
Condylar Hyperlasia:Diagnosis and Treatment, a review

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Abstract

Unilateral condylar hyperplasia is an unbalanced bone growth of one condyle rather than the other one clinically resulting as a facial asymmetry, whose characteristics are different depending on the direction of the hyperplasia. The purpose of our study is a literature review resuming the most important characteristics of this disease, to help clinicians to identify this disorder easier and to not confound with other type of asymmetry or malformation, and to analyze the bone tissue and above all the occlusal patterns related to this disease.

Introduction

Unilateral condylar hyperplasia is an unbalanced bone growth of one condyle rather than the other one. It clinically results as a facial asymmetry, whose characteristics are different depending on the direction of the hyperplasia. The orthodontist has a primary importance in the correct recognition of this disorder, through the differential diagnosis, and also in the management of the therapy, coordinating the orthodontic treatment with the maxillo-facial surgery before or after that. In this literature review we're going to treat the etiology and epidemiology, the classification, the diagnosis and the therapy of condylar hyperplasia.

Etiology and Epidemiology

The etiology is currently unknown. The main hypotheses are: trauma during the childhood, inflammation, hyper vascularization, unspecific genetic factors, hormonal disturbances. It often occurs during growing period, but sometimes it occurs in adult patients too. The incidence is the same in both sex.

Classification

In literature we have two main classification, edited one by Obwegeser and the other one by Nitzan.

The classification by Obwegeser, divided the forms in

hemimandibular elongation (HE) and hemimandibular hyperplasia (HH) and an hybrid form with intermediate characteristics.

The HE manifests itself as a elongation rather than a volume increase, clinically showed as an asymmetry with chin deviation to the unaffected side.

The HH manifests itself as a three-dimensional volume increase of the ramus and corpus both, clinically resulting in an asymmetry without chin deviation.

The classification by Nitzan divided the forms in vertical growth, transverse growth and mixed form.

The vertical growth is clinically characterized by three-dimensional volume increase of the affected side, ipsilateral deviation or no deviation and tilting of the occlusal plane and absence of cross-bite.

The transverse growth clinically results in contralateral chin deviation, contralateral cross-bite, preserved occlusal plane, extending of the affected side.

If the anomaly occurs before puberty the maxilla follows the mandible's growth to permit the occlusion. Indeed the affected side remains in occlusion, but in different level, that cause a rotation in occlusal plane in transverse dimension. If the maxilla can't follow the mandibular growth, an open bite occurs in the affect side.

Diagnosis

The diagnosis starts with the facial asymmetry and the clinical signs, different depending on the specific form, but they can be similar to other disorders.

We have to do a differential diagnosis with a mandibular deviation caused by evident trauma, hemifacial microsomia, muscular torticollis, condylar fracture or juvenile condylar arthritis for example, or condylar masses like chondrosarcomas.

OPT gives some important information:

- An elongation of the ascending ramus
- A condyle enlargement
- An elongation and thickening of condylar neck
- The mandible's lower border of affected side results in a lower level rather the unaffected one. It is visible ad increased distance between the dental roots and the alveolar canal.
- The enlarged condyle has often an irregular shape

and size.

However, the definitive diagnosis is based on the result of scintigraphy, is a noninvasive technique to evaluate whether the condylar growth is still active. The most common radionuclide used is 99m technetium (99mTc). When the activity difference between one condylar region and the other one is more than 10% we can suggest that the disorder is condylar hyperplasia.

Treatment

The treatment of condylar hyperplasia provides for a meticulous diagnosis, the asymmetrical severity, the growth activity, the motivation of the patient to undergo complex treatments for the correction of mild deformities. The treatment options supported by the literature are: high condylectomy, high condylectomy accompanied by bi-maxillary orthognathic surgery, orthognathic surgery and cosmetic procedures with orthodontic treatment. Some authors recommend condylectomy with orthodontic surgery in active CH, but orthognathic surgery is usually recommended in inactive CH. The high condylectomy corrects the condylar growth and an early treatment of the affected condyle stops the onset of worse deformity, instead orthognathic surgery does not stop the growth. Orthognathic surgery requires pre-surgical and post-surgical orthodontic treatments in order to remodel the alveolar deformity. The clinicians might be able to recognize soon this condylar pathology to start the treatment as soon as well for a better prognosis.

Conclusion

The present study wants to underline the importance of an early treatment of this disease, both surgical and orthodontic fields, considering that the hyperactivity of the condyle develops quickly and leads to severe malocclusions. There should be a real collaboration between the orthodontist and the maxillo-facial surgeon, from the diagnosis, to recognize this condylar pathology to initiate the treatment as soon as possible for a better prognosis.

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