Efficacy of Ultrasonography for MIPO in Distal Tibia Fractures

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Background

Restoration of normal anatomic alignment is the most important aspect of the minimally invasive plate osteosynthesis (MIPO) for tibia fracture. The purpose of this study was to verify the usefulness of ultrasonography of MIPO in tibia fractures.

Methods

Among the patients admitted to the emergency room for a tibia fracture, patients planning MIPO surgery were enrolled. We measured the maximum angle in posteromedial and anterior edge in fractured tibia using ultrasonography (US). Then, we measured the maximum angle using the mobile C-arm intensifier images after reduction in operating room. Postoperatively, all patients were taken 3-dimensional computed tomography (3D-CT) images. The accuracy of the two images were analyzed compared to the 3D-CT image.

Results

The accuracy was higher on US images than on C-arm images. As a result of comparing the angle obtained from the image between the two instruments taken during the operation and the value obtained from the postoperative CT, the results were more similar in the case of using ultrasound. By using US, we could determine that the reduction is adequate without the lateral and oblique C-arm images. Moreover, the use of C-arm was reduced by using US during surgery.

Conclusion

The use of US is effective in MIPO operation for tibia fracture. Additional use of US can reduce radiation exposure that occurs when using C-arm only, so it is considered effective and safe method to the reduction of fracture.

References