



UMEÅ UNIVERSITET

Umeå University Medical Dissertations, New Series No 2327

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# **MINIMALLY DISPLACED AND BASICERVICAL FEMORAL NECK FRACTURES**

## **TREATMENT and OUTCOME**

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### **Akademisk avhandling**

som med vederbörligt tillstånd av Rektor vid Umeå universitet för avläggande av medicine doktorexamen framläggs till offentligt försvar i Bergasalen, Södra Entrén, Norrlands Universitetssjukhus, fredagen den 6 december, kl. 09:00.

Avhandlingen kommer att försvaras på svenska.

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Department of Diagnostics and Intervention (Orthopaedics)

**Organization**

Umeå University  
Department of Diagnostics and  
Intervention

**Document type**

Doctoral thesis

**Date of publication**

17 November 2024

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**Title**

Minimally displaced and basicervical femoral neck fractures, treatment and outcome

**Abstract**

Although femoral neck fractures (FNFs) are common injuries, optimal treatment methods have not yet been established. FNFs disproportionately affect the ageing population and are associated with high disability and mortality. For undisplaced or minimally displaced FNFs, internal fixation has been the prevailing treatment option. Reducing treatment failures is of clinical significance to improve care for this vulnerable patient population.

**Paper 1** is a register-based observational cohort study of the panorama of FNFs in Sweden based on data from the Swedish Fracture Register (SFR), allowing us to include a large number of FNFs for analysis.

**Paper 2** is an observational cohort study based on data from the SFR. All basicervical FNFs between 2011 and 2020 and entered into SFR at the participating sites (Sunderbyn, Umeå, Östersund, Karlstad, Uppsala and Göteborg) were screened. We found basicervical FNFs to be difficult to classify accurately. Furthermore, undisplaced basicervical FNFs have a low re-operation rate compared to displaced basicervical FNFs.

**Paper 3** is an observational cohort study based on data from three centres. This study investigated the association between dorsal and anterior tilt on the lateral radiograph. We found that dorsal tilt  $>20^\circ$  and anterior tilt  $>10^\circ$  increased the risk of treatment failure.

**Paper 4** is an observational cohort study based on data from the SFR. The study sought to depict the panorama of stress-induced FNFs. We found low mortality rates, a biphasic age distribution and a large proportion of displaced FNFs.

**Paper 5** is a case series of 93 occult FNFs treated with internal fixation. The treatment failure rate after internal fixation was analysed, and it was shown that 6% led to treatment failure.

**Keywords**

Trauma, hip fracture, femoral neck fracture, stress-fracture, basi-cervical fracture, treatment, outcome

**Language**

English

**ISBN**

Print: 978-91-8070-505-9

PDF: 978-91-8070-506-6

**ISSN**

0346-6612

**Number of pages**

101 + 5 papers