

ARTICLE IN REVIEW:

Successful treatment of osteomyelitic bone in a pediatric patient using OsteoCleanse®

PUBLICATION: Journal of Craniofacial Surgery, January/February 2021

TITLE: Treatment of Osteomyelitic Bone Following Cranial Vault Reconstruction with Delayed Reimplantation of Sterilized Autologous Bone: A Novel Technique for Cranial Reconstruction in the Pediatric Patient

AUTHORS: Vingan P, Halsey JN, Gagliardo C, Battiato JA, Fried A, Ciminello FS.

STUDY DESIGN: Case Report

SUMMARY: Calvarial reconstruction in pediatric patients can be challenging. In this case, the procedure was further complicated by infection. A 9 month old boy underwent endoscopic suturectomy for the treatment of left lambdoid craniosynostosis, a deformity caused by premature fusion of cranial sutures. Despite compliance with helmet use for several months, the abnormal skull shape could not be corrected. A CT scan revealed reossification of the lambdoid suture. At 14 months old, the patient underwent calvarial remodeling. One day postoperative, the incision began to break down and leak clear fluid which cultured positively for multidrug-resistant *Salmonella enterica* serotype Saintpaul. Due to the continued infection, the infected bone and hardware used for the calvarial remodeling were removed and the patient underwent over one month of antibiotic treatment. Two months later, he also developed an infection of the surgical site which was resolved with antibiotics. The infected bone flap was sent to LifeNet Health for processing with the OsteoCleanse Cleaning System and storage. Five months later, it was reimplanted. One year postoperatively, there were no signs of infection recurrence or bone resorption. This case demonstrates that infected bone can be successfully processed with OsteoCleanse and reimplanted without reinfection or resorption.

Limited grafting options:

The patient underwent his first procedure at 9 months old. At this stage, calvarial reconstruction is challenging due to limited grafting options. Alloplastic options require revisions as the child grows, and autograft availability is limited in children, making its conservation critical.

Complications:

The patient developed an infection with multidrug-resistant *Salmonella enterica* serotype Saintpaul, which also infected the bone. He later developed a *Staphylococcus aureus* infection at the surgical site two months after removal of the infected bone. Both infections were resolved with antibiotics before reimplantation.

Successful reimplantation:

The infected bone flap was processed with the LifeNet Health OsteoCleanse cleaning system and successfully reimplanted 5 months after initial removal. There was no recurrence of infection and no resorption of the bone 1 year later, demonstrating OsteoCleanse can thoroughly clean and disinfect autologous bone.

Autograft cranial bone flap before (left) and after (right) OsteoCleanse.



Note: These are representative images from the OsteoCleanse Brochure¹ and not from this case report.

Reference:

1. Data on file LifeNet Health 68-40-195, OsteoCleanse Brochure

68-20-332.00

LifeNet Health, the LifeNet Health logo, and OsteoCleanse are registered trademarks of LifeNet Health. ©2021 LifeNet Health, Virginia Beach, VA. All rights reserved.

