

# Progression of Asymptomatic Contralateral Femur in Patients with Complete Atypical Femoral Fractures According to the Initial Radiographic Finding

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**INTRODUCTION:** Atypical femoral fracture (AFF) is associated with high prevalence rates of prodromal symptoms, bilateral involvement, complications, and the need for prophylactic fixation due to impending fracture risk. Although most complete AFF cases have an asymptomatic contralateral femur at initial presentation, it can be easily underestimated, and there is lack of clarity on its progression. We evaluated the radiographic progression of asymptomatic contralateral femur in complete AFF and investigated the characteristics of these patients.

**METHODS:** The medical records of 80 consecutive patients who had been treated for a complete AFF were retrospectively evaluated. We excluded 14 patients who had been lost to follow up, 10 whose contralateral femur initially had been symptomatic and had been treated simultaneously, and 3 whose contralateral femur had previously been treated surgically. The remaining 53 patients were all women with an average age of 71.8 years. The average duration of bisphosphonate (BP) use was 63.6 months, and the mean follow-up duration was 48.9 months. All of the contralateral femora were asymptomatic and were divided into 2 grades according to the initial radiographic findings. We evaluated the prevalence of radiographic progression according to the grades and compared patient characteristics between the progression and non-progression groups.

**RESULTS:** Radiographic progression was noted in 18 patients (34%) during the follow up: 3 (12%) of 25 in grade 1 and 15 (53.6%) of 28 in grade 2 ( $p < 0.001$ ). The mean time to progression for these 18 patients was 25.6 months, which also differed significantly depending on the grade ( $p = 0.02$ ). Eleven and 9 (61.1% and 25.7%) of the patients received BP postoperatively in the progression and non-progression groups, respectively ( $p = 0.01$ ).

**DISCUSSION AND CONCLUSION:** The prevalence of radiographic progression was relatively high, even though the contralateral femur was initially asymptomatic, and differed significantly according to the initial radiographic grade. The frequency of postoperative BP use was significantly higher in the progression group.

