

Antibiotic impregnated methyl methacrylate

A peri-operative bundle, which consisted of peri-operative [vancomycin](#) (4 doses), a barrier dressing through post-operative day (POD) 3, and de-colonization of the surgical incision using topical [chlorhexidine](#) from POD 4 to 7, was associated with reduced [SSI](#) rates and the need for re-do cranioplasties ¹⁾ In short-term follow-up, vancomycin and tobramycin-impregnated polymethyl methacrylate (PMMA) reconstruction appears safe and effective in salvage cranioplasty ²⁾.

Implantation of autologous cryopreserved bone has been associated with infection rates of up to 33%, resulting in considerable patient morbidity ³⁾.

The purpose of a study is to establish the safety and utility of antibiotic-impregnated polymethyl methacrylate (PMMA) for salvage cranioplasty. A prospectively maintained database of all patients who underwent salvage cranioplasty using vancomycin and tobramycin-impregnated methyl methacrylate from January 2011 to July 2013 was reviewed. Vancomycin and tobramycin were mixed in PMMA, which was then applied to a rigidly fixed titanium mesh for reconstruction. Patients' demographics, indications, and outcomes of this technique were evaluated. Nine patients (mean age: 47 years) underwent vancomycin and tobramycin-impregnated PMMA reconstruction with a mean follow-up of 9.3 months (range 3.5-23 months). On average, these patients underwent 4 procedures (range: 1-15), which included repeat craniotomy, debridement for infection, and failed reconstructions over the course of 3.6 years (range: 7 months to 14 years) before salvage cranioplasty. All patients required salvage cranioplasty due to infection, with the most common bacteria isolated in culture being *Propionibacterium acnes* (n = 3), multiresistant coagulase-negative *Staphylococcus* (n = 3), methicillin-resistant *Staphylococcus aureus* (n = 2), and *Enterobacter* (n = 2). The average size of the craniectomy defect was 130 cm², and there were no incidences of postoperative infection, postoperative complications, or need for revisions. To conclude, in short-term follow-up, vancomycin and tobramycin-impregnated PMMA reconstruction appears safe and effective in salvage cranioplasty. Our early report represents a proof of concept—the true test is whether these short-term successes translate to stable long-term results ⁴⁾.

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²⁾ ⁴⁾

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³⁾

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