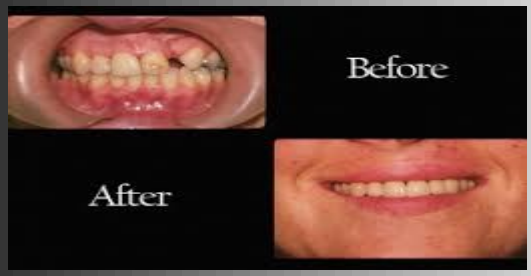


Surgical procedure:

The surgery will involve two procedures which will be done on the same day:

- Harvesting of the bone graft from the identified donor site, which is usually the hip (anterior iliac crest). This procedure would not be necessary if synthetic bone graft is deemed suitable for the case. The surgical team will explain this further.

- Preparation of the alveolar/gum cleft area in order to create a pocket to fill the bone graft in. (Recipient site)

i. The anterior iliac crest donor site (if other donor site is selected, the surgical team will inform you further)

An approximately 3-6 cm (dependent on age and size of the hip) straight incision will be made on the skin just below the crest/upper rim of the hip bone. Once bone is reached, a 1cm deep cut will be made into the bone to reach for the marrow. Approximately 3 cc of marrow will be scooped out. Then the bony crest will be repositioned and wound sutured in layers.

ii. The gum/alveolar cleft site

A cut along the cleft and gum margin will be made, a pocket is created by suturing the floor of the nose above and the palate behind. The bone graft is then placed into the pocket and the gum is sutured over it.

Commonly asked questions

How long will my child have to stay in the hospital?

- Most patients can be discharged from the hospital the day after the surgery if there are no bleeding or fever, able to walk and able to feed well.
- Long distance patients are advised to stay in nearby hotels or the hospital's lodging facilities for ease of review, up to the time for stitch removal of the hip wound. The stitches in the mouth may be left to drop on its own.

How long will my child need to eat soft diet?

Patients are encouraged to continue soft diet for one week and can slowly switch to normal diet after that.

How long will my child need to stay off school and physical activities?

One week of medical leave will be given and all strenuous physical activities should best be avoided for at least 2 weeks.

Can the child be allowed to brush his/her teeth after the surgery?

Yes. Normal brushing routine must continue but with care and gentle at the surgical area. Use small children toothbrush. Rinsing with nomal saline is also recommended. It is very important to take good extra care of oral hygiene post surgery to prevent wound contamination and infection.

How do we know if the surgery is successful?

The bone grafting is considered successful if there is sufficient amount of bone in the cleft site, evident on radiograph at 6 months after surgery.

Successful bone grafting will seal off the mouth from the nose, enable tooth eruption at the previous cleft site, enable orthodontic tooth movement and provide adequate support to level up the base of nose

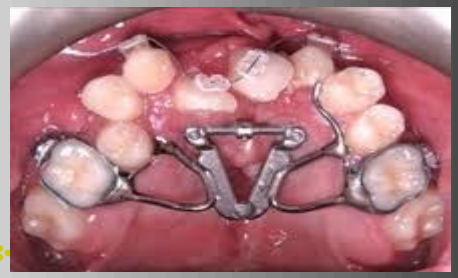
If bone is still deficient, a repeat bone grafting may be done after 6 months form the previous surgery.

Useful contact number

Oral and Maxillofacial Surgery Clinic

03-79674838

ALVEOLAR BONE GRAFTING IN CLEFT LIP AND PALATE



Alveolar bone graft is a procedure done to add bone at the alveolar or gum cleft. It is commonly performed between 9-11 years old, to facilitate the eruption of the permanent upper canine on the cleft side. In order to determine the right time for bone grafting, a clinical and radiographic examination needs to be performed. Sometimes an intervention by the orthodontist is required about 6 months before the surgery can be conducted. Therefore, it is important that cleft lip and palate patients remain under annual follow up with the cleft team, in order to not miss the suitable timing of bone grafting.

If a patient misses the ideal time of alveolar bone grafting, (ie. after 11 years old) there may still be indications to undergo the surgery as the bone may be needed for purposes other than tooth eruption.

Quite frequently, additional bone grafting is required (repeat bone graft) if the amount of bone is deemed insufficient for orthodontic tooth movement, implant placement, base of nose support prior to nose reconstruction and provision of a continuous upper dental arch.

Advantages of the surgery

A. Provides a continuous gum and underlying bone

B. Allow eruption of permanent teeth into the cleft area particularly canine

C. Allow orthodontic tooth movement during tooth alignment

D. Provide a seal between the nasal and oral cavity hence preventing food or drinks entering the nasal cavity

E. Provide adequate bone for future dental rehabilitation particularly for prosthodontic treatment such as dental implant

F. Provide support to the base of the nose to improve symmetry and allow subsequent nose reconstruction surgery if indicated in the future.

Main risks of surgery (other than anaesthetic risks which shall be explained by the attending anaesthetist)

To the recipient site:

A. Wound dehiscence, exposure of bone graft and infection resulting in partial or complete loss of graft

B. Failure of tooth (canine) to erupt into the cleft are

C. Bleeding in the nose and mouth

To the donor site (hip)

- Bleeding
- Infection
- Hypertrophic or keloid scar
- Irregularities of the bone (can be felt with palpation without any functional problems)
- Nerve injury including numbness and discomfort of the skin overlying the affected hip
- Temporary limp when walking

Other options if surgery is declined

There are no other options to enable the eruption of the permanent canine in the cleft gum if the gap remains or there is insufficient bone.

For adults, dentures can be considered to cover the cleft site and replace the missing tooth.

Orthodontic treatment outcome may be compromised.

Before the surgery

1. Pre-admission clinic procedures

Standard radiograph indicated: anterior occlusal 60^{o} to cleft side and dental panoramic view. Additional radiograph might be indicated in special cases. This will provide a baseline record on the availability of bone at the cleft area as well as identifying the teeth present. Alternatively, CBCT would give a comprehensive 3D assessment of surgical site with the advantage of lesser radiation exposure.

A. Patients with preexisting significant medical issues i.e cardiac, respiratory etc will need assessment from the respective paediatric medical specialties to ensure safe anaesthesia and surgery. Occasionally, patients may require early admission for thorough investigation and assessment.

B. Anaesthetist assessment at least 2 weeks prior to the scheduled surgery.

Preparing for admission

- Advices prior to admission

Patient must be healthy. Please call the clinic if the patient has an active cough, runny nose or fever within 2 weeks prior to the scheduled surgery

- Patients are required to come for admission one day before date of surgery. Earlier admission may be necessary if special investigations need to be performed.

- Standard investigation indicated in a healthy patient is full blood count

Operation

1 Anesthesia: refer anesthesia leaflet

2. Children will be accompanied by one parent into the operation Theatre

3. Mum/dad/family members may wait at the waiting area while surgery is ongoing

4. When surgery is over and child has been brought to the recovery bay, either mum or dad will be asked to accompany the child.

After the operation

Expect some discomfort over the surgical wound and in the throat resulting from the breathing tube that was inserted during the surgery. To overcome the discomfort, pain-killer will be given as I structed by the doctors. The upper lip will be swollen and uncomfortable to stretch open. This will get better after three days. Some discomfort over the hip is expected but this is usually tolerable.

A. Care on the ward:

- Wound in the upper lip and gum are cleaned with cotton tips and saline, while upper teeth are wiped with cotton balls soaked in mouthwash since it is difficult to brush teeth
- Wound on the hip will have a thick dressing over it to apply pressure for 24 hours that will help arrest residual bleeding. A lighter dressing will be placed the following day.
- Patients are encouraged to walk to the toilet accompanied. If this is not possible, bedpan will be provided. A slight limp when walking is to be expected, this should get better over time.
- Patients are allowed to take soft diet with minimal sediment such as soup, puree, milk, fruit juices, soft ice creams and puddings to minimize contamination of the surgical site by food debris. Cool dessert soothes the throat and cools down the mouth, hence reduces bleeding.

B Home advice

Hip wound care

- clean wound with wet cotton tip, then dab dry with clean cotton before applying a thin layer of antibiotic ointment
- wound may be lightly covered with gauze and plaster to avoid rubbing against clothing
- application of scar reducing ointment and scar massaging with oil at the hip wound are allowed after one week

Wound in mouth

- use cotton tip soaked in antiseptic mouthwash to gently clean over wound and surrounding teeth in the affected area
- use a small children toothbrush and normal tooth paste to gently clean teeth in the lower jaw and other unaffected areas in the upper jaw

Medication: pain killer and antibiotic to be completed for 5 days

Diet – continue soft diet and semi solid for one week.

Complications to watch out for at home

- Bleeding
- Signs of infection i.e. redness, swelling, pain/discomfort and purulent discharge after day 3 of surgery
- Review appointment is given at 1 week post surgery