Reply to the comment on Kritsaneephaiboon et al.: Minimally invasive plate osteosynthesis of distal tibial fracture using a posterolateral approach: a cadaveric study and preliminary report

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Dear Dr. Yun-feng Yang and colleagues,
Thank you very much for your interest in our article [1]. We would like to answer your concerns point by point as below.

1. According to the AO (Arbeitsgemeinschaft für Osteosynthesefragen) principle of fracture treatment, the principles of fracture reduction should be the same even when using the minimally invasive plate osteosynthesis (MIPO) technique for the direct reduction of articular fracture and indirect reduction of diaphyseal or metaphyseal fracture [2]. For pilon fractures, the displaced articular fragments should be reduced by a direct technique. However, indirect reduction with the MIPO technique should be performed for comminuted metaphyseal or diaphyseal extension. Our preliminary case had an open fracture of the left distal tibia (AO 43-C2), which means this patient had a simple articular fracture with a multifragmentary metaphyseal fracture of left distal tibia. Initially we could reduce the articular fracture directly through the anterior soft tissue defect and then fix this fracture with one lag screw. Subsequently, we temporarily stabilised the axial alignment of the fracture with a spanned external fixator across the left ankle. Because the anterior soft tissue is compromised, we used the MIPO technique with the contralateral anterolateral distal tibial locking plate through a posterolateral approach for definitive

fixation of the multifragmentary metaphyseal fracture in this case.

2. You cannot use the posterolateral approach of the ankle for the exposure or reduction of the articular surface of the distal tibia because the posterior overhang of the distal tibial plafond limits visualisation of the anterior articular surface [3]. Therefore it is better to use the anterolateral or anteromedial approach in the case of pilon fracture with anterior fracture comminution. For the placement of medial screw through the contralateral anterolateral distal tibial locking plate at the distal fragment, we made a one centimetre extension of the skin incision with more retraction of flexor hallucis longus (FHL) medially. There was no requirement to make an additional posteromedial incision.
3. We can use the distal incision of our MIPO technique using the posterolateral approach for the reduction and fixation of both distal tibia and fibula within a single incision [3, 4]. The posterolateral aspect of distal tibia can be exposed between the plane of the peroneus longus and the FHL. In addition, the posterior fibula can be addressed by releasing the peroneal tendon and muscle subperiosteally from the fibula [5].

Finally, we can conclude that the MIPO technique using the posterolateral approach is considered as an alternative option for distal tibial fracture with or without fibular fracture, particularly when the anterior soft tissue is compromised. Contrarily, this MIPO technique is not suitable for pilon fracture with anterior fracture comminution.

Sincerely yours,

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