

## Tibial tubercle osteotomy to improve exposure in complex knee fractures: A cadaveric study and case series

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Adequate exposure is fundamental to safely and correctly perform open procedures around the knee. Tibial tubercle osteotomy (TTO) has previously been described as a method to improve exposure, particularly in complex primary elective knee arthroplasty or revision surgery. We describe a tibial tubercle osteotomy technique to improve exposure in complex knee fractures and a cadaveric study and trauma case series.

### METHODS

A cadaveric study using 8 knee specimens was conducted using a lateral subvastus approach to the knee. Standardised pictures were taken of the exposure, the tibial tubercle osteotomy was performed and pictures were taken of the new exposed area. These images were compared using a computer program that calculated the area of exposure before and after tibial tubercle osteotomy and the results analysed. The technique was then used in a case series of 6 different complex knee fractures including three distal femoral, one periprosthetic distal femur and two tibial plateau fractures. The outcomes of these patients were followed clinically and radiologically.

### RESULTS

All specimens in the cadaveric study demonstrated an increase in area of exposure after the TTO with a mean increase of 148%. All tibial tubercle osteotomies performed in the trauma case series were united by 6 months without complication.

### CONCLUSIONS

Tibial tubercle osteotomy is a recognised technique for improving exposure to the knee. This has been demonstrated in a cadaveric study and in a case series of six complex fractures around the knee. If performed properly, this technique can be extended to appropriate trauma cases with good results.

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