

Does Early Wound Leakage from Antibiotic Carriers Affect Outcome in Patients Treated for Osteomyelitis and Fracture-related Infection

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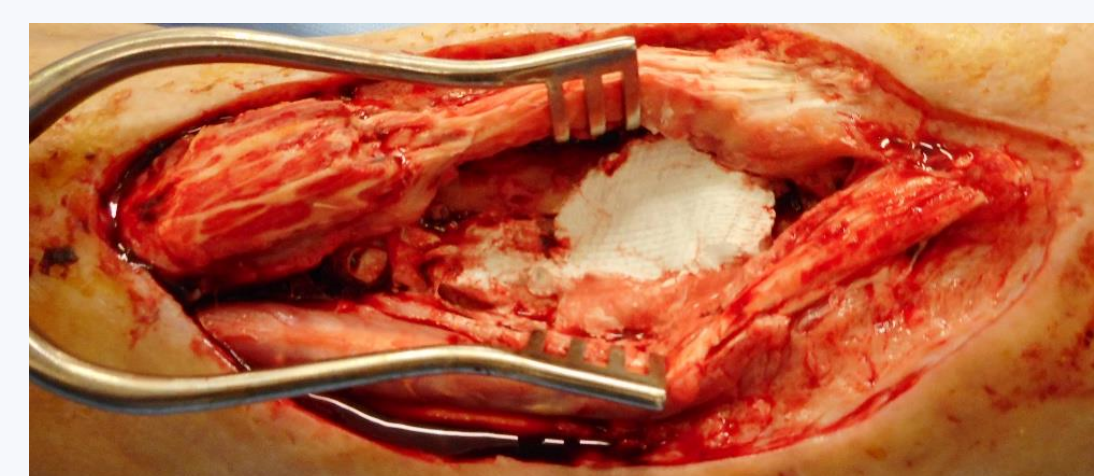
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Background

Local antibiotic carriers are widely used in the management of osteomyelitis and fracture-related infection (OM/FRI). Wound leakage following implantation has been reported to affect all types of carrier (including ceramics, collagens, glasses and gels), but the significance of these events is unknown¹.



Calcium Sulphate Pellets filling a tibial infected defect.



Cerament G filling an infected defect after sampling and excision.

Summary

Wound leakage after surgery for OM/FRI affects 16% of patients. The leakage rate is affected by the carrier type. Simple leaks can be managed without surgery and do not increase the risk of recurrent infection.

Aim

This study investigated a **large group of patients** having **absorbable local antibiotics** as part of their surgery, to determine **if clinical outcome was affected by postoperative wound leakage**.

Method

418 patients with confirmed OM/FRI managed surgically with two local antibiotic carriers at our institution were included. **Wound leakage beyond one week after surgery was prospectively recorded**. This was correlated with the clinical outcomes of **unplanned soft tissue surgery and recurrence of infection**. The effect of carrier type on wound leakage rate was also evaluated.

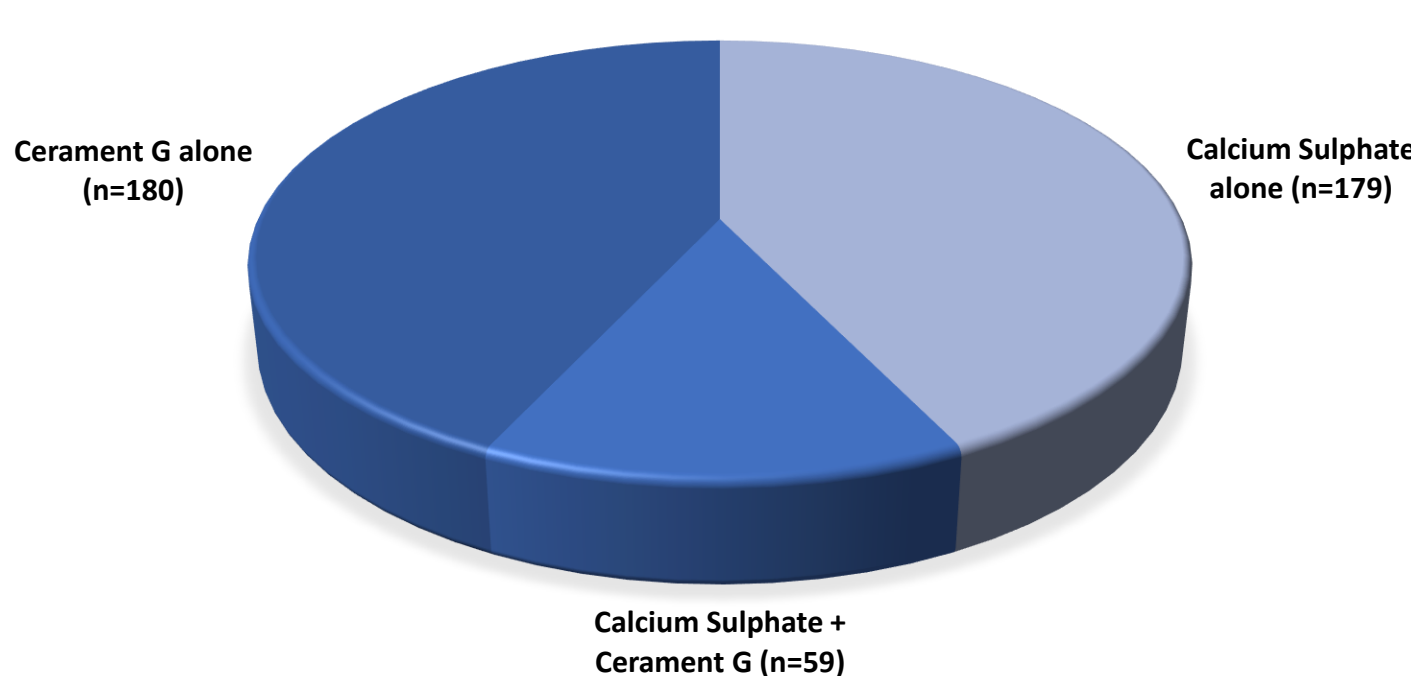
Results

418 patients with confirmed OM/FRI

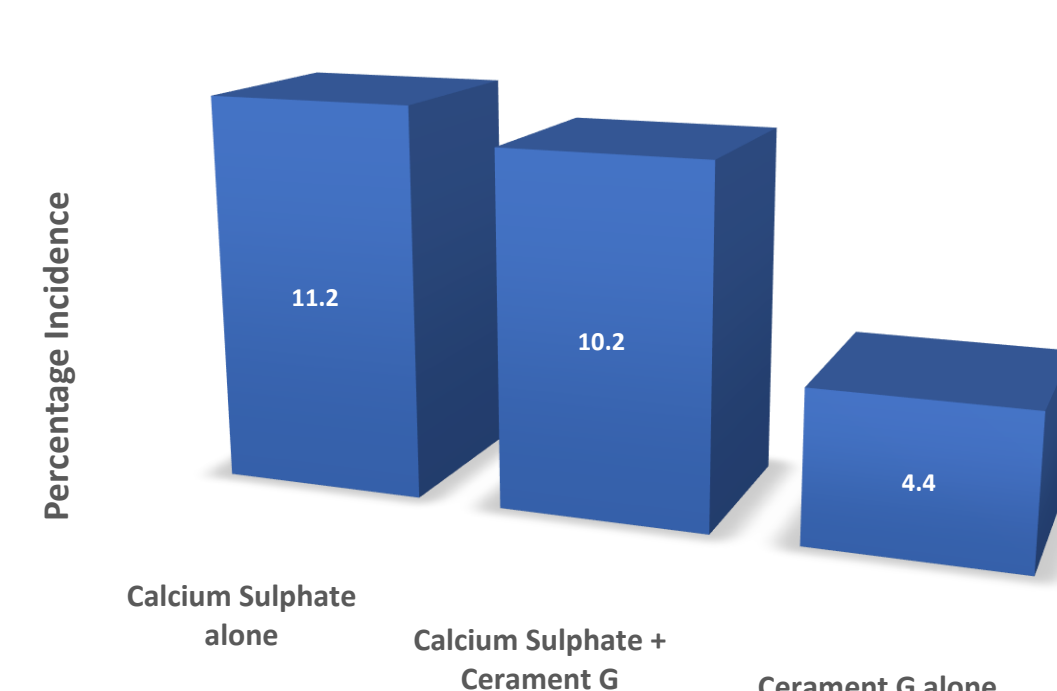
Mean age at surgery: 49.2 years (range 16-89 years)

Mean follow-up: 4.5 years (range 1.3-8.3 years)

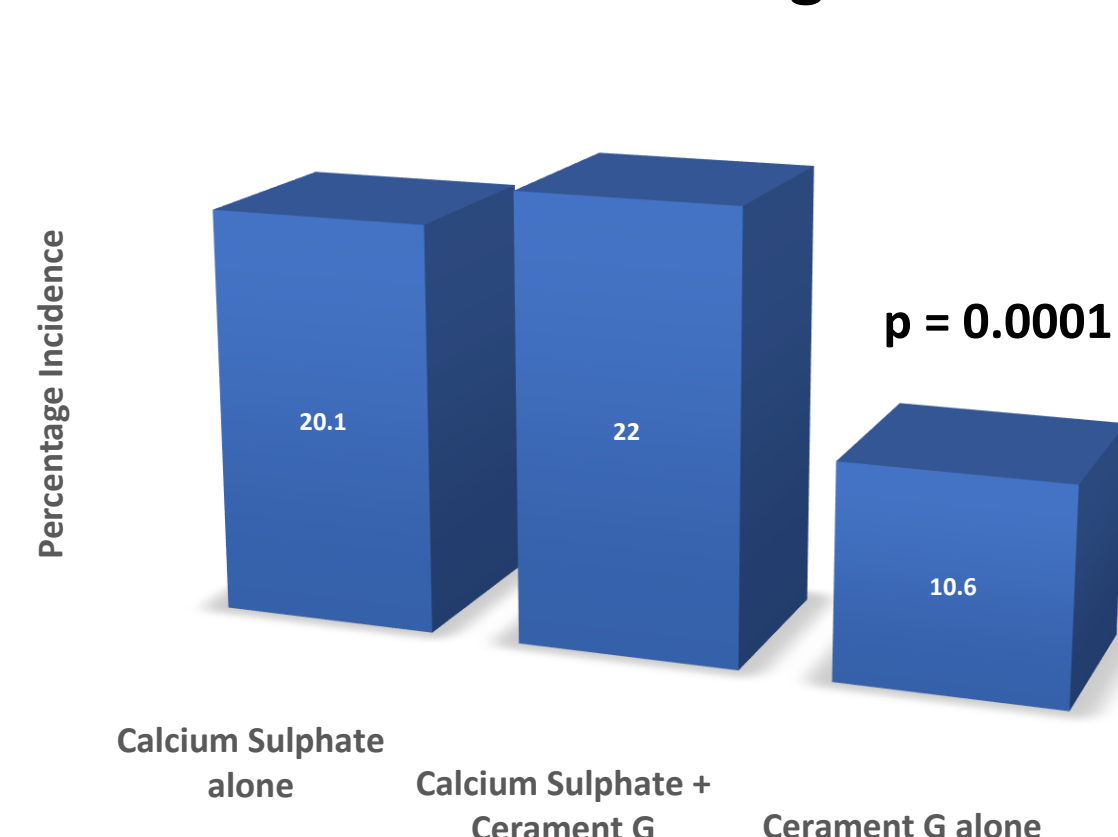
Antibiotic Carrier Type



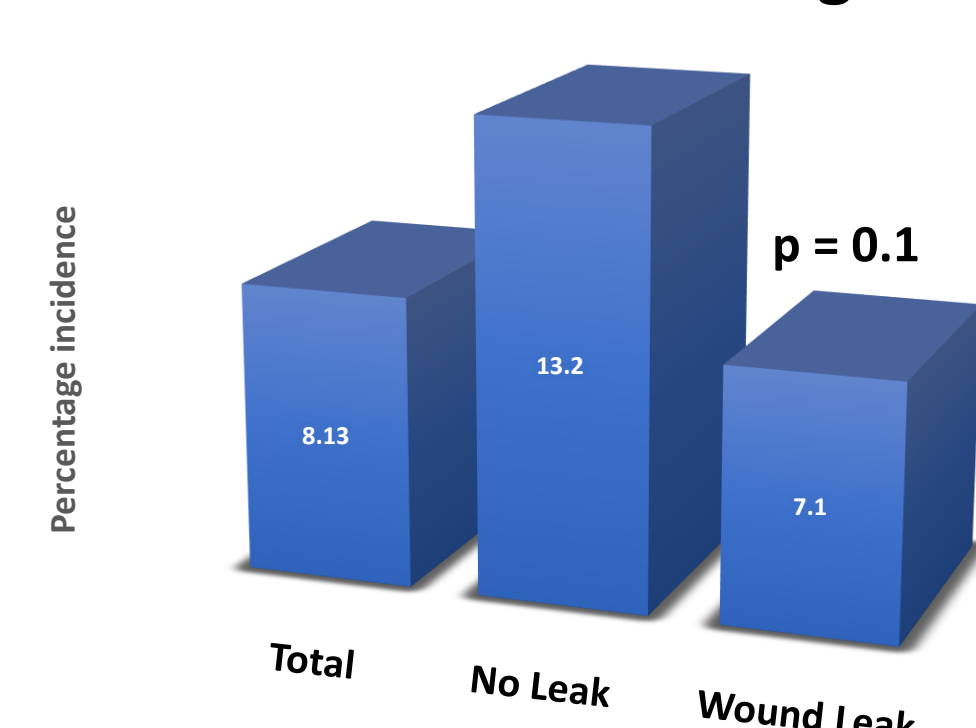
Infection Recurrence at Follow-up (mean 4.5 years; range 1.3-8.3)



Wound Leakage



Recurrence of Infection related to Wound Leakage



Clear fluid leakage from a tibial defect filled with Calcium Sulphate pellets

Wound leakage occurred in 68/418 (16.3%) of patients and was much more common in carriers with a high proportion of Calcium Sulphate. Unplanned surgery for soft-tissue problems was needed in 3.3% of cases and was **not** affected by wound leakage (p=0.163).

Recurrence was **not** significantly increased by a wound leak (p=0.1). 90% of wound leaks resolved without any intervention or recurrence.

Conclusions

- **Wound leakage and Clinical Outcome is dependent on carrier type²**
- **Wound leaks can be safely managed without surgery** in the absence of signs of recurrent infection (pain, warmth, erythema, systemic upset)
- Early wound leakage does **not** increase the risk of infection recurrence

Reference:

[1] Ferguson J, Diefenbeck M, McNally M. Ceramic biocomposites as biodegradable antibiotic carriers in the treatment of bone infections. *J Bone Joint Infect* 2017; 2: 41-54.
[2] Ferguson J, Bourget-Murray J, Hotchen AJ, Stubbs D, McNally M. A comparison of clinical and radiological outcomes between two different biodegradable local antibiotic carriers used in the single stage surgical management of long bone osteomyelitis. *Bone Joint Res* 2023; 12(7): 412-422.