pharyngeal and submandibular spaces were involved and airway was compromised. Air-bubble and necrotic lesions were seen at CT of the patient. Such lesions was consistent with abscess (Figure 4).

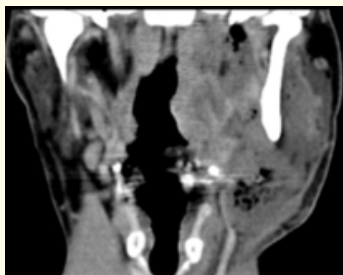


Figure 4: Coronal CT showing airway compromise.

While treating the patient developed DNI, general condition of patient is vital. If patient shows dehydration, fever, fluid replacement should be started. Airway safety should be provided before any intervention. After the patient stabilized, surgical drainage is the keystone for management of DNIs.. It helps to resolute infectious focus earlier and predictable way. Earlier resolution of cellulitis or abscess also creates favorable environment for efficacy of antibiotic. Medical therapy plays a supportive role in treatment of DNIs. Antibiotic therapy was begun empirically on admission and later was modified according to microorganism sensitivity profile. Surgical drainage was deferred at our patient because of patients' aesthetic concern and otolaryngologists' unwillingness for surgical drainage. After the patient gave the consent, daily aspiration of DNI was performed instead of aggressive (surgical) drainage,. The pus sample was collected by the extraorally provided aseptic condition, using a disposable syringe filled with disposable needle. After 7 consecutive days of aspiration and using IV antibiotic, neck abscess was regressed (Figure 5). Patient was transferred for oral and maxillofacial department for the evaluation of causative left mesiangular impacted wisdom tooth. Surgical removal of wisdom tooth was performed and surgical region was closed primarily under the antibiotic covarage. After two weeks following, neck swelling was gone and patient returned to daily life (Figure 6).



Figure 5: Aspirated point and 7 days follow up at otorhinolaryngology clinic.



Figure 6: Healing after two weeks following removal of the lower left wisdom tooth.

Discussion

Prevalance of DNIs has reduced rapidly since use of antibiotics, but still a problem. Diagnosis and treatment of DNIs is a challenge for both otorhinolaryngologists and oral and maxillofacial specialists. Etiology of DNIs are odontogenic, tonsillopharyngitis, infected lymphadenopathy, furunculosis, trauma, thyroglossal cyst, salivary gland infections, foreign body and otitis media. But the most common cause of DNIs is odontogenic. General signs and symptoms of odontogenic DNIs are toothache, neck swelling, neck pain, fever, trismus and airway compromise [7-9].

Not only anatomical, microbial and host factors but also postpone in early intervention can result in progression of infection. Deep neck infections (DNIs) have a potential morbidity and mortality in patients' life. Eliciting microorganisms which played role in DNIs is a key for the treatment. Antibiotic sensitivity profile will pave a way for better treatment regime. Staphylococcus and streptococcus species are the most commonly involved microorganism in the etiology of DNIs. Thus, determining microorganisms in the etiology of DNIs can help while selecting antimicrobial regime. Antimicrobial therapy plays pivotal role in management of DNIs. But antimicrobial therapy alone will not resolve DNIs. Incision and drainage is the mainstay of treatment.

Patient in our study was adult. The reason why adults being higher risk is the higher prevalence of systemic disease that disrupt immunity and the neglect of oral hygiene. Patient in our study had poor oral hygiene but no systemic disease.

In conclusion, odontogenic infections are the most common causes of DNIs in adults. Not only early diagnosis but also antimicrobial and surgical therapy needs to treat DNIs of odontogenic origin. Early recognition of inflammation's focus is key for management of patient. Patient should be treated with experienced clinician trained in the management of airway problems. Thus, Both Otorhinolaryngologist and oral and maxillofacial surgeons should work together to provide optimal treatment for patients who developed DNIs.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Zulfikar Karabiyik, *Design:* Zulfikar Karabiyik, *Control:* Mustafa Kiranatlı, *Data collection:* Mustafa Kiranatlı, *Writing the article:* Critical Review: Zulfikar Karabiyik.

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Volume 1 Issue 1 February 2022

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