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Case Report

Posttraumatic Mandibular Asymmetry Presenting in a Young Adult

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ABSTRACT

One of the most common sites of injury of the facial skeleton is mandibular condyle. However, it is the least diagnosed site of trauma in the head and neck regions. A trauma to the mandible and specifically condylar zone during childhood, may lead to asymmetry or mandibular bilateral distortion, which is usually manifested in the second decade of life when the etiology is unknown to most people. This report is about an adult male complaining about facial asymmetry with an unknown source. Obvious clicking at the right side and shorter right ramus and condyle's head deviation directed us to a childhood trauma and fracture.

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Introduction

Symmetry is similarity in size, form, and relative position of the parts which are located on 2 opposite sides and are separated by a midline or a median plane. Asymmetry is the absence of this symmetry. Applying symmetry for human face indicates disproportion between right and left sides. Although some extent of asymmetry is normal and acceptable, early diagnosis and specification of developing causes are necessary for managing and controlling the asymmetry.

The causes of asymmetry are divided into 4 types: developmental, pathological, traumatic, and functional [1] (Table 1).

Formation of the condyle is essential for formation and function of the mandible [2]. Recent findings show that role of condyle in facial growth has been changed from an active epiphyseal-like growth center to a site for compensatory growth in response to the functional needs of the soft tissue [3]. Growth and development of the jaw and occlusion depend on integrity of the condyle to a large extent. Although condyle of the mandible is one of the most common sites of trauma to

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Table 1 – Causes of mandibular asymmetries.

Causes	Examples
Developmental	Hemimandibular elongation
	Hemimandibular hyperplasia
	Hemifacial microsomia
	Achondroplasia
	Hemifacial hypertrophy
	Torticollis
	Hemifacial atrophy (Parry-Romberg syndrome)
Pathological	Tumors and cysts
	Infection
	Condylar resorption
Traumatic	Condylar fractures
Functional	Mandibular displacement

the facial skeleton, it is usually neglected and is the last part to be examined in the case of head and neck traumas [2].

Unilateral condyle injury in childhood may lead to jaw opening limitation and facial asymmetry in adulthood. Such disorders are usually caused by traumas or infections [3].

Case report

The patient was 19 years and 10 months old when he attended Isfahan Dental School, complaining about his facial asymmetry, which was noticed a year before. Because of attending to different dentists and before taking a radiography, the patient and his dentists thought that the cause of asymmetry might be from the left side of his face.

There was no history of pain, infection, or remarkable previous trauma and no familial history of asymmetry. The patient has been under tonsillectomy operation when he was 7 years old. He attended the dentist for restoration of the posterior teeth a year ago. He also mentioned unilateral chewing habit in his history.

For understanding the time of formation of the asymmetry, photographs of his different ages were served, and facial asymmetry was observed in different ages (Fig. 1).

In extraoral examination, facial asymmetry was obvious in frontal view (Fig. 2). Vertical mouth opening was normal and lateral movements of mandible were in normal range.

In temporomandibular joint examination, when opening and closing the mouth, clicking on the right side joint was observed, which indicates anterior disk displacement with reduction. Examining salivary glands and cervical lymph nodes did not show significant pathologies.

In intraoral examination (Fig. 2), maxillary midline was normally in accordance with the midline of the face, but mandibular midline was deviated 1.5 mm to the right. In the lateral view, posterior cross-bite in the right side and bilateral posterior open-bite were observed. A mild crowding was present in both arches and posterior teeth (molars) of the 4 jaw quadrants were restored with amalgam. The oldest restorations were the first molars, which were treated in the patient's childhood.

By analyzing dental casts, asymmetry in maxillary arch and lingual slope of all left maxillary posterior teeth for compensating mandibular deviation to the right were observed. Right mandibular molar teeth also showed buccal sloping in the cross-bite region. The cant of the occlusal plane was minor (Fig. 3).

In panoramic analysis, lengths of the right and left ramus and condyle were measured by the method of Habets et al [4] and were compared. The analysis showed that the right ramus and condyle are shorter than the opposite side.

In posteroanterior cephalometry, protrusion of the left angle and minor deviation of the chin were observed. Also, the inferior border of right side of the mandible was more prominent than the left side (Fig. 4).

In tomography of the temporomandibular joint, head of the right condyle was deviated from the normal developing axis (Fig. 5).

With the above examination, mandibular asymmetry and right-side TMD (anterior disk displacement with reduction) were diagnosed, which were caused by deviation of the head of the right condyle from its development axis because of an unknown childhood trauma.

Discussion

There are several causes of asymmetry such as genetic defects in mechanisms, which induce symmetry, and also environmental factors. Trauma is one of the causes of asymmetry. Untreated mandibular fracture may lead to different degrees of asymmetry. Condylar fractures constitute more than 50% of



Fig. 1 – Facial photographs from different ages.

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