Reply to comment on Cheng et al.: Comparison study of two surgical options for distal tibia fracture—minimally invasive plate osteosynthesis vs. open reduction and internal fixation

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Dear Editor,

We read the comments on our research article entitled “Comparison study of two surgical options for distal tibia fracture—minimally invasive plate osteosynthesis vs. open reduction and internal fixation” [1] in *International Orthopaedics*. Thank you for the constructive arguments from our colleagues.

However, we could not totally agree with the conclusion, and discussions on several aspects below contribute to our viewpoints.

1. To perform a well-matched pair comparison in clinical trial requires a considered prospective design; we acknowledge that factors such as age, gender and fracture pattern are as important as other factors influencing fracture healing, which include nutritional status, pre injury activity status, smoking status, osteoporosis and the presence of systemic diseases. However, we compared not only the healing results but also other variables such as operation time, blood loss, hospital stay and final Mazur score, etc., which actually may have little relation to those factors influencing fracture healing. Furthermore, the statistical results revealed no significant difference between groups.
2. In our trial, four pairs of comminuted fractures were enrolled and in the ORIF group one case of osteomy-

elitis was confirmed, whereas this complication was not seen in any case in the MIPO group. But this could not be taken as evidence that the MIPO technique is better than ORIF, even though the faster union time in comminuted fracture should be appreciated. Conversely, the soft tissue complications must be attached to importance by surgeons due to its high incidence with the MIPO technique. Lau et al. [2] reported that despite delayed surgery being adopted, 15% of infection and 52% of severe soft tissue impingement rates were encountered in MIPO treatment of distal tibia. Combined with our understanding and experience, the MIPO technique can not ensure reduced chance of wound complication nor offer a more comfortable feeling than using the ordinary plate. As for those comminuted cases usually associated with high energy trauma, soft tissue status sometimes should be considered much more over the union rate. Collinge et al. also reported significant reoperation rate (35%) and prolonged time to union in patients treated by the MIPO technique in those with highly comminuted fracture patterns, bone loss or type II or III open fractures [3].

3. Sharma et al. were against our principle of fibular fixation only for fractures involving the syndesmosis, and they argued that many authors [4, 5] have reported that fibular fixation is a must for comminuted tibia fracture patterns.

However, Gupta et al. [4] argued clearly in their discussion that “It is not essential to fix fibular fractures in the presence of a simple fracture pattern of the tibia provided the fibular fracture is proximal to the syndesmosis. However, any fibular fracture at the level of or

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distal to the syndesmosis, with comminution of the distal tibia, requires stabilisation to maintain the lateral column of the ankle thereby preventing late collapse and secondary loss of reduction”, which is consistent with our viewpoint. We therefore think that Sharma misunderstood the opinion of Gupta about the issue of fibula fixation.

In the research of Bonneville et al. [5], 126 cases of distal tibial fractures associated with fibular fractures were enrolled. The fibula lesions were not treated in 79 cases and the other 47 cases were fixed. The results showed 17 nonunion of tibia; however, among them seven were from the untreated fibula group (7/79) and ten from the fibula treated group (10/47). Those union failures were reviewed in relation to the fixation the fibular fracture by the author.

Although the fixation of fibula can be somewhat helpful to reduce the tibial fracture, the potentially negative impact of fibular fixation in union of the tibia has been raised [6, 7]. And despite assistance of fibula fixation in tibia reduction, an experienced surgeon can manage to reduce even severely comminuted tibia fractures with only manipulation under an intraoperative image intensifier or by direct reconstruction. Whereas, dealing with fibula fracture usually involves extra cost and more operating time. Furthermore, laboratory comparison has proved that fixation of the tibia with LCP can provide adequate stability without fibula treatment [8]. Therefore we would recommend fibula fixation only if the syndesmosis is involved.

In conclusion, we appreciate any suggestions and debate on the issue of MIPO treatment for distal tibia

fracture. We hope in future that any unresolved issues can be more powerfully explored by further evidence.

Regards,

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