

# Deep Neck Space Infection in Diabetic and Non Diabetic Hospitalized Patients: A Comparative Retrospective Study

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## Abstract

**Background:** Deep neck infection is an infection that occurs in the deep fascia and cervical spaces in the form of abscess or cellulitis. The impairment of the immune system due to the hyperglycemic state in patients with diabetes leads to different clinical presentations, prognosis, management and therapy in this group of patients and they can become life-threatening if they are not managed in the right time.

**Aims:** This study was undertaken to better define the clinical features and prognosis of deep neck infections in diabetic patients with special emphasis on the need for prompt surgical intervention and avoidance of life-threatening complications.

**Patients and methods:** In this study, we

retrospectively reviewed the data of patients who were diagnosed with deep neck infection and who received treatment at the Department of Otorhinolaryngology at the ‘Mother Teresa University Hospital Center’ during a two-year period between March 2023 and March 2025. 80 patients were included in our study. 15 patients with Diabetes Mellitus were compared with 65 other patients without Diabetes Mellitus in demographics, clinical features, involvement of several neck spaces, need for surgical intervention, possible complications, laboratory data and hospital stay.

**Results:** In the diabetic group compared to the non-diabetic group, older patient age was evidenced (mean age 56.2 vs. 37.8,  $p < 0.001$ ),

a shorter duration of symptoms before hospitalization (4.6 days vs. 8.26 days,  $p=0.001$ ), a wider involvement of neck spaces ( $\geq 3$  spaces: 60% of patients in the diabetic group vs. 4.6% in the non-diabetic group,  $p=0.001$ ), higher surgical intervention (80% of patients vs. 47.7%,  $p=0.024$ ), higher number of complications (40% vs. 5%,  $p<0.001$ ) and higher hospital stay (11.27 days vs. 4.25,  $p=0.002$ ). No significant relationship was found between PCR values ( $14.11 \pm 13.52$  versus  $10.44 \pm 9.88$  mg/dl,  $p=0.231$ ) and WBC ( $13.27 \pm 4.7$  versus  $14.39 \pm 6.35 \times 10^9/L$ ,  $p=0.447$ ).

**Conclusions:** Diabetic patients tend to have deep neck infections with a more severe presentation and they have several typical characteristics compared to the non-diabetic hospitalized patients. They are older, have a tendency for infection to spread to multiple spaces, a more aggressive requirement for surgical intervention, a higher rate of complications, and a longer hospital stay. Thus, in their treatment, we must properly control diabetes, initiate antibiotic therapy as soon as possible, detect life-threatening complications early, and perform aggressive surgical treatment as soon as possible if complications occur.

**Keywords:** Deep neck infection, abscess, diabetes mellitus, surgical intervention, complication