

AN INTERNAL REVIEW OF THE UTILIZATION OF A CRANIAL BONE BANK AT A TERTIARY CARE CENTER

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BACKGROUND

The Cranial Bone Bank was initiated at Westchester Medical Center in October 2021. We aimed to determine how the bone bank has been utilized since its initiation. This study was conducted as a Quality Improvement Initiative within the Neurosurgery Department.

METHODS

A retrospective chart review was completed under the approval of the Quality Improvement Committee. Demographic and surgical information was collected. The primary endpoint was utilization of the bone bank. Secondary endpoints included microbiology cultures, type of implant used for the cranioplasty, and time to cranioplasty. Logistic regression and Chi-Square tests were used for comparisons of continuous and categorical variables, respectively.

RESULTS

A total of 50 patients who underwent a decompressive hemicraniectomy (DHC) between October 2021 and July 2024 were included. 58% were male and 42% were female. The average age at surgery was 41.6 years. Indications for DHC were: trauma (54%), stroke (20%), intracranial hemorrhage (22%), and infection (4%). Right-sided DHC was more common than left-sided or bilateral craniectomies (n=32 vs 15 vs 3, respectively). The average time to cranioplasty was 111.6 days. Skull flaps were preserved in the bone bank in 35 patients (70%). Thirty specimens were swabbed prior to preservation. Twenty specimens were negative, of which 12 (60%) were used in the subsequent cranioplasty. The remaining ten specimens had positive cultures; nine grew *Propionibacterium acnes*. One was reimplanted into a patient after soaking in betadine and vancomycin-impregnated irrigation. Neither age ($p=0.126$) at the time of DHC or gender ($p=0.383$) were associated with increased rates of positive cultures. Similarly, no difference was seen in incidence rates of positive skull flap cultures based on indications for DHC ($p=0.070$).

CONCLUSIONS

Overall, our results show positive utility of the bone bank. Future goals include conducting cost-savings analysis and comparing complication rates.

