Minimally invasive plate osteosynthesis of distal tibial fracture using a posterolateral approach: a cadaveric study and preliminary report

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We have read the article by Kritsaneephaiboon et al. [1] with great interest. We congratulate them for opening new horizons on the MIPO technique using the posterolateral approach; however, we have some reservations regarding it.

First, the authors have described the posterolateral approach to the tibial shaft, for the proximal incision, which was classically described by Harmon et al. [2] in 1945. However the authors have used only a one-inch incision, and to retract the heavy bulk of muscles on the posterior aspect of tibia through such a small incision and placing screws on the posterior aspect seems to be technically quite difficult. Also, exerting overzealous traction in doing so, could endanger the posterior tibial vessels and the tibial nerve. We would like to know what, if any, special tips or tricks the authors suggest to overcome such a problem.

Second, although the authors have studied and mentioned the relationship of the implant to the posterior tibial vessels and tibial nerve, they have not mentioned anything regarding the peroneal vessels. These vessels seem to be particularly at high risk of injury considering their proximity to the postero-medial aspect of fibula, especially when performing sharp dissection of the FHL and tibialis posterior from the posterior aspect of fibula as the authors have suggested. This is all the more important considering the fact that in around 5–8 % of individuals the Peroneal artery is the dominant supply to the foot (a condition known as Peroneal arteria magna) [3, 4].

Third, the authors state that they placed three screws in the proximal segment; we would like to know how the distal most screw in the proximal segment was placed, because it seems unlikely that it was placed through the one-inch

proximal incision. Also, keeping in mind the principle of internal fixation while bridging a comminuted fracture, it is recommended that screws adjacent to the fracture should be placed as close to the fracture site as possible to enhance the construct stability. If we use the posterolateral approach it will not be possible to place these screws percutaneously, as such an application would be too dangerous, whereas exposure of the fracture site for the same purpose would negate the potential benefits of the MIPO technique. Since percutaneous application would seem to be too risky it also precludes the use of lag screws and placement of the pointed reduction clamps and K-wires, which are commonly used as a tool in provisional reduction during the MIPO technique.

Another point which we would like clarified was why removal of the external fixator and internal fixation were performed the same sitting after six weeks. The usual recommendation is that internal fixation can be done in the same sitting if done within two weeks of application of the external fixator, whereas it is advisable to wait for pin tracts to heal if it is done after two weeks, as all pin sites are taken to be potentially infective. Furthermore, when a two-staged delayed internal fixation is planned it is advisable to place the Schanz pins well away from the anticipated location of plates and screws [5]; which is not the case in this scenario, since it is quite clearly visible that the distal pin in the proximal fragment is near the second most proximal screw in the post-operative X-ray.

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