

An inside look at face transplantation

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Bohdan Pomahac, MD, of BWH Plastic Surgery and director of the BWH Burn Center, entering the operating room at Brigham and Women's Hospital with donor tissue. Photo courtesy of Lightchaser Photography

Bohdan Pomahac, M.D., of Brigham and Women's Hospital, enters the operating room with donor tissue. Credit: Brigham and Women's Hospital/Lightchaser Photography

In March 2011, a surgical team at Brigham and Women's Hospital (BWH) performed the first full face transplantation (FFT) in the United States and went on to complete a total of three FFTs this year. Now, in the first research publication to evaluate FFT in the US, and largest series worldwide, the researchers describe details of patient preparation, novel design and execution of the operation as well as unique immunosuppression protocol allowing for lowest long-term maintenance

drug regimen. They also share details of the early functional outcomes and demonstrate FFT as a viable option in the treatment of severe facial deformities and injuries. This research is published in the *New England Journal of Medicine* in the December 27, 2011 issue.

"Unlike conventional reconstruction, facial transplantation seeks to transform severely deformed features to a near-normal appearance and function that conventional reconstructive plastic surgical techniques cannot match," said lead author Dr. Bohdan Pomahac, Director of the Plastic Surgery Transplantation Program at BWH and lead surgeon in all three FFT procedures. "It truly is a life-giving procedure for these patients."

In an effort to advance the field of face transplantation, Pomahac and colleagues document the novel processes involved in a successful face transplant program from screening candidates to the transplant procedure itself and the follow up management of the recipients.

Researchers describe the rigorous screening and consent process that each patient must pass, which includes evaluation by a team of physicians who determine whether the patient is physically and mentally prepared for the procedure through numerous clinical and psychological evaluations. Once a candidate is approved by the [face transplant](#) team and the Institutional Review Board at BWH, BWH physicians work closely with the New England Organ Bank (NEOB) to identify the criteria for suitable donors and the process for obtaining consent for this unique transplantation.

Next, researchers outline the details of the surgeries with a focus on the multi-disciplinary collaborative efforts of an entire team of clinicians. Surgeons and staff coordinate their tasks while preparing the recipient and simultaneously retrieving the donor tissue within a limited time

frame. The researchers describe the similarities and difference between each procedure, noting the various differences that occurred in the one FFT recipient who also concurrently received a bilateral hand transplant.



Bohdan Pomahac, MD, director of the Plastic Surgery Transplantation program at Brigham, Daniel Alam, MD, Head of the Section of Facial Aesthetic and Reconstructive Surgery in the Head and Neck Institute at Cleveland Clinic, and Julian Pribaz, MD, a surgeon in the Plastic and Reconstructive Surgery Department at Brigham. Photo by Lightchaser Photography.

Pictured are Bohdan Pomahac, M.D., Daniel Alam, M.D., and Julian Pribaz, M.D., during face transplantation surgery performed at Brigham and Women's Hospital. Credit: Brigham and Women's Hospital/Lightchaser Photography

Lastly, researchers explain the care of the recipient post-transplant. Following the surgery, physicians monitor and adjust immunosuppressants (anti-rejection medications) while methodically screening for any signs of organ rejection. The researchers discuss occurrences of single episodes of rejection in two patients, as well as describe other complications following surgery, like occurrence of infection. Pomahac and colleagues discuss how the transplanted tissue transformed and adapted to match the features of the recipient in each case.

"Our focus moving forward continues to be on monitoring and documenting the progress of patients who have undergone FFT, and refining the use of immunosuppressants, with the hope that one day

patients will eventually need to take little or none," said Pomahac. We are also learning how brain reintegrates the new parts, and follow closely motor and sensory return. Important part of the study is also calculation of cost-effectiveness.

Provided by Brigham and Women's Hospital

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