

Complex Total Knee Arthroplasty for Untreated Tibial Plateau Fracture with Nonunion

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Background:

Primary total knee arthroplasty (TKA) has a limited role in the management of tibial plateau fractures. It is reserved usually for elderly patients with poor bone quality and pre-existing knee arthritis as well as certain rare, complex fracture patterns that are not amenable to open reduction internal fixation (ORIF). These cases are challenging due to the often compromised tibial epiphyseal/metaphyseal bone and potential soft tissue injury. Although there are described cases of complex primary TKA for acute tibial plateau fractures, there are to our knowledge no reports of complex primary TKA for untreated tibial plateau nonunion.

Purpose:

This video overview and case presentation demonstrates a case of complex primary TKA undertaken for a bicondylar tibial plateau fracture that went on to nonunion following failed nonoperative treatment.

Methods:

The anatomy, pathogenesis, diagnosis, and treatment options for tibial plateau non-unions is discussed. Strategies for complex TKA are also discussed. A case of a 52-year-old male with a history of a bicondylar tibial plateau fracture in his home country that was not properly treated and went on to non-union is presented. This injury occurred after a motorcycle accident, and due to limitations in circumstances in his home country, was not treated. He experienced progressive loss-of-function and was unable to ambulate at the time of presentation, 3 years after the accident. After a thorough discussion of risks, benefits and prognosis, the patient elected to proceed with a complex TKA to restore the ability to ambulate and quality of life.

Results:

The complex TKA was a success, and the patient regained the ability to walk without assistive devices. Post-operatively the prosthesis remained stable and in good alignment both clinically and radiographically, although the patient had some personal setbacks which slowed his recovery.

Conclusion:

The present video demonstrates a successful case of primary, complex TKA for an unusual case of an untreated bicondylar tibial plateau nonunion. Cases of this nature require the full arsenal of revision-style techniques and implants in order to be successful, but if done correctly can be successful in restoring function. Adherence to post-operative rehabilitation is crucial for optimal outcomes.