

Autograft Bone Fragments for Use in Skull Reconstruction

The use of autologous bone fragments for skull reconstruction after microvascular decompression is safe and feasible, with few postoperative wound complications and excellent long-term repair results. (Cai, 2022)

One surgeon with a 30-year history of using autograft bone to fill bone defects in microvascular decompressions found patients heal quickly and have less incidence of CSF leaks or wound healing complications versus alternative defect repair techniques. These results are validated by several published studies. The following is his technique:

Autograft Collection

Autograft bone fragments are harvested while performing the osteotomy with a high-speed drill with an autograft bone collection system, Tobra Bone Basket.

Large amounts of irrigation are used while drilling the craniotomy site with an acorn bur. This drilling generates a high volume of small-sized bone particles. The ultra-fine mesh filter within the collection device (Tobra Bone Basket), captures the small particles of bone while allowing irrigation to be suctioned through and evacuated. A solid-state graft compressor in the device is utilized to compress captured bone to produce a high quality autograft output with nice handling characteristics.

Autograft Preparation

Following collection, the autograft bone fragments are removed from Tobra Bone Basket by the surgical technician. This graft typically has a paste-like texture which allows for easy placement onto a sheet of Surgicell Nu-Knit.

Vancomycin powder is placed on top of the autograft bone paste which is now resting on the Surgicell sheet. The Surgicell sheet may be cut slightly with scissors depending on the amount of bone collected and size of the defect.

The Surgicell sheet is then wrapped into a ball-shape securing the autograft bone paste and Vancomycin within the ball. The loose ends of the Surgicell sheet are secured using a double-knotted 2.0 Vicryl suture. The excess suture and Surgicell is cut with scissors.

This autograft "biscuit" is now placed in the basin of Vancomycin powder until implantation.

Autograft Placement

A Duragen sheet is placed within the wound followed by a layer of fibrin sealant. The autograft "biscuit" is then hand molded and placed within the defect. Following placement of the autograft a plate is secured over the defect.

Steps:

1. Collect autograft bone during drilling with autograft bone collector



2. Place collected autograft bone on sheet of Surgicell

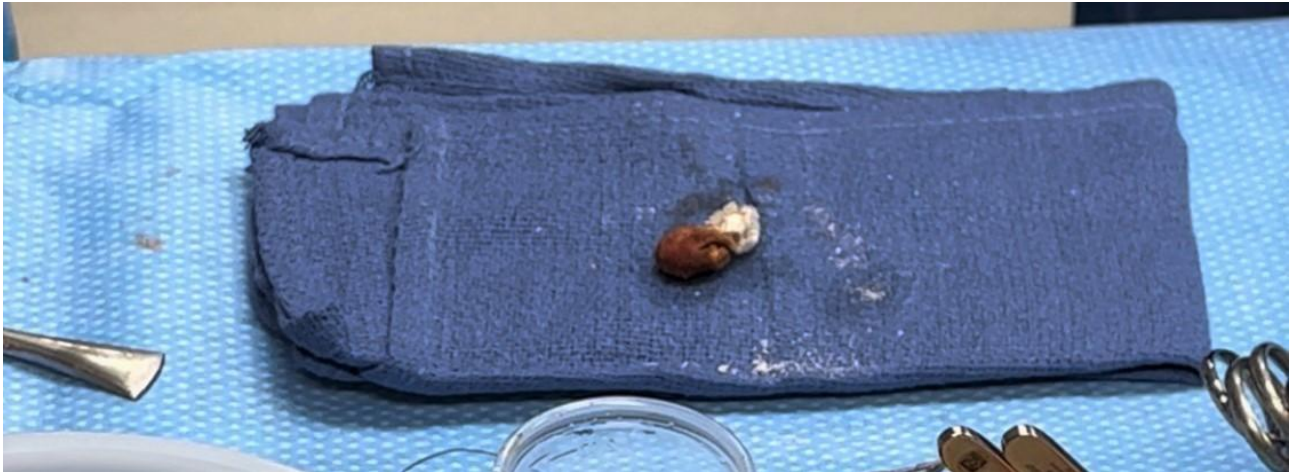


3. Add Vancomycin powder to collected autograft bone



4. The Surgicell sheet is then wrapped into a ball-shape securing the autograft bone paste and Vancomycin within the ball. The loose ends of the Surgicell sheet are secured using a double-knotted 2.0 Vicryl suture. The excess suture and Surgicell is cut with scissors.

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