Letter to the Editor

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

Andrea Emilio Salvi MD

To the Editor,

I read the study by Johnson and colleagues [4] with great interest. In their study, the authors compared a typical surgical approach to lateral tibial plateau fractures with a less-invasive solution that increases

joint exposure and maintains a partial iliotibial insertion at Gerdy's tubercle.

In their study, Johnson and colleagues described the management of bicondylar plateau fractures undergoing a double surgical approach. Since this is a common fracture pattern, some additional considerations should be addressed on the topic.

Double surgical (medial and lateral) incisions [7] often are complicated by deep infection, arthrofibrosis, and posttraumatic arthritis [6]. Additionally, surgeons must continually observe the incision on both sides of the fracture. The views are limited by the cutaneous bridge between the incisions. A midline approach [2] is prone to wound problems, subsequent infections, or retardation of bony union. However, a midline approach can be useful for salvage arthroplasty [1]. Osteotomy of the tibial tubercle [3], although it allows a full view of the fractured plateau, is complex and rarely used [5].

Regardless of the approach used, the surgeon should strive for a wide and complete exposure of the articular plane. Once doing so, the surgeon should have the ability to free and

mobilize the bony fracture ends. This is done to reduce and keep in place a solid synthesis. Detachment of the muscular insertions on the lateral side is mandatory. In my experience, postoperative stiffness is uncommon when a passive motion machine is used for approximately 1 hour (0 to 30 minutes from the second postoperative day, increasing 10 minutes daily thereafter). I generally apply a hinged knee brace, set from 0° to 90° for at least the first postoperative month. I recommend that patients avoid weight bearing for 3 months.

An alternative approach to the double surgical incision approach is what I call the "clock approach" (Fig. 1A–C). I have used this approach for 5 years and the results have been good. I usually flex the knee on a pad in order to have the knee in front view, and to allow gravitational forces to help align the bony fracture ends during the operation. The incision starts from the lateral condyle, runs around the kneecap in a curvilinear fashion towards Gerdy's tubercle, passes the inferior margin of the anterior tibial tubercle, and ends on the medial surface of the tibia. When necessary,

(RE: Johnson EE, Timon S, Osuji C. Surgical technique: Tscherne-Johnson extensile approach for tibial plateau fractures. *Clin Orthop Relat Res*. 2013;471:2760–2767.) The author certifies that he or any member of his immediate family, has no funding or commercial associations (eg, consultancies, stock ownership, equity interest, patent/licensing arrangements, etc) that might pose a conflict of interest in connection with the submitted article.

All ICMJE Conflict of Interest Forms for authors and *Clinical Orthopaedics and Related Research*® editors and board members are on file with the publication and can be viewed on request.

The opinions expressed are those of the writers, and do not reflect the opinion or policy of *CORR*® or The Association of Bone and Joint Surgeons®.

A. E. Salvi MD (✉)

Department of Orthopaedics and Traumatology, Mellino Mellini Hospital Trust, Civil Hospital of Chiari (Brescia), Viale Mazzini, 4, 25032 Chiari, Brescia, Italy
e-mail: andreasalvi@bresciaonline.it

Letter to the Editor

Fig. 1A–C The “clock approach” is carried out around the patella, whose round shape resembles a clock. **(A)** The incision starts at 1 o’clock. At 25 minutes, the incision meets Gerdy’s tubercle. At 30 minutes, the incision meets the anterior tibial tubercle, ending at 35 minutes, on the anteromedial side. **(B)** Careful anatomical suture of the intraoperative detached structures permits easy connections of cutaneous margins. **(C)** The clock approach is complete after suture.

Fig. 2A–B Two plates are used to buttress the fragments of fractures, one contoured on the **(A)** medial side and one precontoured on the **(B)** lateral side with the superior tip applied on the Gerdy’s tubercle. Lateral meniscus is cut vertically at the beginning of the anterior horn, held upwards with bioabsorbable suture to increase articular view, and then sutured with contralateral meniscal margin.

Letter to the Editor

connection between superior face of the patella and its superior subcutaneous tissues can be cut using scissors to obtain a strip that can be retracted by mean of a Farabeuf or Hohmann retractor, therefore widening further the surgical vision.

Following a satisfactory reduction, it is important to suture the lateral musculature, address any meniscal pathology, and close the capsule carefully (Fig 2A–B).

References

1. Cho KY, Oh HS, Yoo JH, Kim DH, Cho YJ, Kim KI. Treatment of Schatzker Type V and VI Tibial Plateau Fractures Using a Midline Longitudinal Incision and Dual Plating. *Knee Surg Relat Res.* 2013; 25:77–83.
2. Espinoza-Ervin CZ, Starr AJ, Reinert CM, Nakatani TQ, Jones AL. Use of a midline anterior incision for isolated medial tibial plateau fractures. *J Orthop Trauma.* 2009;23:148–153.
3. Fernandez DL. Anterior approach to the knee with osteotomy of the tibial tubercle for bicondylar tibial fractures. *J Bone Joint Surg Am.* 1988;70:208–219.
4. Johnson EE, Timon S, Osuji C. Surgical technique: Tscherne-Johnson extensile approach for tibial plateau fractures. *Clin Orthop Relat Res.* 2013;471:2760–2767.
5. Lowe JA, Tejwani N, Yoo BJ, Wolinsky PR. Surgical techniques for complex proximal tibial fractures. *Instr Course Lect.* 2012;61:39–51.
6. Musahl V, Tarkin I, Kobbe P, Tzioupis C, Siska PA, Pape HC. New trends and techniques in open reduction and internal fixation of fractures of the tibial plateau. *J Bone Joint Surg Br.* 2009;91:426–433.
7. Thomas CH, Athanasiov A, Wulschleger M, Schuetz M. Current concepts in tibial plateau fractures. *Acta Chir Orthop Traumatol Cech.* 2009;76:363–373.