In-out-in screws in femoral neck fractures: Can they be avoided?

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The article by Yuan et al. [1] in your journal brings up a very important, but sparsely talked about issue encountered while doing screw fixation of femoral neck fractures. We ourselves have faced the problem of in-out-in screws in our practice over the years [2]. This letter intends to present a few insights into how we have analyzed this problem.

In the present study, CT scans were randomly done for non-orthopedic indications with no specific time periods after surgery which may not allow homogenous comparison of outcomes. Also, the most common cause of complications in neck of femur fractures is mal-reduction [3], which was not kept uniform amongst these patients. It is probably not right to compare outcomes especially nonunion or osteonecrosis of head with non-uniform reduction of these fractures.

Females constituted 74% of the patients in this present study. This may be a confounder in the study as it is known that female femoral necks are narrower than males, which can be a cause of higher number of in-out-in screws in this study [2, 4]. Neck of femur fractures is also known to have posteromedial comminution due to the mechanism of injury [5]. A screw passing through such a comminuted fracture region may falsely appear as in-out-in on X-ray. CT scans, as also shown in the published images, have significant amount of scatter around metal hardware and thus cannot be used to ensure the in-out-in nature of these screws, especially with comminution when screws are very close to the cortex.

In our study, we found that an inverted triangle configuration has lower chances of bony perforation by the screw as compared to a non-inverted configuration. Also, we tend to use a smaller diameter posterior screw (4.5 mm instead of 6.5 mm) in females and in patients where we feel that the neck is narrow on pre-operative radiographs or CT scans. We did a CT-based study in our population to find that 75%

of the screws could be inserted in the safe bony corridor of the neck with 1 mm safety margin around the screw [2].

We would like to thank the authors for highlighting the importance of in-out-in screws. Every trauma orthopedic surgeon should be aware of this whenever operating on femoral neck fractures in order to avoid this complication. Sequential fluoroscopy, as advised by the authors, smaller posterior screws as well as adequate pre-operative radiographic planning are essential tools to avoid this complication.

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Compliance with ethical standards

Conflict of interest The authors report no conflict of interest regarding this work.

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