

Alveolar Bone Grafting (ABG) Surgery in Children with a Cleft Lip and Cleft Palate

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Description

Some children with a cleft lip and cleft palate have an issue with the alveolar bone, which forms the gum ridge or front portion of the mouth roof. The alveolar bone is a thin layer of bone beneath the gum tissue that forms sockets around the roots of the upper teeth. There will be a fistula or hole from the mouth to the nose when there is a split in the alveolar bone. Teeth do not grow properly and the nose does not develop normally because of this fistula in the bone and gums. Missing teeth can affect eating, digestion, facial growth, and appearance, so repairing the cleft to allow for proper tooth development is important to a child's health. A child's smile is also a vital element of his or her personality, and missing or misaligned teeth can have a significant negative impact on a child's self-esteem. The alveolar bone repairs the hole in the gum ridge and stabilises the bone arch, giving the base of the nose more support and new bone for the roots of the developing teeth to grow into. An alveolar bone graft is a procedure that involves the addition of bone to the gum ridge. After the child's first cleft lip and cleft palate repairs, an alveolar bone graft is performed. Although it is made primarily of compact bone, the alveolar process is also known as the cribriform plate because it contains several holes through which volkmann canals pass from the alveolar bone and into the PDL.

Because of the Sharpey fibres, the alveolar bone proper is also known as the bundle bone. Your child's developing teeth will be evaluated using a Cone Beam Computed Tomography (CBCT) scan. Depending on the child's oral development, grafting is frequently done between the ages of 6 and 10. Before alveolar bone grafting, some baby teeth may need to be removed, and some children may also require palatal expansion, or the broadening of the upper jaw. The thick ridge of bone that comprises the tooth sockets is known as the alveolar process, sometimes known as the alveolar bone. The alveolar bone is found on the jaw bones, which are responsible for holding the teeth in place. The maxilla and mandible are

the bones that contain the teeth in humans. The alveolar arch is the curving section of each alveolar process on the jaw. The timing of the alveolar bone graft is critical because it must be performed as soon as the child's baby teeth begin to fall out and before the permanent teeth emerge.

Based on its weight, the alveolar bone is made up of 67% inorganic material. Calcium and phosphate are the components included in the inorganic substance. Calcium hydroxyapatite crystals make up the majority of the mineral content. 33% of the remaining alveolar bone is made up of Organic material. Collagen and non-collagenous are the components included in the organic substance. Osteoblasts, osteocytes, and osteoclasts are included in the cellular component of bone. The form of osteoblasts is typically cuboidal and slightly elongated. Both collagenous and non-collagenous bone proteins are synthesized by them. On the outer surface of their plasma membrane, these cells have a lot of alkaline phosphatase. Osteoblasts are responsible for the formation of bone by producing the organic matrix of the bone, as well as cell-to-cell communication and the preservation of the bone matrix.

Conclusion

The alveolar bone's primary functions includes: Formation and protection of dental roots by alveolar bone. It gives attachment to the periodontal ligament fibres, which are the main fibres and these fibres that enter the bone are known as Sharpey's fibres. It supports the tooth roots on both the face and palatal/lingual sides. It helps in the absorption of stresses applied to the tooth by spreading those forces to the underlying basal bones. After the surgery is performed an immediate consultation of the child's surgeon is needed if you notice any symptoms like bleeding from the nose or gum line, oozing or drainage from the gum line, opening of the incisions in the mouth or hip, drainage or redness at the hip surgery site, pain that is not controlled by the medicines prescribed, or if there is a fever of 101°F and above.