Radiology Case Reports ■■ (2017) ■■–■■

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journal homepage: http://Elsevier.com/locate/radcr

Bilateral coronoid hyperplasia causing painless limitation of mandibular movement

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ARTICLE INFO

Article history:
Received 1 July 2017
Received in revised form 30 October 2017
Accepted 2 November 2017
Available online

Keywords:
Coronoid process hyperplasia
Computed tomography
Restricted mouth opening
Temporomandibular joint

ABSTRACT

The coronoid process is a beaklike process in the ramus of the mandible. Coronoid process hyperplasia (CPH) is a rare possible cause of reduced mouth opening. An overgrown process interferes with mandibular rotation and lateral excursion and hence leads to restricted mouth opening (RMO). Although some factors are suggested, etiology of CPH is not completely known. Prescription of suitable radiography is necessary for an accurate diagnosis. This article reports a 30-year-old man with bilateral CPH and progressive RMO since childhood. This disorder affected his oral hygiene and quality of life. With the help of different types of radiography, CPH was diagnosed and coronoidectomy was the only treatment option. The patient showed normal jaw movements after the surgery and postoperative physiotherapy. General dentists have an important role in noticing RMO and referring the patients to maxillofacial radiologists. Although it is a rare phenomenon, general dentists need to keep CPH in mind as a possible cause. Panoramic imaging accompanied by computed tomography or cone beam computed tomography is the best imaging option in such cases.

Introduction

Opening the mouth is a result of coordinated function of muscles and bones especially in the temporomandibular joint (TMJ). Therefore, anything that interferes with the TMJ's correct function can cause restricted mouth opening (RMO) and even complete lock. One of the possible causes of progressive RMO is hyperplasia of the coronoid process, known as coronoid process hyperplasia (CPH). In Greek, korone means like a crown. The coronoid process is a beaklike process in the superioanterior part of the ramus of the mandible [1].

Bilateral CPH is a rare developmental condition characterized by abnormal overgrowth of the histopathologically normal coronoid processes. Movements of a larger coronoid process interfere with the medial or temporal surface of the zygomatic

Competing Interests: No conflict of interest was provided for this paper.

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https://doi.org/10.1016/j.radcr.2017.11.001

Fig. 1 – The patient's photographs illustrate the maximum mouth opening and lateral excursion.

bone. In addition, as this process grows gradually, the infratemporal space needed for rotation and translation of mandible is reduced, which results in reduction of the ranges of mouth opening and lateral excursion [2,3].

The etiology of CPH is not completely known. However, several factors have been suggested as possible etiology, such as temporalis muscle hyperactivity, trauma, hormonal factors, genetics, and familial factors [4,5].

The purpose of this article is reporting clinical and radiographic characteristics of CPH and imaging modalities that may be helpful in accurate diagnosis of this disorder.

Case report

A 30-year-old man who visited his dentist, complaining about pain in the left mandibular premolar, was referred to the Department of Radiology, School of Dentistry of Isfahan because of insufficient mouth opening and difficult dental operation.

Restriction in mouth opening was found to be present since the patient's childhood; which had progressed gradually in years. There was no record of childhood disease or trauma, or familial history of trismus. The patient also complained about episodes of migraine headache.

In clinical examination, interincisal space was 21 mm. In addition, lateral excursions to the left and right were possible, but they were very limited (Fig. 1).

The normal range for interincisal space in maximum mouth opening is 35-50 mm and normal lateral excursion is 8-12 mm toward mandibular incisors [6].

Click and crepitation in the right TMJ were observed and palpated. Muscles of the area were not tender.

Based on clinical examinations, primary diagnosis of the TMJ dysfunction was indicated and radiographic examinations were prescribed.

In the panoramic image, the coronoid processes were larger in length in both sides and were observed to be higher than the zygomatic arch, although the bone trabeculae were normal in the processes. Most of the posterior teeth were extracted, root canalled, or affected with remarkable dental caries, whereas all the anterior teeth were sound and healthy, which was probably because of insufficient oral hygiene due to the reduction in mouth opening and lack of access to the posterior areas when brushing (Fig. 2).

In the next step, computed tomography (CT) scan was obtained and the coronoid processes were surveyed in different views including 3-dimensional (3D), bone window, and soft tissue window.

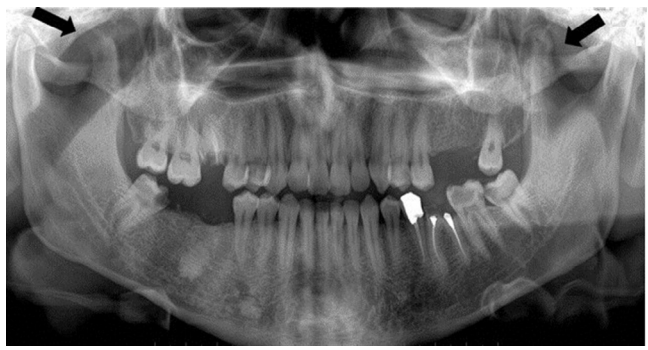

Fig. 2 – Panoramic radiography: the arrow indicates bilateral coronoid process hyperplasia.