Reply to the Letter to the Editor

Reply to the Letter to the Editor: Surgical Technique: Tscherne-Johnson Extensile Approach for Tibial Plateau Fractures

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To the editor,

We read the Letter to the Editor concerning the treatment of isolated posterolateral tibial plateau fractures by Du et al. with interest. The authors of the letter have raised some interesting

points of discussion concerning indications for surgical management of posterolateral tibial plateau fractures. We agree that not all tibial plateau fractures require surgery and acknowledge that, specifically with respect to posterolateral fractures, the available literature is insufficient to answer important questions about the long-term outcomes of conservatively treated posterolateral fractures. The authors refer to three studies specifically measuring average amounts of articular displacement of 10 mm to 11 mm and a surface area range of involvement of between 14% to 23% of plateau articular surface involvement [1, 3, 4], yet they acknowledge there are no long-term followup studies indicating conservative treatment provides acceptable results.

Another issue not addressed in the Letter to the Editor is the presence of meniscal injury with articular fractures depressed up to 10 mm. Does the surgeon accepting up to 10 mm of joint depression, simply ignore any meniscal pathology because instability is not present? One unique stabilizer of the posterolateral plateau is the proximal tibia-fibular joint. This may act as

a strut to prevent posterolateral subluxation instability in flexion, reducing the incidence of knee instability in posterolateral depressed plateau fractures. The fibula and the proximal tibio-fibular ligamentous complex may act as a natural structural support that is not found on the medial side of the plateau, and may provide posterolateral quadrant fractures of the plateau a better prognosis, even in the presence of moderate articular displacement and depression. Does this unique lateral relationship of the proximal tibia and fibula become the main reason to treat displaced or depressed articular fractures in posterolateral plateau fractures conservatively because of lack of subluxation? A metaanalysis of 11 studies on outcomes of conservatively treated tibial plateau fractures by Giannoudis and colleagues [2], revealed that tibial plateau fractures treated both conservatively and operatively appear to be well tolerated. Factors only partially related to articular reduction appear to be more important in determining outcome than is articular step-off; these other factors include joint stability, retention of the meniscus, and coronal alignment.

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While our approach to plateau fractures in the active population reflects AO principles of stable anatomic articular fragment reduction, our goal always remains perfect articular reduction and early functional rehabilitation. Certain parameters, age, bone quality, activity level, functional status, ambulatory status, all effect the decision for surgical or conservative treatment – not simply lack of subluxation. We believe that anatomic reduction of displaced articular fractures and elevation of depressed fragments offers the best possible long-term functional outcome. Isolated posterolateral quadrant fractures may be managed conservatively,

depending on the assessment of multiple factors including age, activity level, and associated medical conditions. We know of no literature reporting long-term outcomes supporting specific acceptable limits for amount of depression and surface area of involvement for conservative treatment of posterolateral displaced tibial plateau articular fractures.

References

1. Chang SM, Zheng HP, Li HF, Jia YW, Huang YG, Wang X, Yu GR. Treatment of isolated posterior coronal fracture of the lateral tibial plateau through posterolateral approach for direct exposure and buttress plate fixation. *Arch Orthop Trauma Surg.* 2009;129:955–962.
2. Giannoudis PV, Tzioupis C, Papathanassopoulos, A, Obakponovwe, O, Roberts, C. Articular step-off and risk of post-traumatic osteoarthritis. Evidence today. *Injury.* 2010;41:986–995.
3. Li Q, Zhang YQ, Chang SM. Posterolateral fragment characteristics in tibial plateau fractures. *Int Orthop.* 2014;38:681–682.
4. Xiang G, Zhi-Jun P, Qiang Z, Hang L. Morphological characteristics of posterolateral articular fragments in tibial plateau fractures. *Orthopedics.* 2013; 36:e1256–e1261.