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Total Knee Replacement Versus Osteosynthesis as Primary Treatment in Older Patients with Tibial Plateau Fracture

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Learning Point of the Article:

Total knee replacement (TKR) can be a valid treatment option for elderly patients with tibial plateau fractures, offering significant improvements in functionality.

Abstract

Introduction: The treatment of tibial plateau fractures is a challenge in the elderly population due to osteoporosis and associated comorbidities. The choice between open reduction and internal fixation (ORIF) and total knee replacement (TKR) is controversial. The aim of this study is to compare functional outcomes between TKR and ORIF in elderly patients with tibial plateau fractures.

Materials and Methods: A retrospective observational study was conducted on 27 elderly patients with Schatzker type II, III, or IV tibial plateau fractures treated between January 2018 and December 2022, with prior history of osteoporosis or gonarthrosis. 14 patients underwent treatment with TKR, while 15 patients underwent ORIF. Demographic data, pre-operative characteristics, surgical details, post-operative evolution, and functional outcomes were collected and analyzed.

Results: The TKR group consisted mostly of women (92.9%) with a mean age of 76 years, while the ORIF group had a mean age of 68 years. Both groups had similar comorbidity profiles. No significant differences were observed in the mean surgical time (P = 0.18). Significant differences were found between the knee society score (KSS) knee score for total knee arthroplasty (TKA) and ORIF (P = 0.01) and in the KSS function score, with better functional values in the TKA group compared to the ORIF group (P = 0.034). No significant differences were observed in the probability of complications regardless of whether the patients underwent TKA or ORIF (P = 0.6).

Conclusion: Treatment of tibial plateau fractures with TKR achieves superior functional outcomes and lower complication rates compared to open reduction and internal fixation in elderly patients.

Keywords: Tibial plateau fractures, total knee replacement, orteoarthritis, osteoporosis.

Introduction

Tibial fractures represent 1% of all fractures in adults [1], accounting for up to 8% of total fractures in geriatric patients [2]. Twenty-four percent of tibial plateau fractures occur in patients over 65 years old, typically due to low-energy mechanisms, and are associated with high mortality rates [3]. The widespread treatment for these fractures is surgery, as it allows for the restoration of joint congruence, knee alignment, and facilitates a faster patient recovery.

The treatment of tibial plateau fractures has traditionally been performed with open reduction and internal fixation (ORIF), which is considered the gold standard technique in young patients, but it has poor outcomes in elderly patients with osteoporosis [4,5]. In elderly patients, the prevalence of osteoporosis presents a challenge when performing osteosynthesis [5]. Therefore, total knee arthroplasty (TKA) has become an alternative treatment in recent years for these complex fractures that are difficult to resolve in elderly patients.

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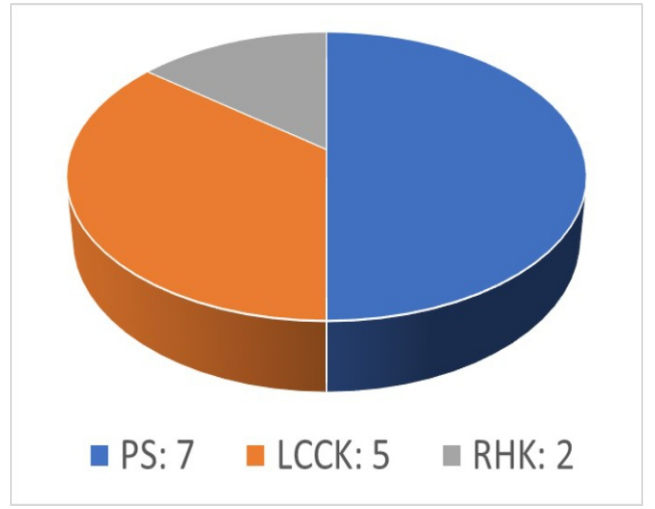

Figure 1: Type of constrained prosthesis used in the total knee arthroplasty group.

Failure rates due to loss of reduction in this patient group range from 30% to 79% [5]. Factors that can negatively affect the outcomes of osteosynthesis in the elderly include significant osteoporosis, pre-existing osteoarthritis, comminution, and poor adherence to non-weight-bearing rehabilitation. In addition, the postoperative management of osteosynthesis can be challenging as there is a higher risk of complications due to immobilization, such as muscle mass loss, deep vein thrombosis, pulmonary embolisms, pressure ulcers, and infections, leading to prolonged hospital stays [6].

It should not be overlooked that the progression of osteoarthritis following tibial plateau fractures may require a secondary TKA in the long term, becoming a highly demanding process due to the presence of previous scars, stiffness, or ligament insufficiency. The risk of revision in secondary TKA following fracture osteosynthesis varies from 8% to 20% in follow-ups up to 11 years [7].

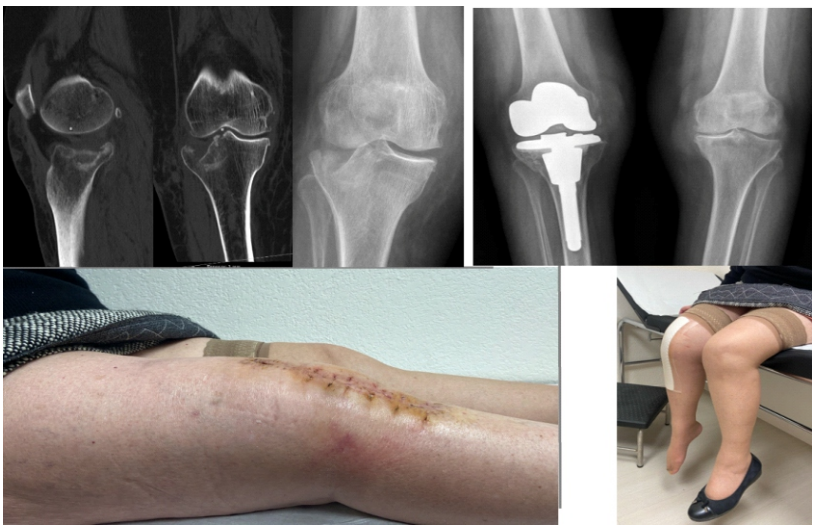

Figure 2: An example of tibial plateau fracture and the type of prosthesis used. As you can see, shortly after surgery, the range of motion is nearly complete.

Although there is no consensus on the superiority of total knee prosthesis over osteosynthesis, the advantages of a primary TKA include early joint mobilization, faster rehabilitation, earlier weight-bearing, and a lower reoperation rate since complications such as loss of reduction, poor alignment, or secondary osteoarthritis following osteosynthesis are avoided [8]. Therefore, the aim of this study is to assess the functional outcomes of TKA compared to ORIF following tibial plateau fractures in elderly patients.

Materials and Methods

A retrospective observational review was conducted on 29 patients who underwent surgery for tibial plateau fractures at our center from January 01, 2018 to December 31, 2022. These patients were divided into two comparative groups. Of the 29 patients, 14 underwent TKA as the primary treatment for tibial plateau fractures, and 15 patients underwent osteosynthesis.

The inclusion criteria were patients over 50 years of age with an osteoporotic Schatzker type II, III, or IV tibial plateau fracture, with a minimum follow-up of 2 years, and who also had pre-existing osteoporosis, gonarthrosis, or both. This study excluded patients who underwent TKA following distal femur fractures, those with peripheral vascular disease or a history of septic arthritis, patients with open or pathological fractures, and those who had previously undergone open reduction and osteosynthesis.

Data collected from both groups included demographic data (sex, age), preoperative data, and patient characteristics (body mass index [BMI], American Society of Anesthesiologists [ASA], fracture mechanism, pre-existing comorbidities, type of fracture according to AO and Schatzker classifications, laterality, pre-existing functionality, pre-existing osteoarthritis), surgical and postoperative data (hospital stay, type of prosthesis used, prosthesis characteristics, need for transfusion, time to surgery, follow-up duration), as well as functional outcomes and associated complications.

Preoperative data

All patients were evaluated preoperatively using X-ray and computed tomography to assess the fracture type and plan the surgery. Knee stability was tested through a physical examination when possible, to evaluate collateral insufficiency.

Parameter	TKA (14 patients)	ORIF (15 patients)
Number of patients	14	15
Mean age (years)	76	68
Gender (male/female) (%)	1/13 (7/93)	5/10 (33.4/66.6)
BMI (average)	28.4	27
Fracture mechanism	Casual fall: 12 patients	Casual fall: 15 patients
	Stress fracture in gonarthrosis: 2 patients	
Medical history	No AP: 6 patients	No AP: 4 patients
	DM: 4 patients	DM: 2 patients
	Cardiopathy: 3 patients	Renal transplant: 2 patients
	Rheumatoid arthritis: 1 patient	Cancer: 3 patients
		Cardiopathy: 2 patients
ASA classification (%)	ASA I: 1 patient (7.14)	ASA I: 1 patient (7.14)
	ASA II: 7 patients (53.8)	ASA II: 7 patients (38.5)
	ASA III: 6 patients (38.5)	ASA III: 7 patients (53.8)
AO Classification	41B1: 1 patient	41B2: 5 patients
	41B2: 2 patients	41B3: 4 patients
	41B3: 10 patients	41C2: 6 patients
	41C2: 1 patient	
Schatzker classification	II: 5 patients	II: 3 patients
	III: 6 patients	III: 4 patients
	IV: 3 patients	IV: 8 patients
Pre-existing gonarthrosis	4 patients (29)	3 patients (20)
Pre-existing osteoporosis	10 patients (71)	12 patients (80)
Average hospital stay (days)	16	12
Mean surgical time (min)	120 min	130 min

TKA: Total knee arthroplasty, ORIF: Open reduction and internal, BMI: Body mass index, AP: Anteroposterior, ASA: American Society of Anesthesiologists

Table 1: Summary of demographic and clinical data

Surgeries were performed by expert surgeons. The type of treatment (osteosynthesis or prosthesis) and the prosthesis characteristics, constriction, and the use of sleeves or cones were chosen based on the collateral ligaments' competence, the fracture configuration, the existing bone stock, and the surgeon's preference.

Surgical techniques

For osteosynthesis, patients were placed in a supine or prone position depending on the approach, on a radiolucent and conventional table, with a tourniquet and prophylactic antibiotics. When the fracture involved the lateral plateau, an anterolateral approach was used. After achieving provisional joint reduction with AK, a locked proximal tibia plate was temporarily used to stabilize the joint and maintain the reduction before inserting the definitive screws. A similar strategy was used for medial plateau fractures.

For prosthetic surgery, patients were placed in a supine position with a tourniquet. Patients received prophylactic antibiotics (2 g Cefazolin). A central incision with medial parapatellar arthrotomy was performed. No osteotomy of the tibial tuberosity was done. Various TKAs were used depending on the fracture characteristics, including posterior-stabilized (PS) prostheses, cruciate-retaining (CR) prostheses, legacy-constrained condylar knee (LCCK) prostheses, or rotating hinge knee (RHK) prostheses. Initially, the tibia was prepared and the cutting line identified to maintain maximum bone stock allowed by the fracture, using the less affected tibial plateau. Cemented prostheses were used in all cases, with varying levels of constraint depending on the collateral ligaments' insufficiency. Two patients required the use of a cone to address bone stock issues when the defect was larger than 3 mm or deeper than the inferior surface of the tibial component, affecting a third or more of the medial or lateral compartment, and one patient required a 15 mm augment. Bone grafts were added in three patients to increase bone stock and provide greater stability. Extension and flexion gaps were tested after performing the femoral cut.

Postoperative care and follow-up

Drains were removed 24 h post-surgery, and all patients received prophylactic low-molecular-weight heparin to reduce the risk of deep vein thrombosis. Early rehabilitation protocols began on the 1st day, involving passive and active exercises and early ambulation with a walker if the patient's condition and lab results permitted. All patients had the same rehabilitation protocol in the TKA group.

Postoperative X-rays in anteroposterior and lateral projections were performed, followed by serial radiographs to detect early prosthesis loosening or cannulated screw loosening, consolidation, and alignment assessment. The knee society roentgenographic and scoring system was used to detect early prosthesis loosening. Functional outcomes were assessed based on the final knee flexion-extension degree and the need for walking aids.

The knee society score (KSS), developed by The knee society, was used during follow-ups to evaluate surgical outcomes. This scale is divided into a section related to the knee joint and another functional assessment section evaluating the patient's ability to walk and climb stairs. This scale was performed 1-year

Parameter	TKA (14 patients) (%)	ORIF (15 patients) (%)
Walking aid use	12 patients without aids (85.7)	13 patients without aids (86.6)
	2 patients with crutches (14.3)	1 patient with crutches (7.14)
		1 patient with walker (7.14)
Functional outcomes	KSS knee score: 83 (50–100)	KSS Knee score: 70 (55–90)
	KSS function score: 84 (60–100)	KSS Function score: 72 (60–90)
Complications	1 patient with wound dehiscence	1 patient with screw extrusion
	1 patient with periprosthetic fracture	1 patient with EMO and TKA
		1 patient with skin flap
		1 patient with osteoarthritis

TKA: Total knee arthroplasty, KSS: Knee society score, ORIF: Open reduction and internal fixation

Table 2: Summary of functional parameters and follow-up.

post-surgery.

Complications such as implant failure, pain, periprosthetic fractures, and infections were monitored during follow-ups at 1 month, 3 months, 9 months, and 1 year in outpatient consultations.

Statistical data

The R-commander v 3.4.3 statistical program for Mac was used for statistical analysis. The Lilliefors test was applied to determine if the parameters followed a normal distribution. The significance level was set at $P < 0.05$.

Results for TKA and Tibial Plateau

TKA group

In the first group, 14 patients underwent TKA. Among them, 13 (93%) were women and 1 (7%) was a man. The patients had a mean age of 76 years and an average BMI of 28.4 (range 20.5–40.5). Six patients had no significant medical history, four had diabetes mellitus, three had a history of heart disease, and one had rheumatoid arthritis. All patients were independent in basic daily activities and ambulated without aids. 29% of patients (4 patients) had documented pre-existing gonarthrosis (Table 1).

According to the ASA classification, 7 patients were ASA II (53.8%), 6 patients were ASA III (38.5%), and one patient was ASA I (7.14%).

Regarding fracture characteristics, according to Schatzker classification, 42.9% (5 patients) had type II fractures, 35.7% (5 patients) had type III fractures, and 21.4% (3 patients) had type IV fractures. According to the AO classification, one patient had a type B1 fracture, two patients had type B2 fractures, ten patients had type B3 fractures, and one patient had a type C2 fracture.

All fractures were closed, occurring in 12 patients (85.7%) due to accidental falls and in 2 patients (14.2%) due to stress fractures in pre-existing gonarthrosis.

The most commonly used prosthesis type was PS in 6 patients (42.85%), followed by LCCK in 5 patients (37.5%), RHK in 2 patients (14.28%), and CR in 1 patient (7.14%) (Fig. 1). Nearly half of the cases included patella prosthetics, and two patients (14.28%) required supplements (cones).

The average hospital stay was 16 days, with the longest stay being 59 days and the shortest 4 days. The average time to surgery was 6.4 days (range 0–16). The mean surgical time was 120 min. Four patients required red blood cell transfusions. Two patients (14.28%) experienced complications, including a wound dehiscence and a periprosthetic fracture requiring reoperation. The mean follow-up time for this group was 27.8 months.

Results for ORIF and Tibial Plateau

Osteosynthesis (ORIF) group

In the second group of 15 patients, 10 patients (66.6%) were women and 5 patients (33.4%) were men. The mean age was 68 years with an average BMI of 27.8 (range 22–35). 26.6% of patients (4 patients) had no significant medical history. The most common medical history was diabetes mellitus in 2 patients, followed by 2 patients with kidney transplants, 3 patients with cancer, and 2 patients with a history of heart disease. All patients were independent in basic daily activities and were able to walk without aids.

According to the ASA classification, 7 patients were ASA II (53.8%), 6 patients were ASA III (38.5%), and one patient was ASA I (7.14%).

According to Schatzker classification, the most common fracture type was type IV (53.3%), followed by type III in 4 patients and type II in 3 patients. According to the AO classification, the most common fracture type was C2 (40%), followed by type B2 in 5 patients (33.3%) and type B3 in 4 patients (26.6%).

The most common osteosynthesis method used was a plate in 33.3% of cases, followed by two plates in 26.6%, and a

combination of plate and screws or cannulated screws. For approaches, a single approach was used in 9 cases (60%), while two approaches were used in 40% of cases. A posteromedial approach was used in 7 patients, an anterolateral approach in 5 patients, a lateral approach in 3 patients, and a medial approach in 2 patients. Bone grafting was required in 6 patients (40%), with 4 patients receiving hydroxyapatite, 1 patient receiving crushed bone graft, and 1 patient receiving lyophilized bone graft.

The average hospital stay was 12 days, with the longest stay being 24 days and the shortest 4 days, and no significant differences were observed (P = 0.18). The average time to surgery was 7.8 days (range 2–21). The mean surgical time was 130 min, with no significant differences seen between both groups (P = 0.13). In two cases, this time was extended due to prior external fixation. Four patients (26.6%) experienced complications during follow-up: one patient required removal of osteosynthesis material and later TKA, one patient had screw extrusion, one required a skin graft using a flap, and one patient later underwent TKA due to osteoarthritis. The mean follow-up time was 26 months.

Functional outcomes

Regarding functional outcomes, 12 patients (85.7%) in the TKA group were able to walk without aids, and only two patients required either crutches or a walker. In this group, 53.3% of patients (8 patients) had complete joint range of motion, and none had knee flexion <90° (Table 2).

In the ORIF group, 13 patients (86.6%) ambulated without any aids. In this group, 73.3% of patients (11 patients) had complete joint range of motion, and only one had knee flexion <90° with a 5° extension limitation.

There were four deaths (13.79%); two in the TKA group and two in the ORIF group, unrelated to the surgery.

Regarding the KSS knee score and KSS function score, 12 patients in the TKA group (85.5%) and 13 patients in the ORIF group (86.6%) were surveyed 1-year post-surgery. Significant differences were found between the KSS knee score for TKA and ORIF (P = 0.01) and in the KSS function score, with better functional values in the TKA group compared to the ORIF group (P = 0.034) (Fig. 2). Similar differences were observed in the WOMAC scores, with a score of 74.6 for TKA and 69.5 for ORIF (P = 0.03).

No significant differences were observed in the probability of complications regardless of whether the patients underwent TKA or ORIF (P = 0.6).

Discussion

Treating tibial plateau fractures in elderly patients presents a therapeutic challenge due to poor bone quality, pre-existing osteoarthritis, and associated comorbidities. The optimal treatment approach for these patients remains controversial. Traditionally, these fractures have been managed with ORIF. However, as demonstrated in Ali et al.'s study, elderly patients with osteoporosis show a high rate of fixation failure, up to 79%. Factors such as fracture comminution, pre-existing osteoarthritis, and non-compliance with weight-bearing recommendations were significantly associated with loss of reduction.

Nonunion and post-traumatic osteoarthritis can lead to secondary surgeries, including conversion from ORIF to TKA. The incidence of post-traumatic osteoarthritis varies from 21% to 44% in various studies, and conversion rates to TKA can reach 7.3% at 10 years. Secondary TKA surgeries post-ORIF are technically challenging, with a higher risk of complications and poorer functional outcomes. In our cohort, 29% of patients undergoing TKA had pre-existing gonarthrosis, compared to 20% in the ORIF group. Two patients (13%) from the ORIF group required subsequent TKA, consistent with literature findings.

When choosing the implant type and degree of constraint for TKA, preoperative ligament stability must be considered, along with the necessity for allografts or supplementary components such as cones or sleeves. In cases of significant ligamentous instability, constrained or hinged prostheses are required. In our cohort, 50% of patients required either constrained condylar knee prostheses (35.7%) or hinged prostheses (14%), similar to other studies reporting up to 45% need for high constraint.

Regarding bone defect management, the use of cones can maintain the support areas for TKA in cases of significant bone loss. In Schatzker Type III fractures, graft or cement augmentation is often sufficient, whereas Type IV fractures frequently necessitate cones or sleeves. In our study, 21% required allografts, 7% needed supplementary components, and 14% used cones to enhance stability due to bone deficits. Approximately half of our patients underwent patella prosthetization, though literature lacks consensus on its necessity. Cemented prostheses are recommended for better long-term outcomes in these patients, which was implemented in all our TKA cases.

Primary TKA in acute settings offers immediate stability and allows early weight-bearing, unlike ORIF. Our TKA patients commenced full weight-bearing on average 2 days postoperatively, facilitating early mobility and reducing the risk of immobilization-induced sarcopenia.

Complication rates in literature range from 8% to 42%, with the most common issues being surgical wound problems and superficial infections. In our TKA cohort, one patient

experienced wound dehiscence and another had a periprosthetic fracture. We found no significant differences in complication probabilities between TKA and ORIF groups (P = 0.06), consistent with other studies. Mortality rates were similar between groups and unrelated to surgery.

Regarding functional outcomes, our cohort showed significant differences between the KSS knee score in patients undergoing TKA and ORIF (P = 0.01), as well as in the KSS function score (P = 0.034). These findings are similar to those of Sabatini et al. [19], where better functional outcomes were obtained in TKA compared to ORIF in terms of the KSS knee score (P < 0.005) and the KSS function score (P < 0.005), as well as Abdelbadie et al. [13]. This also correlates with what has been observed in other studies where high KSS knee score values are obtained in patients undergoing TKA [8, 24, 25].

It is important to highlight the limitations of this study, as it is a retrospective review of patients, and the cohort size is small. Although the inclusion and exclusion criteria were carefully chosen, there is some heterogeneity in the fractures. However, it is important to note that the indications for TKA as an initial treatment for tibial plateau fractures are limited. More prospective studies with larger sample sizes are needed to confirm these findings.

Conclusion

TKA is a viable alternative to ORIF for treating tibial plateau fractures in elderly patients, offering early weight-bearing and rehabilitation with superior functional outcomes. There were no significant differences in complication rates between TKA and ORIF treatments. Further prospective studies with larger sample sizes are needed to confirm these findings.

Clinical Message

TKA is a viable alternative to ORIF for treating tibial plateau fractures in elderly patients and allows early rehabilitation.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

References

1. Elsoe R, Larsen P, Nielsen NP, Swenne J, Rasmussen S, Ostgaard SE. Population-based epidemiology of tibial plateau fractures. Orthopedics 2015;38:e780-6.

2. Ali AM, Burton M, Hashmi M, Saleh M. Treatment of displaced bicondylar tibial plateau fractures (OTA-41C2&3) in patients older than 60 years of age. J Orthop Trauma 2003;17:346-52.

3. Elsoe R, Larsen P. Tibial plateau fractures are associated with a long-term increased risk of mortality: A matched cohort study of 7950 patients. Arch Orthop Trauma Surg 2020;140:1705-11.

4. Gálvez-Sirvent E, Ibarzábal-Gil A, Rodríguez-Merchán EC. Complications of the surgical treatment of fractures of the tibial plateau: Prevalence, causes, and management. EFORT Open Rev 2022;7:554-68.

5. Bohm ER, Tufescu TV, Marsh JP. The operative management of osteoporotic fractures of the knee: To fix or replace? J Bone Joint Surg Br 2012;94:1160-9.

6. Stevenson I, McMillan TE, Baliga S, Schemitsch EH. Primary and secondary total knee arthroplasty for tibial plateau fractures. J Am Acad Orthop Surg 2018;26:386-95.

7. Nau T, Pflegerl E, Erhart J, Vecsei V. Primary total knee arthroplasty for periarticular fractures. J Arthroplasty 2003;18:968-71.

8. Tapper V, Toom A, Pamilo K, Niinimäki T, Nieminen J, Nurmi S, et al. Primary total knee replacement for tibial plateau fractures in older patients: A systematic review of 197 patients. Arch Orthop Trauma Surg 2022;142:3257-64.

9. Su EP, Westrich GH, Rana AJ, Kapoor K, Helfet DL. Operative treatment of tibial plateau fractures in patients older than 55 years. Clin Orthop Relat Res 2004;421:240-8.

10. Rozell JC, Vemulapalli KC, Gary JL, Donegan DJ. Tibial plateau fractures in elderly patients. Geriatr Orthop Surg Rehabil 2016;7:126-34.

11. Frattini M, Vaienti E, Soncini G, Pogliacomi F. Tibial plateau fractures in elderly patients. Chir Organi Mov 2009;93:109-14.

12. Parratte S, Bonnevialle P, Pietu G, Saragaglia D, Cherrier B,

Lafosse JM. Primary total knee arthroplasty in the management of epiphyseal fracture around the knee. Orthop Traumatol Surg Res 2011;97:S87-94.

13. Abdelbadie A, El-Hennawy A, Sallam A. Primary total knee arthroplasty: A viable surgical option for complex tibial plateau fractures in elderly. J Knee Surg 2020;33:496-503.

14. Abdel MP, von Roth P, Cross WW, Berry DJ, Trousdale RT, Lewallen DG. Total knee arthroplasty in patients with a prior tibial plateau fracture: A long-term report at 15 years. J Arthroplasty 2015;30:2170-2.

15. Wasserstein D, Henry P, Paterson JM, Kreder HJ, Jenkinson R. Risk of total knee arthroplasty after operatively treated tibial plateau fracture: A matched-population-based cohort study. J Bone Joint Surg Am 2014;96:144-50.

16. Mehin R, O'Brien P, Broekhuyse H, Blachut P, Guy P. Endstage arthritis following tibia plateau fractures: Average 10-year follow-up. Can J Surg 2012;55:87-94.

17. Honkonen SE. Degenerative arthritis after tibial plateau fractures. J Orthop Trauma 1995;9:273-7.

18. Benazzo F, Rossi SM, Ghiara M, Zanardi A, Perticarini L, Combi A. Total knee replacement in acute and chronic traumatic events. Injury 2014;45:S98-104.

19. Sabatini L, Aprato A, Camazzola D, Bistolfi A, Capella M, Massè A. Primary total knee arthroplasty in tibial plateau fractures: Literature review and our institutional experience. Injury 2023;54(Suppl 1):S15-23.

20. Parratte S, Ollivier M, Argenson JN. Primary total knee arthroplasty for acute fracture around the knee. Orthop Traumatol Surg Res 2018;104:S71-80.

21. Vermeire J, Scheerlinck T. Early primary total knee replacement for complex proximal tibia fractures in elderly and osteoarthritic patients. Acta Orthop Belg 2010;76:785-93.

22. Morgan-Jones R, Oussedik SI, Graichen H, Haddad FS. Zonal fixation in revision total knee arthroplasty. Bone Joint J 2015;97-B:147-9.

23. Kini SG, Sathappan SS. Role of navigated total knee arthroplasty for acute tibial fractures in the elderly. Arch Orthop Trauma Surg 2013;133:1149-54.

24. Malviya A, Reed MR, Partington PF. Acute primary total knee arthroplasty for peri-articular knee fractures in patients over 65 years of age. Injury 2011;42:1368-71.

25. Sarzaeem MM, Omidian MM, Kazemian G, Manafi A. Acute primary total knee arthroplasty for proximal tibial fractures in elderly. Arch Bone Jt Surg 2017;5:302-7.

26. Haufe T, Förch S, Müller P, Plath J, Mayr E. The role of a primary arthroplasty in the treatment of proximal tibia fractures in orthogeriatric patients. Biomed Res Int 2016;2016:6047876.

27. Boureau F, Benad K, Putman S, Dereudre G, Kern G, Chantelot C. Does primary total knee arthroplasty for acute knee joint fracture maintain autonomy in the elderly? A retrospective study of 21 cases. Orthop Traumatol Surg Res 2015;101:947-51.

28. Rademakers MV, Kerkhoffs GM, Sierevelt IN, Raaymakers EL, Marti RK. Operative treatment of 109 tibial plateau fractures: Five- to 27-year follow-up results. J Orthop Trauma 2007;21:5-10.

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