

Sternoclavicular Graft For TMJ Reconstruction In Condylar Hypoplasia: A Case Report.

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ABSTRACT:

This case report describes the use of sternoclavicular graft in the treatment of condylar hypoplasia. Condylar hypoplasia leads to facial abnormality in a growing child, due to the lack of vertical growth on the affected side which can be managed by various treatment modalities. This report describes the use of sternoclavicular graft (SCG) in correction of facial asymmetry caused by unilateral condylar hypoplasia. SCG introduced more than 40 years ago still remains one of the most popular treatment in the reconstruction of ramus-condyle unit, due to its anatomical

and histological similarity to the mandibular condyle throughout the growth.

Keywords: Condylar hypoplasia, sternoclavicular graft, ramus-condyle unit (RCU)

INTRODUCTION:

Condylar hypoplasia being a bone disease can lead to the restricted growth of either one or both the condyles.¹ As it progresses, it leads to facial asymmetry due to the inability of affected side to grow downward and forward which is usually asymptomatic. Condylar hypoplasia can be acquired or it can be present from birth which can be unilateral or bilateral.² For satisfactory

results in condylar hypoplasia early diagnosis and management plays the key role.

CASE REPORT:

A 10 years old patient reported to our Department of Oral and Maxillofacial Surgery with the chief complaint of facial asymmetry which was increasing with the age. There was no history trauma associated with the mandible during birth or even after that. On extra oral examination, facial asymmetry with deviation of the mandible towards the left side was seen. Inter incisal mouth opening was measured which was 24 mm. Poor oral hygiene was seen with generalized deposition of plaque and calculus, mandibular midline was shifted to the left side. Underdeveloped condylar head, shortness of the condylar neck along with the decreased height of the mandibular ramus was seen on the left side in panoramic radiograph (Figure 1). More prominent antegonial notch was seen on the left side as compared to the right side. Flatness of the articular surface with reduced size of the condylar head was also visible. Intra-articular space was increased and condylar neck was shortened.



Figure 1- Panoramic radiograph

Conventional computed tomography (CT) was advised for further assessment. Patient was unable to get CT done due to poor economic status. No evidence of bony or soft tissue ankylosis was seen in panoramic imaging. Midline was deviated towards the affected side along with the cant of the occlusal plane, visible retrognathia was also seen due to condylar hypoplasia. Severity of the deformity largely dependent on the degree of hypoplasia and if the severity of deformity is more there are more chances that it will worsen as the age advances.³Treatment consists of lengthening of the affected side. An Alkayat and Bramley incision was used to gain access to the condylar region, ramus of the mandible and the lateral, medial, and posterior aspects were exposed, as necessary (Figure 2).



Figure 2- Alkayat & Bramley incision.

The reconstruction of the defect present on the lateral side of the mandible was done using the clavicular graft which was harvested from the ipsilateral side.(Figure 3).

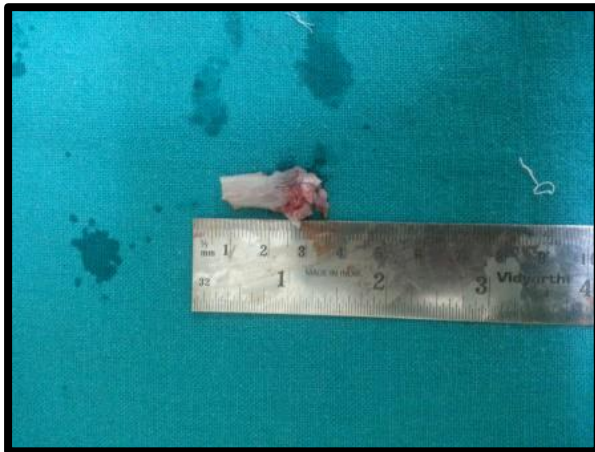


Figure 3- Sternoclavicular graft

The superior half of the clavicle was used as a graft, procuring the superior aspect of the clavicle makes the size of the graft head more adaptable to the size of the glenoid fossa, as a full-thickness clavicular graft can be too large to fit into the mandibular fossa. The graft which was harvested was fixed on the lateral aspect of ramus of the mandible; it was then rigidly stabilized with the help of bone screws (Figure 4).

DISCUSSION:

Condylar hypoplasia along with facial asymmetry also leads to occlusal disturbances and tmj problems.



Figure 4- sternoclavicular graft stabilized.

Exact reason of condylar hypoplasia is still unknown. It has been discussed by previous authors that various internal or external factors are responsible for regulating the growth of the condyle. Other etiological factors may include trauma, hormonal imbalance, and cartilaginous exostosis.⁴

Condylar hypoplasia can be congenital or acquired.⁵ Congenital (primary) condylar hypoplasia is associated with syndromes such as treachercollins syndrome, oculoauriculovertebral syndrome, proteus syndrome, morquio syndrome.⁵⁻⁸ Acquired (secondary) condylar hypoplasia occurs if there is injury to condyle during the growth period, which leads to restriction of condylar growth. Some authors suggested the mandibular deficiency can be seen without any known etiology.³ The case of condylar hypoplasia without any syndrome is previously reported by krogstall, akhilo etal, canger & clenk.⁹

In our case the condylar hypoplasia was on the left side and was not associated with any syndrome, which was suggestive of that the defect originated in the prenatal period.

Earlier autogenous graft which was taken for the replacement of mandibular condyle for tmj reconstruction was costochondral graft, but complications such as occlusal changes due to continuous loading and separation between cartilage and bone as well as unpredictable growth in some of the growing patients leads to the exploration of other options. Ellis and Carlson documented the morphologically and histological similarity of sternoclavicular graft to tmj throughout the growth period⁷ as the head of clavicle was very similar to that of condylar head during growth. One of the main reason for

the use of the SCG graft is its strength, SCG can be used if we need large advancements in the mandible or there is need of vertical lengthening of the ramus which is used for creating a stable base, predictable anterior and vertical repositioning of the mandible. Counter clockwise rotations of the mandible can be performed if we use SCG. Rigid fixation can be used and jaw function instituted almost immediately, although it should be somewhat limited for at least the first 4 weeks to facilitate revascularization of the graft.

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