

# Risk factors for complications from challenging lower third molar extractions in tertiary hospital patients

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## Introduction

Third molar extraction is a common procedure with occasional complications. Most complications are minor, although there is a risk of unfavorable outcomes and permanent harm, particularly in challenging extractions with unusual pathology. The complication profile of challenging lower third molar extractions of hospital patients remains to be elucidated and whether this profile differs from that of ambulatory extractions.

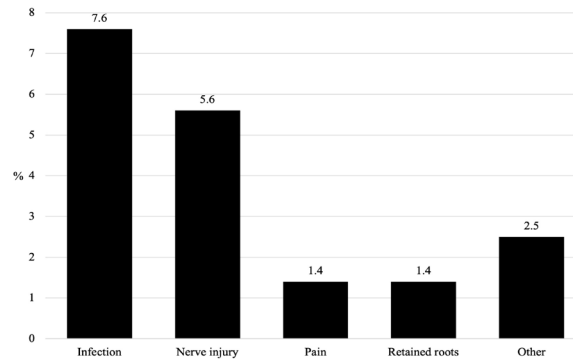
The aim of this study was to investigate the incidence and types of complications in challenging lower third molar extractions in tertiary hospital patients. The specific aim was to identify risk factors for complications. We hypothesized that the complications are the same as in earlier studies but that they occur more frequently in hospital patients than in ambulatory patients.

## Material and methods

A retrospective cohort study (HUS/126/2021) was conducted on 354 patients who underwent unilateral lower third molar extraction during a two-year period in 2018–2019 at Helsinki University Hospital. The outcome was the presence of a complication, and patient-related and operation-related variables served as determinants. Statistical analyses included Mann-Whitney U and Chi-squared tests, and binary logistic regression.

## Results

Complications occurred in 16.7% of patients. The most common complication was local infection, followed by nerve injury (Figure 1). In logistic regression analysis, two of the predictor variables emerged as predicting complications. The complication risk was 3.7-fold (95% confidence interval (CI) 1.97–6.77,  $p < 0.001$ ) higher in extractions defined as demanding than in routine operative extraction. If the third molar was acutely infected, the complication risk increased 2.0-fold (95% CI 1.08–3.75,  $p = 0.027$ ).



**Figure 1.** Distribution of complications (n = 66) in challenging lower third molar extractions of 354 hospital patients.

## Discussion

This study examined complications and their risk factors in challenging lower third molar extractions in tertiary hospital patients. The findings showed that the complication rate was high. Several risk factors were identified; the most powerful of these were extraction defined as demanding and acutely infected third molar.

The complication rate (16.7%) is high, ranking between previously reported rates of 2.4% and 22.0% [1–3]. However, comparison of complication rates between the present and earlier studies is difficult due to differences in study designs, numbers of third molars extracted per patient, and methods of extraction.

In conclusion, complication occurrence in third molar extractions depends on a variety of predictors. Relative to previous ambulatory studies, the complication rate in challenging extractions of mandibular third molars in hospital patients here was higher. Local infection was the most common complication, consistent with earlier research, and the incidence of nerve injuries was higher than in previous studies. The profile of a hospital patient sustaining a complication is an older person with regular medication having a surgically complex extraction of an acute mandibular third molar under general anesthesia. A follow-up visit is therefore important to schedule, and the risk factors, especially a demanding extraction and an acutely infected third molar, must be considered in treatment.

### **Conflicts of interest**

None

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### **Literature cited**

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