Did you notice the tibial nutrient artery when applying external fixation?

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Dear Editor,

We read with deep interest the article by Tong et al. [1]. We appreciate the work of the authors on the paper. However, Figs. 2 and 3 made us interested in the position of external fixation of the pilon fracture given by the authors. The authors stated Figs. 2 and 3 indicated that the three 4.5-mm pins were usually applied on the anterior surface of the proximal tibia. We found something interesting when following the instructions at our clinic. In one patient, the proximal pins of the external fixation nearly penetrated the tibial nutrient artery (Fig. 1).

According to previous studies, most people have only one tibial nutrient artery which supplies the inner two thirds of the cortex and is the chief blood supply of cortical bone [2]. It arises from the anterior aspect of the posterior tibial artery, very close to the origin of the latter from the popliteal artery. The nutrient artery then penetrates the tibialis posterior muscle close to its

origin from bone. It enters a groove on the posterior surface of the tibia, leading distally to the very oblique nutrient canal which in man may traverse the cortex for a distance of 5.5 cm [3, 4].

The proximal pins of external fixation have a higher probability of penetrating the tibial nutrient artery especially from the anterior surface of one third to two thirds of the tibia. The blood supply of the tibia will have been damaged in the fractures. If the tibial nutrient artery were to be damaged as well, the incidence of nonunion or delayed union of tibia fractures will increase significantly.

To summarise, we advocate that the proximal pins of external fixation should be fixed from a lateral and not an anterior approach. In this way, the tibial nutrient artery can be protected and the incidence of nonunion or delayed union of fractures can be decreased.

This interesting finding cannot lessen this review's overall value and we thoroughly enjoyed reading and appreciating the paper.

Fig. 1 The CT scan shows that the tibial nutrient artery (white arrow) was nearly damaged by the proximal pin of external fixation

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