

## FACIAL REANIMATION: GRACILIS MUSCLE TRANSPLANT (FREE FLAP)

Thank you for choosing the Johns Hopkins Facial Plastic and Reconstructive Surgery Center for your upcoming surgery. We want you to have the best and safest experience possible. If you have any questions or concerns, please do not hesitate to contact our office. We look forward to helping you achieve your goals!

### Important Phone Numbers

- **Office/Appointments:** (877) 546-4530 or (410) 464-6713
- **Lou Ellen Michel, R.N.:** (410) 583-7183
- **Evenings/Weekends Emergency:** (410) 955-5000 – *please ask for the ENT resident on-call*

### General Information

- **Chronic Facial Paralysis:** In patients with long-term facial paralysis (more than 1-2 years), the native muscles in the face unfortunately irreversibly lose their function. Therefore, a new muscle must be used in order to restore smile and lower face movement.
- **Gracilis Muscle Transplant (Free Flap):** The gracilis muscle is located in the inner aspect of the thigh. A small portion of this muscle – with its blood supply (artery and vein) and nerve – can be transplanted in the face to replace the facial muscles that allow you to smile.
  - Using highly specialized microsurgical techniques, the gracilis muscle’s artery and vein are attached to an artery and vein in the head/neck region. This connection is critical for the muscle to survive in its new environment in the face.
  - The nerve that moves the gracilis muscle (obturator nerve) must then be attached to a new nerve supply in the face, in order to power the muscle to move.
- **Nerve Options to Power the Gracilis Muscle:** The three most common options are described below. More than one option may be proposed to you based on your goals of care.
- **Contralateral/Normal Facial Nerve via Cross-Facial Nerve Graft:** This usually requires two surgeries, unless in certain circumstances where two nerve options are used.
  - **First Surgery:** A sensory nerve from the lower leg (sural nerve) is removed and attached to a facial nerve branch on the normal side. The other end of this nerve is then tunneled underneath the skin to rest in the paralyzed face. Because this nerve graft crosses the face from the normal side to the paralyzed side, it is called a cross-facial nerve graft.
    - After the first surgery, we typically wait 6 to 9 months for the nerve signal to grow across the nerve graft, from the normal side to the paralyzed side.
  - **Second Surgery:** The cross-facial nerve graft is connected to the nerve that moves the gracilis muscle at the time of the gracilis muscle transfer.
    - **The main advantage** of the cross-facial nerve graft is that it is the only option that allows for a truly spontaneous emotional smile. The **disadvantages** are that it typically requires two surgeries, results in numbness of the 5<sup>th</sup> toe and the side of the foot (sural nerve), and may result in a weaker outcome in older individuals.
- **Masseteric Nerve:** The masseter muscle is one of many muscles that help you chew. One of the branches of the nerve that moves this muscle can be “rerouted” to power the gracilis muscle.
  - **Advantages** are that the masseter nerve is a strong nerve that is easily accessible during surgery. The **disadvantages** are that it requires teeth clenching to smile, necessitating practice and exercise. Fortunately over time, the smile that evolves becomes effortless in the majority of patients. Although there is a theoretical risk of trouble chewing following this surgery, that risk is minimal.
- **Hypoglossal Nerve:** The hypoglossal nerve moves half of the tongue. A portion of this nerve can be “rerouted” to power the gracilis muscle.
  - **Advantages** are that the hypoglossal nerve is a very strong nerve that is fairly accessible. The **disadvantages** are that there is a small risk of tongue weakness (that can result in difficulty speaking and eating) and there is a risk of inadvertent facial twitching when moving the tongue, such as during eating. Practice and exercise are also required to coordinate tongue movement for smile.

- **Reconstruction Goal:** Our goal is your goal: to achieve the best functional and aesthetic outcome possible. It may require more than one procedure to optimize the outcome, but the great news is that well over the majority of our patients are able to achieve the goal of improved symmetry and improved smile.
- **Risks:** All procedures involve a certain amount of risk and limitations. Although the risks of the gracilis muscle transplant are relatively low, it is certainly a major operation.
  - Potential complications from surgery include and are not limited to bleeding, infection, pain, scar, difficulty ambulating (rare for this to be a long-term problem), numbness, failure to improve or worsening in facial weakness/symmetry, and flap failure (<5% chance that the artery and vein connection does not survive).
  - There is also an approximately 20% risk of persistent bulk to the face or not enough movement requiring a minor revision procedure 1 year after surgery.
- **Alternatives:** An alternative option for patients with chronic irreversible facial paralysis who seek to improve lower face symmetry and potentially improve smile is the temporalis tendon transfer. Other options, depending on clinical exam and goals of care, may include no treatment, botulinum toxin, and procedures to improve overall facial symmetry and appearance.

#### **Surgery and General Postoperative Expectations:**

- Surgery is performed at the main hospital and takes an average of 6-8 hours.
- The risk of flap failure is overall, quite low (<5%), but is greatest during the first 72 hours after surgery. Therefore, we monitor the flap every hour for the first 24 hours, every 2 hours for the following 24 hours, and every 4 hours thereafter. Due to the frequency of monitoring, your first 24 hours will be spent in the Intensive Care Unit.
- Most patients are discharged after a 3-4 day stay in the hospital. You may be discharged with the surgical drain in the inner thigh still in place. Taking care of the drain is relatively simple and we will ensure that you are comfortable with it prior to discharge.
- There are stronger muscles in the leg that perform the same function as the gracilis muscle. Therefore, no long-term problems in mobility or ambulation are anticipated as a result of the surgery. The expectation is that you will walk out of the hospital as you walked in.
- After the operation, you will most likely return for a postoperative visit the following week for suture and drain removal.
- There will be quite a bit of facial swelling initially after surgery. The swelling will improve significantly over the first couple of weeks after surgery. However, the face will continue to remain slightly full until the transplanted gracilis muscle begins to move. This fullness is typically not noticeable to others, but will likely be noticeable to you. In up to 20% of patients, a revision procedure is recommended to debulk the flap.
- Most patients return to school or work in 2-3 weeks after surgery. We recommend avoiding strenuous activity (including lifting more than 10 lbs.) for 3 weeks.
- Return of smile function with movement of the transplanted gracilis muscle will take at least several months, and depends on the nerve option(s) chosen. Rest assured, there is nothing you can do to “speed it up,” but to focus on recovery and maintain a positive outlook!

#### **What You Will Need:**

- Prescriptions (given day of surgery)
- Bacitracin and Aquaphor
- Hydrogen peroxide
- Cotton-tipped applicators (Q-tips)
- After sutures are removed: bioCorneum® OR sunscreen (at least SPF 30) + silicone therapy (gel or sheets)

#### **Before Surgery:**

- **Preoperative Evaluation:** It is mandatory that you obtain a preoperative physical within 30 days of your surgery date. This may be arranged with your primary care physician or in the preoperative clinic at Johns Hopkins. Depending on your medical history, you may also need an Anesthesia evaluation prior to surgery.



- **Medications to Avoid:** Please avoid the following medications for a minimum of 2 weeks prior to surgery.
  - Aspirin or aspirin-containing products
  - Non-steroidal anti-inflammatory drugs (NSAIDs), i.e. Ibuprofen, Motrin, Advil, Alleve, Naproxen, etc.
  - Ginkgo biloba, ginseng, vitamin E supplements
- **Nothing to Eat/Drink After Midnight:**
  - You must not eat or drink anything after midnight on the night before your operation.
  - An exception can be made for some essential prescription medications; please consult with your primary care physician and Dr. Byrne.

#### **Day Of Surgery:**

- **Attire:** Please wear loose and comfortable clothing that is easy to take off and put back on. A top with buttons or zipper is recommended. Please do not wear any makeup to surgery.
- **Team:** You will meet the anesthesiologist, nursing staff, as well as surgeon and any of their additional team members (such as the fellow) on the day of your surgery. Please feel free to ask any remaining questions. Let your Anesthesia team know if you have a known history of nausea following surgery.

#### **At Home After Surgery:**

- **Head Elevation:** Keep your head elevated (the height of 2 pillows is appropriate) for 1 week to help with swelling.
- **Shower:** You may start showering in 48 hours after surgery. Daily showers are recommended. Do not let the shower spray hit your incisions directly and do not soak your face or thigh in water. Allow soapy water to run all over the scalp, face, and leg incisions. Towel blot your incisions gently after your shower.
- **Diet:** We recommend that you eat a soft diet for the first week after surgery.
- **Incision Care:** Clean the incisions with soapy water twice daily. Apply aquaphor ointment four times a day. The incisions will heal most optimally if they are kept moist and clean. You can use hydrogen peroxide on Q-tips to gently clean any crusts, if necessary. Do not rub but gently dab the incisions to clean. The face/neck sutures will be removed 1 week after the operation. The sutures placed in the leg will dissolve on their own. After incisions are healed, scars can be optimized with application of sunscreen and silicone gel/sheets.
- **Drain Care:** Instructions will be provided before you leave the hospital. Empty the drain once daily (more often if it gets full) into a measuring cup. Once the output is less than 30 ml in a 24hr period, it is ready to be removed. You will already have an appointment made prior to your discharge.
- **Medications:** Take the medications as prescribed. You can take Tylenol in addition to the narcotic pain medication prescribed. Resume all home medications the night of surgery unless otherwise directed.
- **Activity:** Resume normal activities of daily living, as you feel able. However, avoid strenuous activity and heavy lifting (more than 10 lbs) for 3 weeks after surgery. Light activity such as walking may be resumed after 1 week after surgery. Sport activities may be resumed 1 month after surgery.
- **Seek Medical Attention:** Call the office or seek medical attention if you develop fever greater than 101 degrees, a painful area of fullness and bruising, excessive pain that is not well-controlled, drainage, skin rash, visual disturbances, or other unusual symptoms.

#### **Follow-Up Care:**

- **First Appointment:** You will return one week after surgery for suture removal and drain removal. This appointment may be with the nurse, fellow, or surgeon, and will be scheduled prior to surgery.
- **Additional Appointments:** Ideally, we would like to see you about 4-6 weeks after surgery to examine the healing. This visit will either be with the surgeon or Fellow. After this, the follow-up is quite variable, and depends on how you are doing and feeling. Often, this means visits at about 4-6 months and 12 months after surgery to follow your healing process. Please call the office at any time if you have any questions or concerns and would like to be seen sooner than your next scheduled visit.