

Gentamicin-loaded injectable synthetic bone void filler* as a bone graft substitute in the management of tibial plateau fractures

A Retrospective Case Series

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Introduction

Tibial plateau fractures are complex articular injuries frequently associated with **bone defects**, with **fracture-related infection** among the main complications after osteosynthesis.

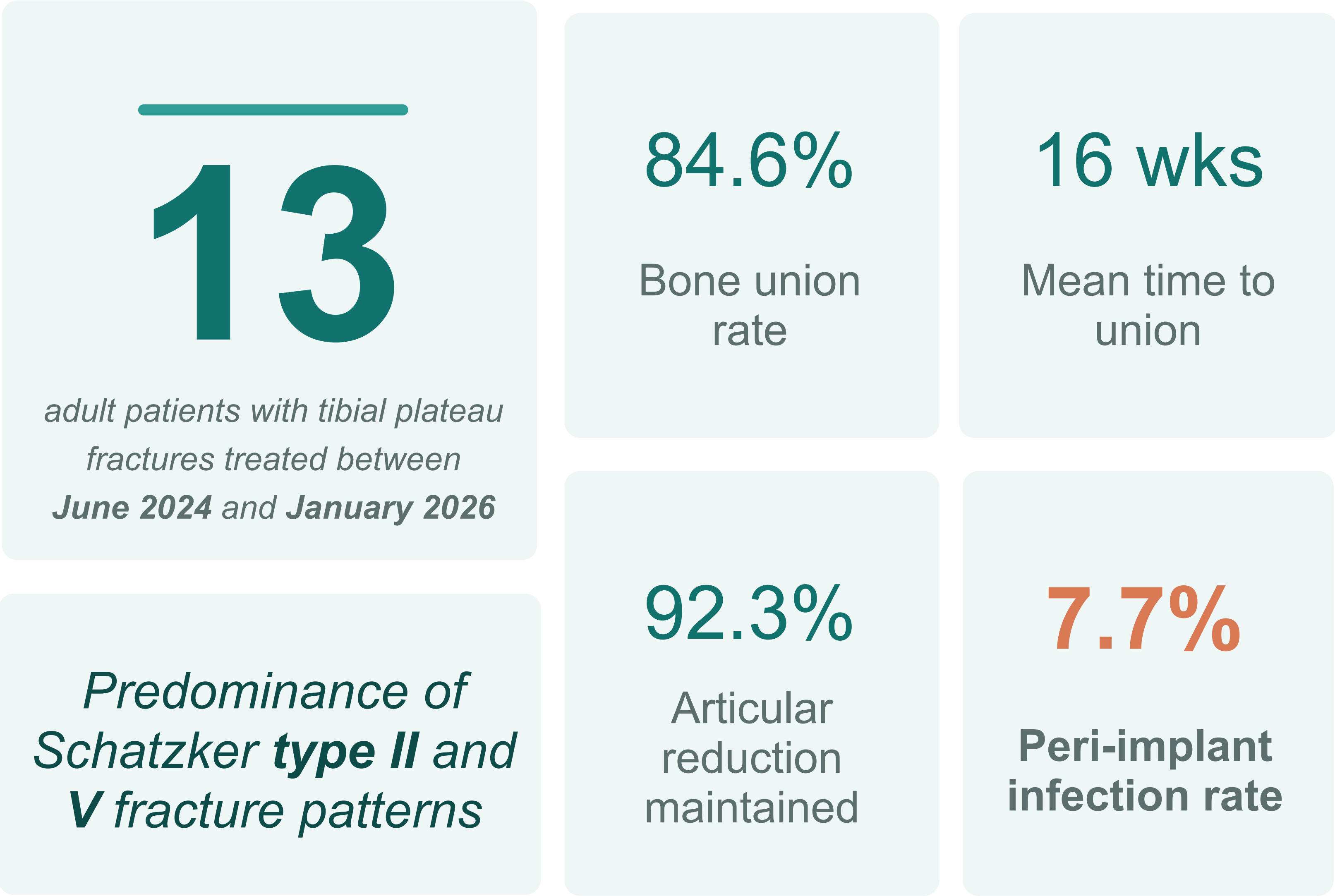
Bone substitutes have gained relevance by **reducing donor-site morbidity** associated with autologous bone grafting, while additionally enabling local **antibiotic delivery**.

The substitute used is an injectable calcium phosphate–based bioceramic combined with gentamicin, associating **osteoconductive** properties with local antibiotic release.

Objective

To evaluate the **clinical** and **radiological** outcomes of this gentamicin-eluting bone substitute in the surgical treatment of tibial plateau fractures.

Material, methods and results



- 30.8% male, 69.2% female; mean age 54 years.
- No major complications related to placement of the bone substitute.
- One case of acute peri-implant infection (7.7%), requiring surgical revision and intravenous antibiotic therapy.
- Satisfactory recovery of joint mobility, with progression to weight-bearing without walking aids.

Conclusion

The use of this bone substitute in tibial plateau fractures appears to be a safe and effective option, providing adequate structural support. Prospective, comparative studies with larger samples are needed to validate these results and to assess its potential as a prophylactic strategy for infection prevention in high-energy tibial plateau fractures.

Keywords: Tibial plateau fractures · Bone substitute · Fracture-related infection

* Commercial product referenced in this study: CERAMENT® G (BONESUPPORT AB, Sweden).