



# Alveolar bone grafts

**This leaflet explains about alveolar bone grafts and what to expect when your child comes to Great Ormond Street Hospital (GOSH) to have one.**

## What is an alveolar bone graft?

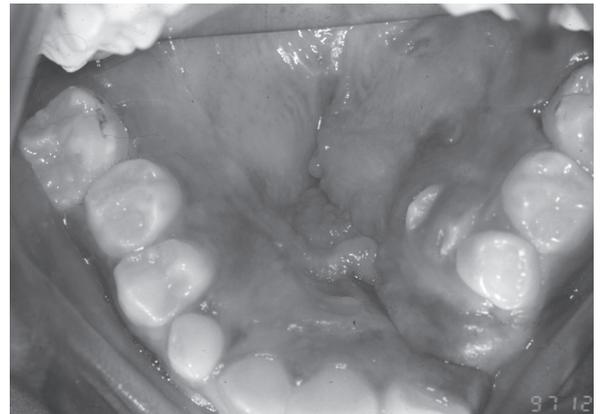
The alveolus is the part of the bone that holds our teeth. The alveolus is made of alveolar bone. Some people with a cleft lip and palate can also have a cleft defect of the alveolus, where there is a gap in the alveolar bone. They sometimes also have a hole in the roof of their mouth which connects with their nose. This hole is called a fistula.

A bone graft is when bone is taken from elsewhere and placed in an area where there is not enough bone. An alveolar bone graft is an operation done under general anaesthetic. The aim is to fill the gap in the cleft of the alveolus with bone from elsewhere. The alveolar bone graft can also help to close a fistula, if there is one.

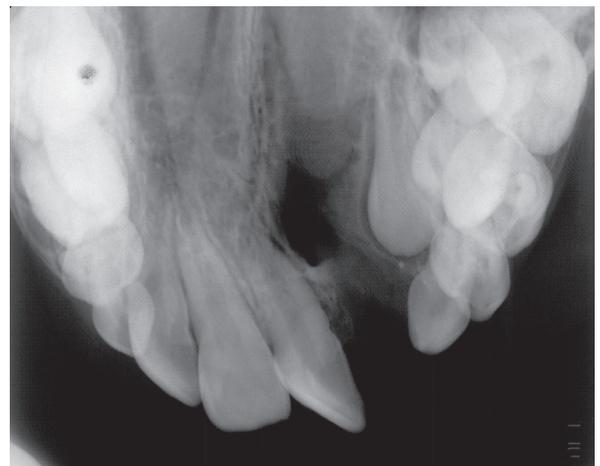
## Why might my child need one?

Teeth develop inside the jaw and break through the gums (erupt) when they are nearly fully developed. Teeth need to be surrounded by bone to erupt. If a child has a cleft of the alveolus, where there is a gap in the bone, the teeth near it may erupt in the wrong place or may not erupt at all. Sometimes, the teeth near a cleft may be absent, have an unusual shape or there can be extra teeth.

An alveolar bone graft fills the cleft of the alveolus with bone, aiming to help the teeth to erupt. However, teeth do not always erupt into the right position. Your child may need a brace at a later stage to move the teeth into a better position and to straighten the teeth.



*Photograph of an alveolar cleft*



*X-ray of alveolar cleft*

If there are other abnormalities of the teeth, your child may also need other dental work. For example, missing teeth may be replaced, unusually shaped teeth may be reshaped and extra teeth may be removed. There can sometimes be impacted teeth, which need to be uncovered from underneath the gum.

If your child has a fistula, food and fluid can leak into their nose from the mouth. The alveolar bone graft aims to seal the fistula to stop this from happening.

Air can also leak through the fistula, which can make your child's speech sound nasal. The graft can also reduce the amount of air leakage, which can improve your child's speech.



## When might my child need the operation?

The operation is normally done when your child is between 8 and 10 years old. However, it mainly depends on how quickly your child's teeth are developing. Radiograph pictures (x-rays) are used to work this out, so that the operation can be timed appropriately.

## Preparing for the alveolar bone graft

Some children may need a short period of orthodontic treatment, using fixed or removable braces before the operation. This takes six months to one year. The brace-treatment aims to improve the position of the teeth and improve the shape of the cleft, to help make the alveolar bone graft operation more straightforward.

Other children may need some baby teeth that are in the way of the operation removed beforehand, so that the gum is fully healed by the time of the operation. If your child has a bilateral cleft then the operation may need to be done on both sides and often this will require two procedures undertaken three to six months apart.



*X-ray of the filled cleft (arrow)*

## What happens before the operation?

Your child will need to come to the hospital about one week before the operation for a pre-admission check. For more information, please see our booklet *Getting your child ready for a procedure with a general anaesthetic*.

At this time, you will have the opportunity to discuss the operation again and raise any concerns or ask questions you may have. We will ask you to give your permission for the operation and sign a consent form. We may also ask for some blood samples to check that your child is well before the operation. If your child has any other medical problems, like allergies, please tell us. You will be able to discuss the anaesthetic with pre-assessment nurse.

## On admission day

You will need to arrive early on the ward. If this is difficult, we may be able to arrange for you and your child to stay in the patient hotel the night before, depending on where you live. At the pre-admission appointment, the nurses will explain about fasting times for the operation.

It is important that your child does not eat or drink anything for a few hours before the sedation or anaesthetic. This is called 'fasting' or 'nil by mouth'. Fasting reduces the risk of stomach contents entering the lungs during and after the procedure.

You will be informed the night before the procedure of the time that your child should be 'nil by mouth' – in other words, have nothing to eat or drink before the anaesthetic. Fasting times are provided in your admissions letter - in broad terms, this is six hours for food (including milk), four hours for breast feeding and two hours for clear fluids before the procedure.

It is equally important to keep giving your child food and drink until those times to ensure they remain well-hydrated and get adequate nutrition. This may involve waking your child in the night to give them a drink which we recommend.



## What does the operation involve?

The operation is in two parts. First, bone is taken usually from your child's hip to put into the cleft. The surgeon will make a small cut in the skin and muscle over the hip bone. The surgeon will then remove a small piece of bone from the hip and the cut in the muscle and the skin is then sewn closed with dissolvable stitches. During the operation local anaesthetic is injected to the region, and a dressing is put on top of the skin. After a few weeks, the bone that was removed will have regrown. There may sometimes be a small dent where the bone was taken.

The second part of the operation is to repair the cleft of the alveolus. The surgeon will uncover the cleft by making a cut in the gum. They will then put the bone from the hip into the cleft. The fistula will be sewn closed and the surgeon will finish by sewing the gum over the bone graft to close it, ensuring that the region is water-tight. The sewing is done using dissolvable stitches.

## Are there any risks?

Any surgery carries a small risk of infection or bleeding. Every anaesthetic also carries a risk, but this is very small. Your child's anaesthetist is an experienced doctor who is trained to deal with any complications. The surgeon and anaesthetist will discuss potential risks with you before the operation. Your child may have a headache, a sore throat or feel dizzy afterwards. These side effects are usually short-lived and not severe.

There is a chance that the graft might fail, or only partially 'take' in which case it would need to be repeated. This is often due to poor tooth brushing before and after the operation. To reduce the chance of the bone graft failing, your child might need to see our dental hygienist before and/or after the operation. Bone grafts are sometimes damaged through trauma or by being knocked so we advise your child to be very careful for the first couple of weeks after the operation.

Occasionally, the fistula can reopen. If this happens the fistula would need to be repaired in a second operation.

When harvesting bone from the hip, there is a small risk of damaging a nerve which supplies sensation to the side of the thigh. This is a very low risk, and if it does occur it is usually temporary in nature.

## What happens afterwards?

Your child will be moved back to the ward when they have woken up from the anaesthetic. It is possible that they may still feel a bit sleepy. Most children go home after staying overnight on the ward. Your child will need to stay on a soft diet for a couple of weeks to make sure that the alveolar bonegraft heals well. They should avoid food with sharp bits, like crisps and peanuts.

As there is a chance of infection, your child will need a course of antibiotics after the operation. These will start in hospital but you should make sure they continue the complete course at home.

Local anaesthetic will be used in the mouth and hip area during the operation. Part of their mouth and hip area may be numb when they wake up. Your child's mouth may be a bit sore after the operation. They will have been given pain-relieving medications during the operation. Your child will need to have regular pain relief for at least three days, so make sure you have some ready at home. As well as the medicines, distracting your child by playing games, watching TV or reading together can also help to keep your child's mind off the pain.

After the operation, children are normally able to walk after a few hours, the hip maybe sore for a few days after the procedure and you may need to give simple painkillers. The operation site will be covered with a water-proof dressing, which should stay in place until your child's review appointment about ten days after the operation. If the dressing can be removed earlier, your surgeon will advise you of this.



Your child can have a shower, but should avoid having a bath or swimming until the review appointment.

Your child will need to avoid sports and physical exercise for the first two to four weeks to allow for the initial phases of healing, however, each child is different and the surgeon will advise you when certain activities are safe to be undertaken.

The stitches inside your child's mouth dissolve and usually fall out by themselves a few weeks after the operation. It is very important that your child's mouth is very clean after the operation. They should use a toothbrush and mouthwash after every meal. Your child may need help with toothbrushing. If your child's mouth and teeth are not very clean, the bone graft can fail and may need to be repeated. For a short while after the operation, discomfort and stitches can make it harder to clean the mouth properly with just a toothbrush. We will give you an antiseptic mouthwash to use at home twice a day. After meals a warm salt-water mouthwash can also be used, which will help with healing.

## When you get home

You should call the ward if:

- Your child is in pain and pain relief does not seem to help.
- Your child shows any signs of infection in the hip area or the mouth is red, sore or oozing.
- Your child has a high temperature and paracetamol does not bring it down.
- Your child is not eating or drinking.

## Check ups

Your child will need to come back to the Maxillofacial Department 10 days after the operation. Your child will need an x-ray picture six months after the operation. This will show whether the graft has been a success, as well as helping to decide when to start orthodontic treatment. Usually no treatment is needed for some time (about two years) after grafting, as the adult teeth are left to grow for a while without interfering. The orthodontist will then plan and discuss brace treatment with you as the adult teeth erupt into the graft.

**If you have any questions, please call the Maxillofacial department on 020 7829 8614 (Monday to Friday 9am to 5pm). Out of hours, please telephone University College Hospital London (UCLH) on 0845 155 5000 and ask to speak to the Maxillofacial surgery doctor on call.**

Compiled by the Maxillofacial department and Peter Pan Ward at GOSH and the North Thames Cleft Lip and Palate Centre in collaboration with the Child and Family Information Group  
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