

HEMIMANDIBULAR ELONGATION: A CASE REPORT WITH A 7-YEAR FOLLOW-UP

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Case Report

ABSTRACT

One of the many growth anomalies that affect the mandibular condyle is hemimandibular elongation without any condylar hyperplasia. Condylar growth patterns can be evaluated by serial clinical comparisons, cephalometric tracings and bone scanning with technetium 99m phosphate. However, no ideal method has been found to assess whether condylar overgrowth is “inactive”. Therapy is guided by the patient's age and condylar growth activity. Treatment modalities have ranged from condylectomy to orthopedic maxillary management. A case is presented where one such patient was treated with condylectomy and a long follow-up of seven years showing stable results after surgery.

Key words: condylar hyperplasia; condylectomy; hemimandibular elongation

INTRODUCTION

There are three classical variations of condylar growth hyperactivity which are clinically distinguishable. Of the three, only two of them present with condylar hyperplasia (CH). They are pure hemimandibular hyperplasia (HH) and the hybrid form of hemimandibular hyperplasia and hemimandibular elongation (HE). The pure HE type does not produce CH (1). Condylar hyperplasia is usually described as an uncommon anomaly of growth of unknown aetiology. However, throughout the literature, there remains a certain amount of confusion as to which clinical conditions may be so called. The term “condylar hyperplasia” refers only to hyperplasia of the condyle alone and should therefore not be used to mean the two hemimandibular anomalies as is the case in the literature today (2).

Type I (HH): it presents as a surplus growth in volume. The condyle and its neck, the ascending ramus and the body all become larger but it extends only till the symphysis. There is no shifting of the chin prominence to the contralateral side and, also, there is no crossbite.

Type II (HE): it is the most common type.

- A horizontal displacement of the mandible and chin to the unaffected side.
- Mild mandibular protrusion.
- The lip line slopes down towards the affected side.
- There may be a lateral crossbite on the unaffected side with an occlusal cant. It is an over-eruption of the maxillary teeth on the affected side in order to maintain a functional occlusion. A lateral open bite may be seen in severe cases on the affected side.
- The displacement of the midline is greater at the anatomical mid chin than that at the incisor midline so that there appears to be an apical drift of the incisors towards the unaffected side.

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- The condition generally presents during early adolescence. The deformity worsens throughout the growth and ceases with growth, usually by the second decade.
- Radiographically, posteroanterior view of the mandible shows the anomaly and an orthopantomogram may show an increased ascending ramus and condylar neck length on the affected side.
- Bone scanning will demonstrate hyperactivity of the affected condyle. Technetium 99m pyrophosphate scanning can be used to monitor the activity of the growing condyle (3,4) because the radionuclide is concentrated in areas of increased osteoblastic activity.

It is of two varieties – slender and non slender. The difference between these varieties is the shape and amount of elongation.

Type III: is the hybrid form. It develops by elongation as well as hyperplasia on the same side. The affected side is more voluminous with its lower border situated more inferiorly than that of the other side. The chin prominence is shifted to the other side and the occlusion is rotated.

CASE REPORT

An 18-year old patient reported with a complaint of facial asymmetry and deranged occlusion that had occurred gradually over a period of one to one and a half years. On extraoral examination, there was facial asymmetry and deviation of the mandible and chin to the left side of the face. The left side of the face seemed flatter in comparison to the right side. There was no sloping of the lip line and no obvious mandibular protrusion. The lower lip was fuller on the left side and there was no complaint of joint pain or clicking (Figure 1).

On intraoral examination, there was a mild deviation to the left on mouth opening. The occlusal discrepancies were: an edge to edge bite on the left side, a slight open bite of 2 mm on the right side and an occlusal cant. The midline was also shifted to the right side.

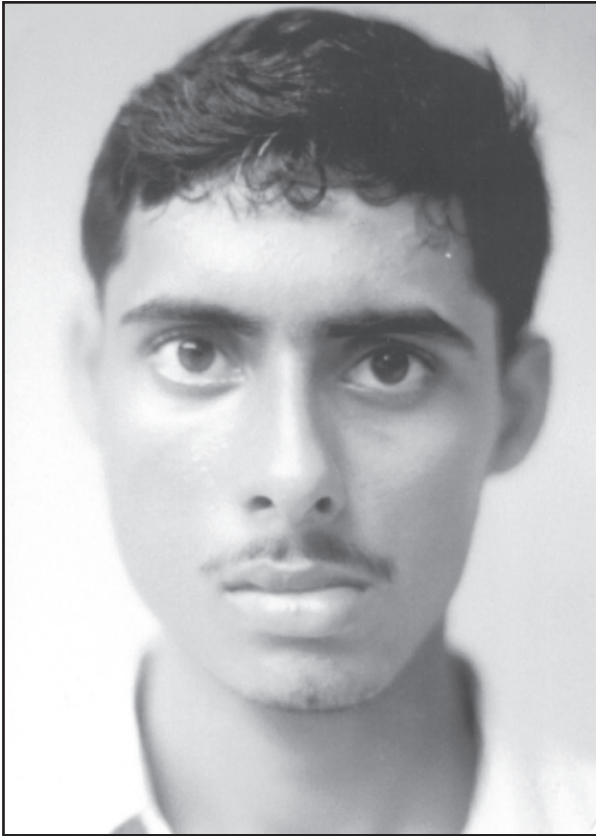


Figure 1: Preoperative photograph showing facial asymmetry.

On radiographic examination, the right condylar neck was elongated as compared to the left and the condylar head was normal in shape and size. The trabecular pattern of the elongated condyle seemed normal. There was no bony enlargement in the body and ramus area of the affected side (Figure 2).

Technetium 99m phosphate scanning images showed an increased uptake of the isotope in the right condylar region (Figure 3).

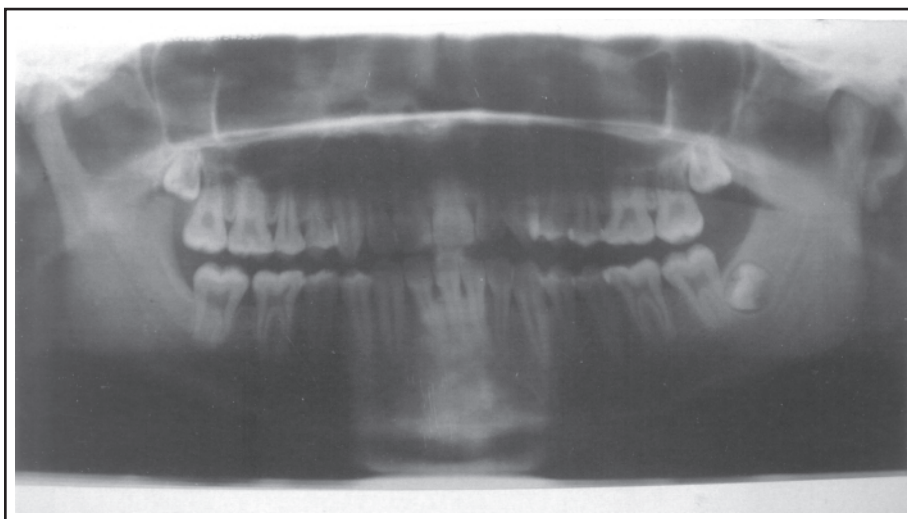


Figure 2: Preoperative orthopantomogram showing elongated neck of condyle on the right side.

A diagnosis of hemimandibular elongation of the condyle was made and based on the bone scintigraphy results, a decision was made to do a condylectomy. The patient was also offered a genioplasty to correct his chin deformity but the patient refused other surgical treatment. He also refused orthodontic treatment.

The Al-Kayat Bramley modification of the preauricular approach was used and the condyle was completely exposed. The head containing the cartilaginous part and part of the neck was removed. The remaining part of the neck was trimmed with a round bur to give it a rounded condylar head-like shape. The intermediate disk was repositioned over the stump and the capsule was closed with 5-0 vicryl sutures. The mandible was manually manipulated into proper occlusion and no maxillomandibular fixation was needed to hold it in this position (Figures 4 & 5).

An orthopantomogram taken one year and six months postoperatively showed the remodeled condyle with no evidence of recurrence of growth or occlusal disturbances (Figure 6).

The patient returned after seven years and was examined clinically. The occlusion was normal and although a genioplasty was again offered for correction of his mild asymmetry, he refused again and said that he was quite satisfied with his appearance (Figures 7 & 8).

DISCUSSION

All the three forms of condylar hyperactivity are generally referred to as condylar hyperplasia in the literature (5,6). The expression 'laterognathia' or 'unilateral or deviation prognathism' is used for unilateral hemimandibular elongation (5). Chen et al. in 1996 (7) suggested that the term CH should not be used to refer to either HH or HE but should be applied before mandibular deformity occurs because progression of CH to HH or to HE, although difficult to prove, was possible.

The cause of CH remains unclear. The main causes that have been proposed are 1) circulatory problems, 2) previous trauma, 3) hormonal disturbances, 4) abnormal loading and 5) cartilaginous exostosis (8-10). Whatever the cause, the stimulus for the abnormal growth either lies within the

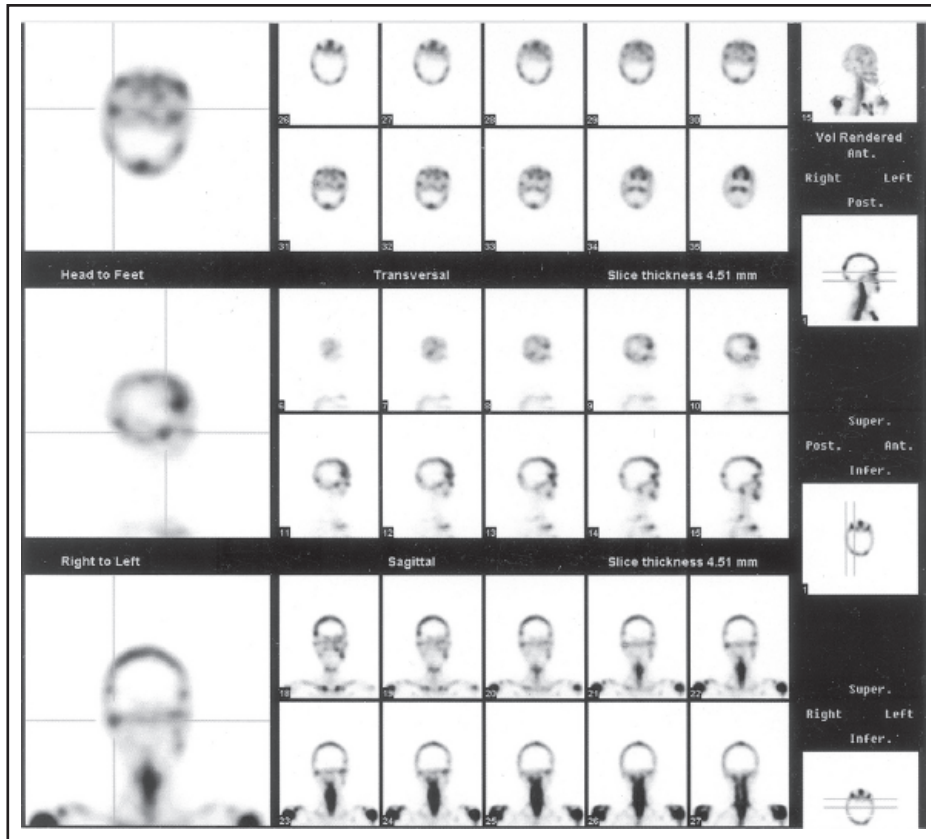


Figure 3: Bone scan showing increased activity of the right condyle.

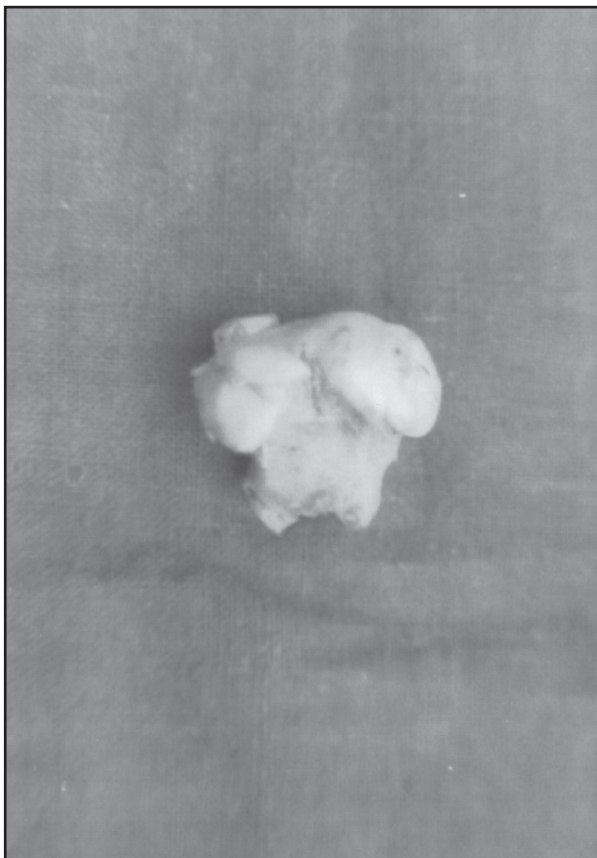


Figure 4: Resected condylar head and cartilage.

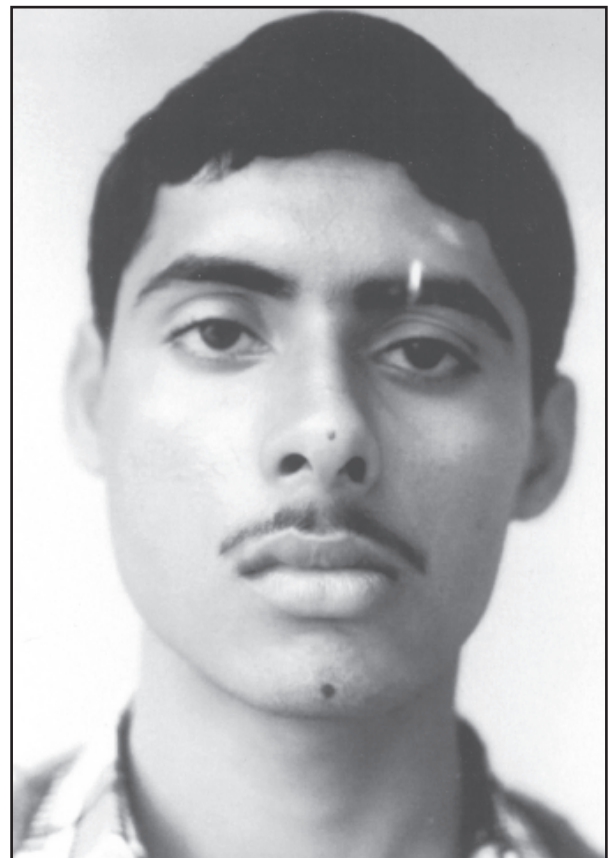


Figure 5: Postoperative photograph showing restoration of facial symmetry.



Figure 6: Postoperative orthopantomogram after one and a half year showing remodeled condylar stump of right side and no recurrence of growth.



Figure 7: The patient after 7 years with no recurrence and satisfactory facial symmetry.

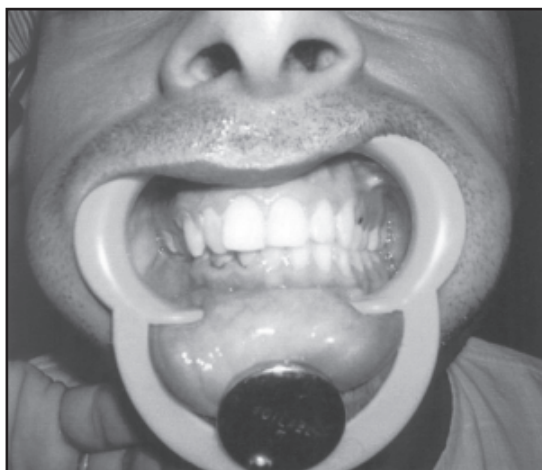


Figure 8: Patients' occlusion after 7 years following surgery.

condylar fibrocartilaginous layer or is produced by it (2). In the non slender HE, condylar hyperplasia is present. The condyle is not noticeably enlarged and is within the normal range of size and shape. In the slender form, the neck is quite elongated and the condyle may give an impression of being small.

Many authors (1, 11) have recommended that in the active cases, early high condylectomy is indicated. The slowly developing HE case can wait until growth has ceased. The present case represented the slender type of HE. By performing a condylectomy, the ramus length was reduced. Fortunately, the passive rotation of the remaining condylar stump provided a functional occlusion which obviated the need for any orthodontic treatment post surgery. The patient did not agree to a genioplasty and although the facial asymmetry remains, he shows no sign of recurrence or any functional abnormality after so many years.

In this case, thus, the functional matrix helped in remodeling of the normal condylar shape and a normal mandibular size, shape and function.

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