

4. Discussion

Several studies [1,2,8,9] ~~en-have discussed~~ the outcomes of THA using the Anatomic stem (Zimmer, Indiana, USA) in Caucasian patients, ~~reported th at twith lowhe~~ rates of stem revision due to loosening ~~were-reportedlow~~ (from 0 to 2.6%). ~~There werOnlye~~ two reports ~~describe on~~ the outcomes ~~of this surgery~~ in Japanese patients. Harada et al. [10] reported that five cups and no stems had been revised ~~in-out of~~ 81 hips with a mean follow-up of 8.4 years. Nakoshi et al. [11] ~~also~~ reported that four cups and no stems had been revised in 20 hips with a mean follow-up of 12.8 years. ~~In our study, no stems required-had-been~~ revised and one stem showed loosening ~~in out of~~ 137 hips with a mean follow-up of 9.7 years. These results suggest that the biological fixation of this stem is good for 8 to 12 years after surgery ~~not-only-in Japanese as well as~~ Caucasian ~~but also-in Japanese~~ patients.

~~There was o~~Only one ~~previous~~ study ~~has that~~ evaluated the metaphyseal fit or press-fit of the Anatomic stem. Ragab et al. [1] evaluated the press-fit of ~~thise~~ stem in 97 hips using the methods of Callaghan et al. [12], and reported ~~that the press-fit wasit to be~~ excellent in 58 hips, good in 38 hips, and poor in one hip. These results suggest that the press-fit of this stem is ~~good-appropriate~~ for ~~the-hips~~ with primary osteoarthritis in Caucasian patients. However, direct comparisons ~~to-with~~ our results ~~are-was~~ not ~~possibleroper~~, because we ~~had-did~~ not used the evaluation methods of Callaghan et al. [12] ~~for a number of reasons~~. In their methods, ~~the~~ press-fit was defined as excellent if the AP radiograph showed the stem to be in contact with the cortical bone at some point on both the medial and the lateral surface. The Anatomic stem has no lateral flare to contact with the endosteum of the lateral metaphyseal cortex around the innominate tubercle. Therefore, ~~the~~ assessments of the lateral side contact ~~seem-to-have-nowould be~~ ~~meaningless for-in~~ this stem. Additionally, we ~~thought-considered~~ that stricter assessments ~~should be employed-were-needed~~ for the contact on the medial side. ~~These are the reasons why we had not used the methods of Callaghan et al. There were n~~No other reports on the press-fit or metaphyseal fit of the Anatomic stem ~~are currently available~~.

~~We discuss the reason for the fact that t~~Our analysis revealed that the ~~rate-occurrence~~ of good metaphyseal fit was ~~not-highlow~~. The ~~data of the design of the~~ Anatomic stem was ~~designed using data~~ obtained from normal femora of cadavers. Kaneuji et al. [13] studied the three-dimensional morphology of the femur ~~en-in~~ 113 hips with osteoarthritis and 36 normal hips in Japanese ~~individuals~~. ~~In t~~Their study, ~~classified~~ the femoral canal ~~was-classified~~ into three types, and the standard type accounted for 89% % of the normal hips ~~and-but~~ only 42% % of the hips with osteoarthritis. In our study, 117 hips out of 137 hips ~~had-been-were~~ diagnosed as having osteoarthritis. The difference ~~of-in~~ femoral configuration between normal ~~hip~~ and osteoarthritics hips ~~ewould be~~ one of the reasons for ~~the high incidence of~~ poor metaphyseal fit. The ~~use of an~~ undersized stem ~~like (Figure-Figure 4-4) can also eauseresult ins~~ poor metaphyseal fit. However, no other stems ~~were-as~~ undersized ~~like this ease-andor~~ showed loosening. Therefore, we ~~think~~ ~~conclude~~ that the usage of undersized stems was not the main reason ~~of-for~~ poor metaphyseal fit.

Commented [A1]: Please note that as per journal guidelines, the Discussion needs to be restructured according to this over all structure, although the use of subheadings is not mandatory:

- Statement of principal findings
- Strengths and weaknesses of the study
- Strengths and weaknesses in relation to other studies, discussing important differences in results
- Meaning of the study: possible explanations and implications for clinicians and policymakers
- Unanswered questions and future research

Please provide the missing information and restructure the Discussion.

Commented [A2]: Please also present the results in “%” to allow easier comparison with results of other studies in the literature, which could be similarly converted into percentages.

~~The present study had several limitations of this study should be discussed. First, the metaphyseal fit was evaluated from AP radiographs. Three-dimensional analysis using CT scan would be more precise and is supposed to show lower rates of good fit. Second, because the mean follow-up of our study was 9.7 years, we cannot deny there may be possible effects of metaphyseal fit on that become apparent outcomes after longer follow-up time periods that were not observed.~~ These points ~~need require~~ further study.

5. Conclusions

~~The Good metaphyseal fit was good only observed in about 60% % of cases, but the 10-year survival rate of the stem was 99% %. The biological fixation of the Anatomic Fiber Metal plus stem was stable at a mean follow-up of 9.7 years independently from of metaphyseal fit. This stem, therefore, represents a long-term option for THA total hip arthroplasty.~~

Commented [A3]: Please consider clarifying that the study was conducted in a Japanese population.

Commented [A4]: Please include the following:

Summary boxes

Please produce a box offering a thumbnail sketch of what your article adds to the literature. The box should be divided into two short sections, each with 1-3 short sentences.

Section 1: What is already known on this topic

In two or three single sentence bullet points, please summarize the state of scientific knowledge on this topic before you did your study, and why this study needed to be done. Be clear and specific, not vague.

Section 2: What this study adds

In one or two single sentence bullet points, give a simple answer to the question "What do we now know as a result of this study that we did not know before?"

Commented [A5]: Please be sure to include a reference list at the end of your manuscript, in Vancouver style.

Commented [A6]: Please include and acknowledgements section, transparency statement and statement of the role of the funding source, as per the requirements of the journal.

Commented [A7]: This sentence is my interpretation of the implications of your study – please check that you agree with this, and if not please add a sentence on the implications of the study findings.

Source: [Fixation of an Anatomically Designed Cementless Stem in Total Hip Arthroplasty](#) by Shigeru Nakamura, Noriyuki Arai, Takateru Kobayashi, and Takashi Matsushita, used under [CC-BY](#)