

ALVEOLAR BONE GRAFT

AT CHILDREN'S HOSPITAL OF PITTSBURGH OF UPMC, we believe parents and guardians can contribute to the success of this surgery and invite you to participate. Please read the following information to learn about the surgery and how you can help.

Fast Facts About Alveolar Bone Graft

- An alveolar bone graft is a surgery to add bone to the gum ridge in a child who was born with both a cleft lip and a cleft palate.
- The alveolar bone graft is done several years after the child's first cleft lip and cleft palate repairs.
- The timing of the alveolar bone graft is very important because it must be done as the child begins losing his or her baby teeth, before the permanent teeth come in.
- Because every child is different, the best age at which to do the alveolar bone graft will be different for every child. Most children who have an alveolar bone graft are between the ages of 7 and 9 years old.
- Your child's alveolar bone graft surgery will be done under general anesthesia, which means that he or she will be sound asleep during the surgery and will have no memory of it.
- When general anesthesia is needed, there are important rules for eating and drinking that must be followed in the hours before the surgery.
- This surgery usually takes between 2 to 6 hours, depending on the type and size of graft your child needs.
- Your child will stay overnight for at least 1 day after the surgery.

What Is An Alveolar Bone Graft?

Some children who are born with both a cleft lip and a cleft palate also have a problem with the alveolar (*al-vee-OLE-ar*) bone, which makes up the gum ridge or front portion of the roof of the mouth. The alveolar bone is a thin layer of bone that forms the sockets around the roots of the upper teeth under the gum tissue.

When there is a cleft in the alveolar bone, it means there is a fistula (*FIST-yoo-la*) or hole from the mouth to the nose. This cleft in the bone and gums prevents teeth from growing properly and the floor of the nose from developing normally. Fixing the cleft to allow for proper tooth development is important to a child's health because missing teeth can have a negative effect on eating, digestion, facial growth and appearance. In addition, a child's smile is an important part of his or her personality, and missing or poorly aligned teeth can have a huge negative impact on a child's self-esteem.



The alveolar bone graft repairs the hole in the gum ridge and stabilizes the bone arch, providing better support for the base of the nose and new bone for the roots of the developing teeth to grow into. The surgery usually is done when the child's permanent canine teeth are three-quarters formed.

To do the bone graft, a piece of bone usually will be taken from your child's iliac (*ILL-ee-ack*) crest, the upper ridge of the hip bone. The doctor will make a 1- to 3-inch incision (*in-SIZZ-yun*) or cut in the skin just over the hip bone and in the bone itself to remove the inner portion of the bone. This part of the bone, called cancellous (*CAN-sell-us*) bone, is soft and pasty and can be shaped to form the patch that will close the hole in the alveolar bone. Gum tissue inside your child's mouth then will be closed around the bone and sutures (*SOO-chers*) or stitches will hold the tissue in place as it heals.

Home Preparation

When general anesthesia is needed, there are important rules for eating and drinking that must be followed in the hours before the surgery. One business day before your child's surgery, you will receive a phone call from a nurse between the hours of 1 and 9 p.m. (Nurses do not make these calls on weekends or holidays.) Please have paper and a pen ready to write down these important instructions. **If these instructions are not followed exactly, it is likely your child's surgery will be cancelled.**

- The nurse will give you specific eating and drinking instructions for your child based on your child's age. Following are

ALVEOLAR BONE GRAFT *cont'd*

the **usual** instructions given for eating and drinking. No matter what age your child is, you should follow the specific instructions given to you on the phone by the nurse.

- After midnight the night before the surgery, do not give any solid food or non-clear liquids. That includes milk, juices with pulp, and chewing gum or candy.
- Up to 2 hours before the **scheduled arrival time**, give only clear liquids. Clear liquids include water, Pedialyte®, Kool-Aid® and juices you can see through, such as apple or white grape juice.
- In the 2 hours before the **scheduled arrival time**, give nothing to eat or drink.
- You may bring along a “comfort” item—such as a favorite stuffed animal or “blankie”—for your child to hold during the surgery.
- You should bring a long-sleeve T-shirt, slightly larger than your child’s usual size, to the hospital on the day of surgery. It will help make your child more comfortable on the day you take your child home from the hospital.

The Surgery

Your child’s alveolar bone graft will be done at the Same Day Surgery Center of Children’s Hospital of Pittsburgh of UPMC. When you have checked in at the Same Day Surgery Center, you and your child will be called to an examination room where your child’s health history will be taken and vital signs will be checked.

You will meet with one of the doctors on your child’s surgical team to go over the surgery. He or she will answer any last-minute questions you might have at this time. A member of the anesthesia staff also will meet with you and your child to review his or her medical information and decide which kind of sleep medication he or she should get. As the parent or legal guardian, you will be asked to sign a consent form before the anesthesia is given.

When it is time for your child to go the operating room, you will be asked to wait in the surgical family waiting area.

- If your child is very scared or upset, the doctor may give a special medication to help him or her relax. This medication is flavored and takes effect in 10 to 15 minutes.
- If relaxation medicine is needed, you may stay with your child as he or she becomes drowsy; you will be asked to wait in the surgical waiting area when your child is ready to move to the operating room.
- Young children get their sleep medication through a “space mask” that will carry air mixed with medication. Your child may choose a favorite scent to flavor the air flowing through the mask. There are no shots or needles used while your child is still awake.

- Once your child is asleep, an intravenous (*in-tra-VEE-nuss*) or IV line will be inserted into a vein in your child’s arm or leg so that medication can be given to keep him or her sleeping throughout the surgery. Your child will have no pain during the surgery and no memory of it afterward.

A Parent’s/Guardian’s Role

The most important role of a parent or guardian is to help your child stay calm and relaxed before the surgery. The best way to help your child stay calm is for you to stay calm.

During the surgery, at least one parent or guardian should remain in the surgical family waiting area at all times, in case the family needs to be reached.

While Asleep

While your child is asleep, his or her heart rate, blood pressure, temperature and blood oxygen level will be checked continuously. To keep your child asleep during the surgery, he or she may be given anesthesia medication by mask, through the IV or both. When the surgery is over, the medications will be stopped and your child will begin to wake up.

Waking Up

When your child is moved to the recovery room, you will be called so that you can be there as he or she wakes up.

- Your child will need to stay in the recovery room to be watched until he or she is alert and vital signs are stable. The length of time your child will spend in the recovery room will vary because some children take longer than others to wake up after anesthesia.
- Your child will still have the IV in. A nurse will remove it before your child leaves the hospital, when he or she drinking well.
- Your child may have a set of padded arm restraints called “no-no’s” placed on his or her arms to prevent them from bending at the elbow. These no-no’s will need to stay in place for 2 weeks as the surgical scar heals.
- Children coming out of anesthesia may react in different ways. Your child may cry, be fussy or confused, feel sick to his or her stomach, or vomit. These reactions are normal and will go away as the anesthesia wears off.
- Your child will have sutures (stitches) in the roof of his or her mouth. These sutures are all “dissolvable,” meaning that they do not need to be removed. As the skin inside the mouth heals, the parts of the sutures under the skin will dissolve on their own, and the parts you can see on the outside of the skin will melt away in the normal course of eating and drinking over the next 2 weeks.
- Your child also will have sutures on his or her hip where bone for the graft was taken out. These sutures also are



ALVEOLAR BONE GRAFT cont'd

dissolvable. The parts of the sutures under the skin will dissolve on their own, and the parts you can see on the outside of the skin will dry up and fall off. The sutures on the hip may be covered by a gauze dressing.

- Some children may receive a special kind of retainer called a “splint” to keep the teeth stable as the bone graft heals. If your child gets a splint, it may be the kind that pops in and out of the mouth or the kind that is glued into the mouth, depending on your child’s surgery. The glued-in splints usually are taken out about 2 to 4 weeks after surgery by an orthodontist.
- Your child may have a small tube called a “drain” inserted into the incision on the hip to allow fluids to empty out from the site where the bone was taken out. This drain will be taken out when your child is ready to go home from the hospital, or at your first follow-up appointment.
- Your child may complain of a dull ache at the site of the hip incision. This ache is normal and can be controlled with pain medication.
- Your child can be given pain medication every 4 to 6 hours, as needed, when he or she wakes up.
- When your child is alert, he or she will be moved to a hospital room so the nursing staff can continue his or her care. If you need help, the nurse will show you how to feed your child and clean his or her scar so that you will become comfortable caring for your child at home.

Going Home

After the surgery, and for the weeks afterward at home, your child will only be allowed to drink liquids or semi-liquids from a cup. No utensils or straws should be used until your child’s surgeon says it is OK.

- Within the first 24 hours after the surgery, while your child is still in the hospital, he or she will be allowed to drink clear liquids from a bottle or cup.
- Your child will stay in the hospital until he or she is drinking well and urinating normally.
- When your child is drinking well, the IV will be removed by a nurse before you leave the hospital.
- Some children will need to stay for more than 1 day if they are not drinking and urinating normally, or if their parents need extra time to learn how to care for them.
- Your child may be given Tylenol® with Codeine prescription medication for pain relief when he or she leaves the hospital. Over-the-counter Motrin® can be combined with the Tylenol with Codeine if your child is still having pain, but most children only need over-the-counter Tylenol once they get home. **DO NOT give your child any over-the-counter Tylenol while he or she is still on Tylenol with Codeine.**
- Your child may be given an antibiotic to take for the first couple of weeks after surgery.



- As soon as you get home, you should call to make an appointment for your child to be checked 1 week after surgery.

At-Home Care

A complete list of instructions for taking care of your child at home will be given to you before you leave the hospital. The main things to remember are:

- If you notice any of the following changes in your child, **call the surgeon right away:**
 - Fever higher than 101.4°F
 - Trouble breathing or skin color changes (pale, blue or gray)
 - Bleeding or foul-smelling drainage from the scar
 - Signs of dehydration, including lack of energy, sunken eyes, dry mouth or not urinating enough/fewer wet diapers
 - Any redness, swelling, or any in-and-out movement of the nasal retainer
- Your child can drink any kind of liquid once he or she gets home. Your child may also eat any kind of food that can be watered down and poured from a cup or bottle, including yogurt (such as Go-GURT®), pudding, milkshakes, or anything that you can grind in a blender to be as smooth as baby food. Remember, though—**no utensils or straws!**
- A nurse will give you a special mouth rinse called Peridex®. You will receive specific written instructions on how often your child should use the mouth rinse when he or she is discharged.
- After drinking any milk products, have your child drink clear water to wash out the mouth and prevent the buildup of milk along the incision.
 - Your child will be allowed to shower once he or she goes home. Usually there is a clear plastic dressing glued onto the hip incision—leave this water-tight barrier in place and your child may shower regularly.
 - When your child’s mouth has fully healed, usually about 6 weeks after surgery, he or she will be ready to resume orthodontic treatment to prepare for his or her permanent teeth to come in. Once the canine teeth have come in, the orthodontist can put on braces to guide the teeth into their proper position.
 - Your child should not participate in any strenuous physical activity for 1 week after surgery. Your child’s doctor will tell you when your child may resume contact sports, usually 4 to 6 weeks after surgery.

ALVEOLAR BONE GRAFT cont'd

Special Needs

If your child has any special needs or health issues you feel the doctor needs to know about, or if you have any questions, please call 412-692-8650 *before* the surgery and ask to speak with the nurse practitioner or cleft clinic coordinator. It is important to notify us *in advance* about any special needs your child might have.

To contact your child's surgeon, call 412-692-7949. If you are unable to reach the surgeon, or it is after hours, call the Children's Hospital operator at 412-692-5325 and ask to page the doctor who is on-call for your child's surgeon.

Cleft-Craniofacial Center
Division of Pediatric Plastic Surgery
Children's Hospital of Pittsburgh of UPMC
One Children's Hospital Drive
4401 Penn Ave.
Pittsburgh, PA 15224
412-692-7949



To see the list of all available patient procedures descriptions, please visit www.chp.edu/procedures.