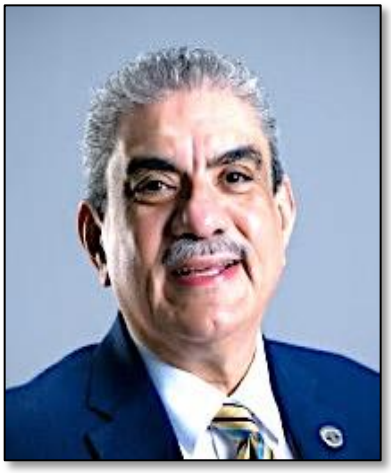
A CONSERVATIVE ALTERNATIVE WITH COMPOSITE RESINS, FOR THE REHABILITATION OF AN ANTERIOR GUIDANCE AND HORIZONTAL OVERBITE

A case presentation



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ABSTRACT
The Masticatory or occlusal system, is an orthopedic system in nature; complex, adaptable and efficient and in charge of speech, respiration, mastication, sleep and swallow throughout our lives. It is the only orthopedic system on which life depends. The system has 3 complex anatomical components; the 2 temporomandibular joints (TMJ), the neuromuscular and the interdental relationship and its supporting tissues that can be damaged in a similar way to those of the rest of the human body. The intention of this case presentation is to describe a conservative

management alternative in Phase I and Phase II[1] treatments of a case of a middle aged patient with dental attrition, increased horizontal overbite (or overjet), osteoarthritis (OA) of the temporomandibular joints (TMJ), myofacial pain and bruxism[2].

Keyword; osteoarthritis, myofacial pain, maladaptive interdental relationship, bruxism, snoring, dental attrition.

INTRODUCTION

This a case of a 39 years old male patient (pt) referred to my office in January 17, 2017 by his neurologist for a second opinion on the cause of his chronic headaches.

The ***occlusal analysis***[3] revealed;

1. *Chief Complaint;* Headaches for about 10 years.
2. *Medical History;*
   a. Medications;
      Prozac, 20 mg. per day for depression
      Inderall, 40 mg for the headaches. acetaminophen did not work and could not take NSAID anymore.
      Took several brands of NSAID for 5 years for the headaches and because of this, was now under treatment (tx) with a gastroenterologist.
      Has taken 2 or 3 types of anticonvulsants, anti-migraine medications and other analgesics for the headaches but without results.
      b. Weight: known, 230 lbs. Indicated weight gain because of little exercise because of pain and tiredness.
      c. Blood pressure; unknown. Taken in the office: 139/99 right arm and 122/91 left arm.[4, 5]. He was informed of this condition and referred to the referring physician.
      3. The *sleep apnea questionnaire and the Epworth* scale in Spanish[6, 7](fig. 1), indicated daytime sleepiness, non reparative sleep, morning headaches, a size L neck, memory loss, treatment for depression and difficulty opening the mouth awaking. Loud snoring indicated by girlfriend, but denied mouth breathing.

4. Dental history; orthodontics when young (figs. 2, 3) and a splint and physical therapy delivered by another facial pain specialist in the city. Was aware of worn teeth.

5. *Articular-muscular history;* History of 10 years of head, face and neck pain, worst every day and without any improvement even with multiple treatments. Most pains were constant, of oppressive nature and severe.

Pain was worsened during eating, exercise, speaking and on touch. Indicated earaches, tinnitus and dizziness. Indicated a history of 2 whiplashes during his lifetime and mood changes that went from angst, angriness and sadness. He also indicated that was always moving his jaw or touching his teeth and could feel it sometime during sleep and joint sounds for many years.

6. *Muscular examination;* Palpation indicated pain and slight swelling of right masseter and temporal, right and left insertion of the medial pterygoids, sternocleidomastoid and trapezoid muscles and the bi pupillary line was deviated (fig.4). Both lower bellies of the pterygoids muscles were painful on forced protrusion.
7. *Articular examination;* Both TMJ were painful on palpation and crepitation was heard during opening and lateral with the Doppler™.
8. *Range of motion examination:* Painful opening and closing in both TMJ, with a 40 mm inter incisal slight shift to the left (fig. 5).
9. *Posture examination;* Deviated omicron line and anterior posture of head (figs. 6, 7).
10. *Interdental examination;* Worn incisal (about 1 mm) and occlusal (about .5 mm) surfaces, slight abfractions, missing bicuspids with diastemas, increased horizontal anterior overbite (figs. 2,3,8,9).
11. *Intraoral examination;* Lacerated and line alba in the mucosa of the cheek (fig. 9), elevated palate, medium elevated, Malampatti IV, and slightly festooned tongue (fig. 5)
12. *Images examination;* Bilateral flattening, change in morphology and radiolucent areas. Reduced oropharyngeal space. (figs. 10, 11, 12).

The ***diagnosis*** [2] were;

1. Primary OA[8] of both TMJ.
2. Myofacial Pain.
3. Bruxism[9]
4. Maladaptive Occlusion[10, 11, 12,13]
5. Hypertension

The ***Phase I treatment*** started February 2, 2017 with;

1. One session with TENS by Bioresearch™.
2. Construction of a mandibular full coverage neuromuscular appliance (figs 13, 14) with anterior guidance and even contacts obtained with a Parkell II™ ribbon [14, 15, 16] .
3. Use of the appliance 24 hours a day, removal only to eat and brushing and follow up appointments every 2 weeks for 2 months.

The pt fully complied and reported constant reduction of all signs and symptoms and improved sleep in every appointment, until fully asymptomatic in his last follow up in March 21, 2017. Thus obtaining the goals of Phase I tx of bruxism control, muscular relaxation, improved sleep, general wellness, daily exercise and a TMJ functional position. He has stopped taking the pain and depression medications. The following week, post op models, bite registration with Almore ™ wax of the asymptomatic mandibular engram relationship (fig. 15) and photos were taken.
The post op photos indicated the postural changes and improvement of his general appearance (figs 16, 17, 18). The functional mandibular position indicated premature contacts during closure, no anterior contacts or incisal or canine guidance's[17] . The pt was informed of this resulting asymptomatic interdental condition and of the indication of correcting it or Phase II. The alternatives were presented and fully explained, with its advantages and disadvantages, ranging from; re treatment with orthodontics plus anterior porcelain veneers to an occlusal equilibration plus composite resin rehabilitation of the overjet and wear[18, 19, 20, 21, 22, 23, 24.]. At the moment, the pt could not afford any further tx, an unfortunate reality in the economies of our region and also because he had spent a large sum of money in all the previous tx for the headaches. I indicated the paced removal of the appliance until no use, to maintain it submerged in water and to brush it regularly with soap and water. He was also instructed to call the office for adjustments if signs and symptoms reappeared.
The pt returned to the office in November 27, 2017, relapsed. TENS was applied and the appliance adjusted with indications of 24 hours use, returned for follow up December 18 and was asymptomatic. At this time, he could afford and accepted the equilibration/resin alternative.
The ***Phase II treatment***, started January 11, 2018. The occlusal equilibration was done only to eliminate premature contacts during closure. For the restoration of the anterior guidance and contacts, the direct technique was utilized, in this occasion with a nano particle hybrid composite resin (Beautifil II ™). Nano hybrids seem to have better physical and polish properties than the conventional hybrids[25, 26] , that I used in the past for many years[27] in similar cases. Good functional and esthetic results were obtained (figs.19, 20, 21, 22, 23, 24 y 25). Instructions were given for proper hygiene of the resins and for the escalated removal of the appliance and 2 or 3 tune ups of the equilibration every 2 weeks. The appliance was adapted to the new anterior relationship (fig. 26). The pt was instructed that the achieved muscular and interdental stability depended of the lifespan of the restorative materials, the teeth and the ability of the arthritic TMJ to

function, so he had to maintain the appliance for a possible re treatment during his lifetime. The pt returned for the first tune up of the occlusal equilibration January 24, 2017 and continued asymptomatic and comfortable with his new stable and complete bite. I asked him if he had gone to his physician for tx of the hypertension and said no so proceeded to take the blood pressure. Much to our satisfaction, it was 117/78 left arm and 112/72 right arm[4]! We advised the pt to routinely check and maintain his blood pressure and now we take the blood pressure on all our pts when we take the post op phase II records. His last tune up appointment was February 6, 2018 and reported comfort without using the appliance. He was instructed to maintain it submerged in water and washed with soap and water every month, to call us in case of relapse and will be called for recall every 6 months.

SUMMARY

The Temporomandibular Disorders[2] can be painful, incapacitating, move or wear teeth, alter the sleep, the mood, the blood pressure and the general health and wellbeing. The alternatives of Phase I relieve pain and restore muscular and articular function. The Phase II alternatives, rehabilitate the occlusal table, being the occlusal equilibration and the composite resins, affordable and conservative options.

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FIGURES

D. EXPLORACION POR APNEA DEL SUEÑO:

*La **Apnea Obstructiva del Sueño** es un común y peligroso Desorden del Sueño, que se caracteriza por el colapso repetitivo de la vía aérea durante el sueño, causando una suspensión dañina de la respiración. Este y otros Desordenes del Sueño están muy relacionados con los Desordenes de la Masticación.* ***Sus consecuencias incluyen las siguientes condiciones: mal sueño, baja en la productividad laboral, somnolencia, accidentes automovilísticos, hipertensión arterial, arritmias cardiacas, diabetes, infartos y derrames cerebrales.***

Su respuesta veraz y minuciosa a las siguientes preguntas, nos dará una idea si Usted padece de este problema y PODRIAMOS AYUDARLE. Por favor *circule o escriba lo solicitado en donde aplique* y al final del documento, la fecha de hoy y su firma.

1. RONQUIDO. ***Le han dicho que:***
   a.) Ronca muchas noches (Más de 3 veces a la semana). SI NO
   b.) Es su ronquido alto (Se puede oír entre paredes o puertas). SI (NO)
2. SUSPENDE LA RESPIRACION O SE AHOGA AL DORMIR: SI (NO)
3. LA MEDIDA DE SU CUELLO:
   Menos de 16 pulgadas (Si Usted usa Small o Medium en camisa) SI NO
   Más de 16 pulgadas (Si Usted usa Large o mas en camisa) (SI) NO
4. ESTA USTED EN TRATAMIENTO POR PRESION ARTERIAL ALTA O DIABETES:
   SI (NO)
5. EN OCACIONES SE DUERME O ESTA ADORMECIDO DURANTE EL DIA:
   a.) Inactivo o desocupado: (SI) NO
   b.) Manejando, en transporte o en un semáforo o tranque SI (NO)

E. ESCALA EPWORTH DEL SUEÑO:

6. SE SIENTE CON SUEÑO O SE DUERME DURANTE:
   a.)Sentado o leyendo b.) Viendo la TV c.) Sentado en eventos d.) Como pasajero por una hora e.) Descansando una tarde cuando puede f.) Sentado o conversando g.) Sentado luego del almuerzo sin licores h.) Durante un tranque o semáforo.
7. DESDE CUANDO RONCA O LE HAN DICHO QUE LO HACE:_____
8. CUANTAS VECES SE DESPIERTA DURANTE LA NOCHE: 1
9. LE HAN DICHO QUE DEJA DE RESPIRAR: SI (NO)
10. TIENE DIFICULTAD PARA DORMIRSE: SI (NO)
11. SE DESPIERTA CANSADO: (SI) NO
12. SE DESPIERTA CON DOLOR DE CABEZA: (SI) NO
13. LE DUELE LA CABEZA CON LICOR: (SI) NO
14. HA TENDIDO APNEA DEL SUEÑO: SI (NO)
15. LE HAN HECHO UN ESTUDIO DEL SUEÑO: SI (NO)
16. LE DIFICULTA RESPIRAR POR LA NARIZ: SI (NO)
17. TIENE ALGUN PROBLEMA DEL CORAZON: SI (NO)
18. TIENE PRESION ALTA o DIABETES: SI (NO) COMO LE TRATAN_____
19. TIENE PERDIDA DE LA MEMORIA: (SI) NO
20. SUFRE O ES TRATADO POR DEPRESION: (SI) NO COMO LE TRATAN_____
21. TIENE TURNOS DE TRABAJO Y SUEÑO: SI NO
22. A QUE HORA SE ACUESTA: 9:30 pm
23. A QUE HORA SE LEVANTA 6:00 am
24. DURANTE SU SUEÑO, LE HAN DICHO QUE:
    a.) Ronca Fuertemente: Siempre Mucho Poco Nunca
    b.) Se ahoga, le dificulta respirar o deja de respirar: Siempre Mucho Poco Nunca
    c.) Se despierta por problemas respiratorios: Siempre Mucho Poco Nunca
    d.) Se voltea frecuentemente: Siempre Mucho Poco Nunca
    e.) Patea o mueve las piernas con frecuencia: Siempre Mucho Poco Nunca
25. CUANDO SE DESPIERTA DE SU SUEÑO REGULAR, CON QUE FRECUENCIA TIENE:
    a.) Dificultad para abrir la boca: Siempre Mucho Poco Nunca
    b.) Boca seca: Siempre Mucho Poco Nunca
26. DESPIERTO Y EN LO SIGUIENTE, SE SIENTE CON SUEÑO O SE DUERME:
    a.) Después de comer: Siempre Mucho Poco Nunca
    b.) Leyendo o viendo la TV: Siempre Mucho Poco Nunca
    c.) En la escuela o su lugar de oración: Siempre Mucho Poco Nunca
    d.) En su trabajo: Siempre Mucho Poco Nunca
    e.) Manejando o como pasajero: Siempre Mucho Poco Nunca
27. SE LE DIFICULTA RESPIRAR POR LA NARIZ:
    a.) Durante el día: Siempre Mucho Poco Nunca
    b.) Durante el sueño: Siempre Mucho Poco Nunca
28. TOMA BEBIDAS ALCOHOLICAS O SEDANTES:
    a.) Durante el día: Siempre Mucho Poco Nunca
    b.) Para poder dormir: Siempre Mucho Poco Nunca
29. LE HAN EFECTUADO, HA HECHO O HA TENIDO LO SIGUIENTE:
    Fractura nasal Alergias o fiebre de heno Fumar Cirugía Nasal Sinusitis Esprays nasales Cirugías de adenoides o amígdalas Antihistamínicos Cirugías u otros tratamientos por: Apnea del Sueño u otros desordenes del sueño.

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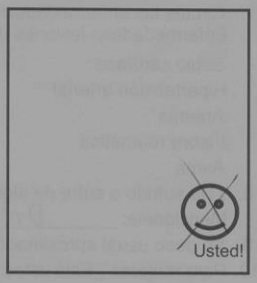
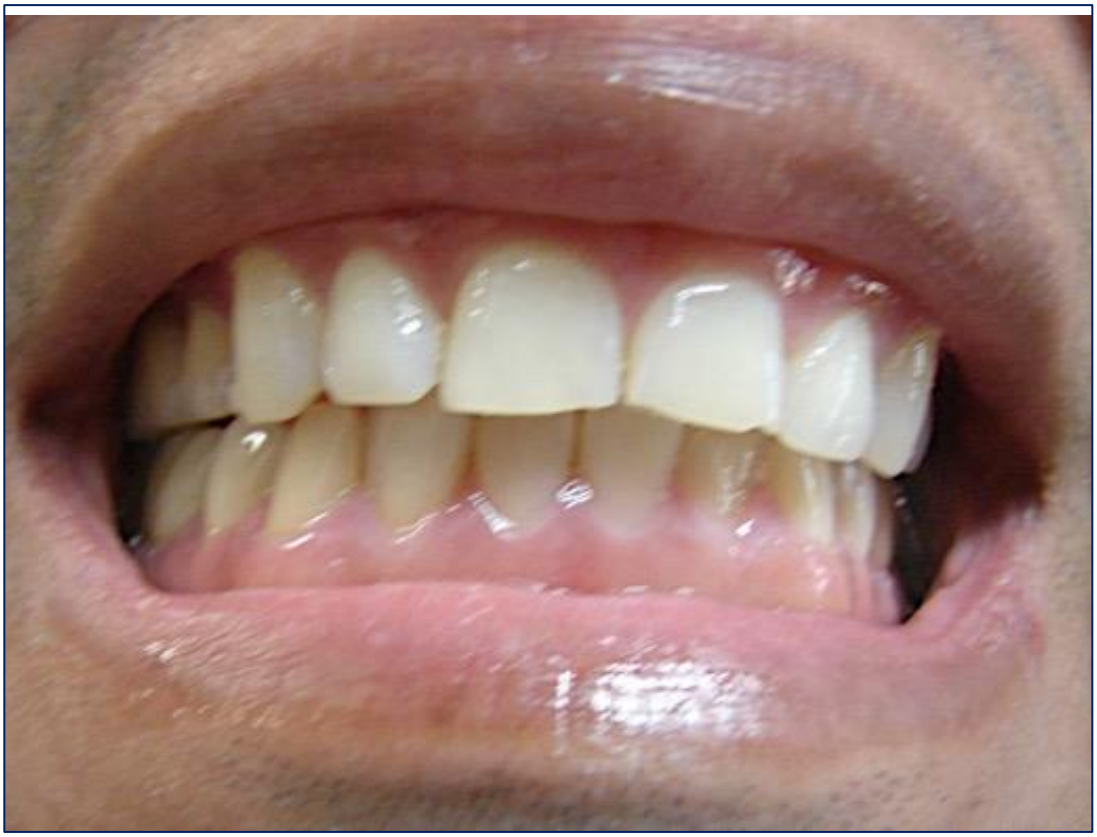


F. SU FIRMA_____

Figure 1.



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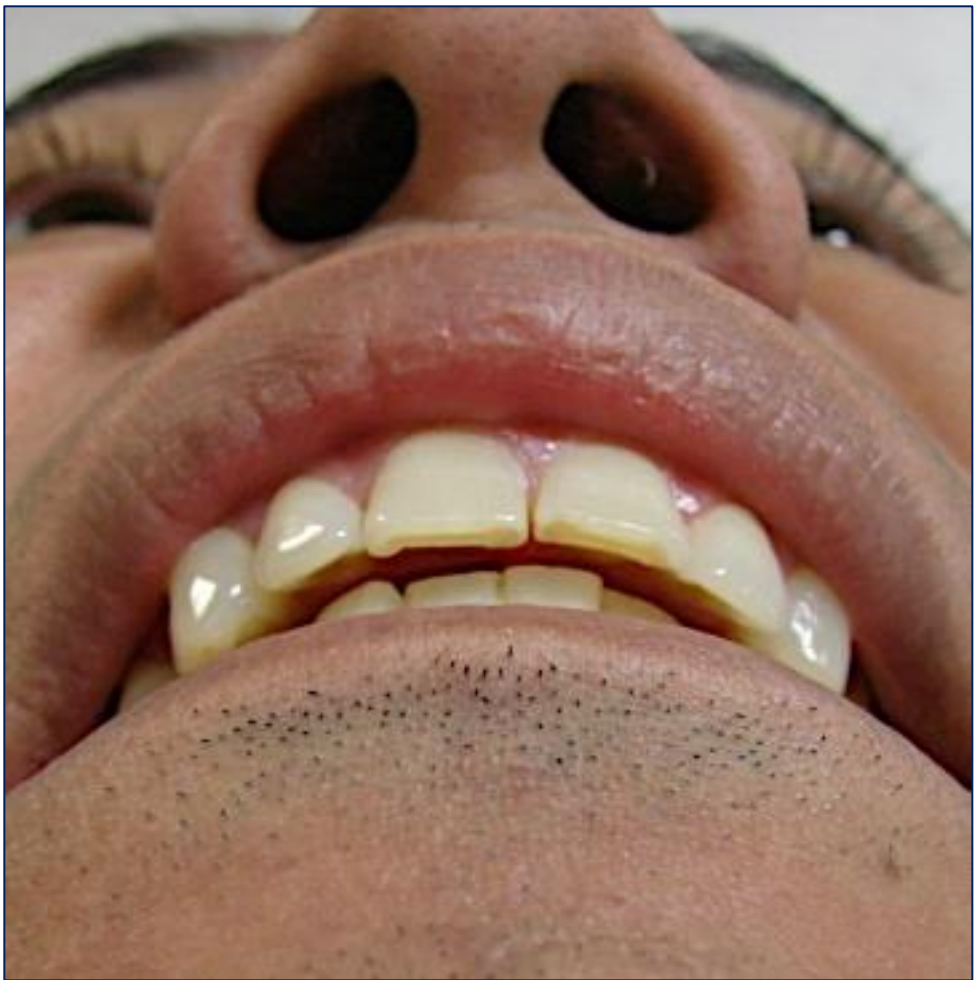

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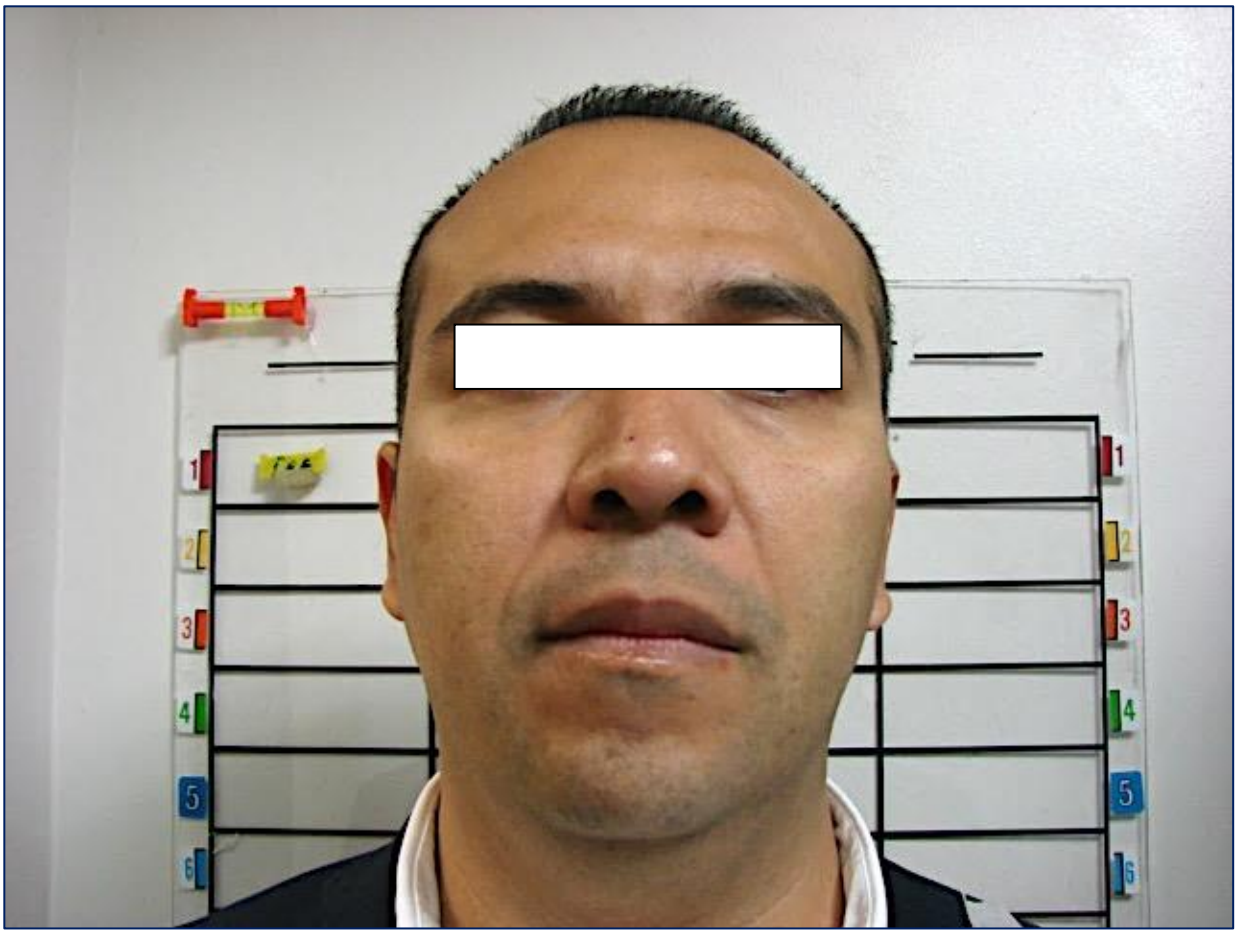

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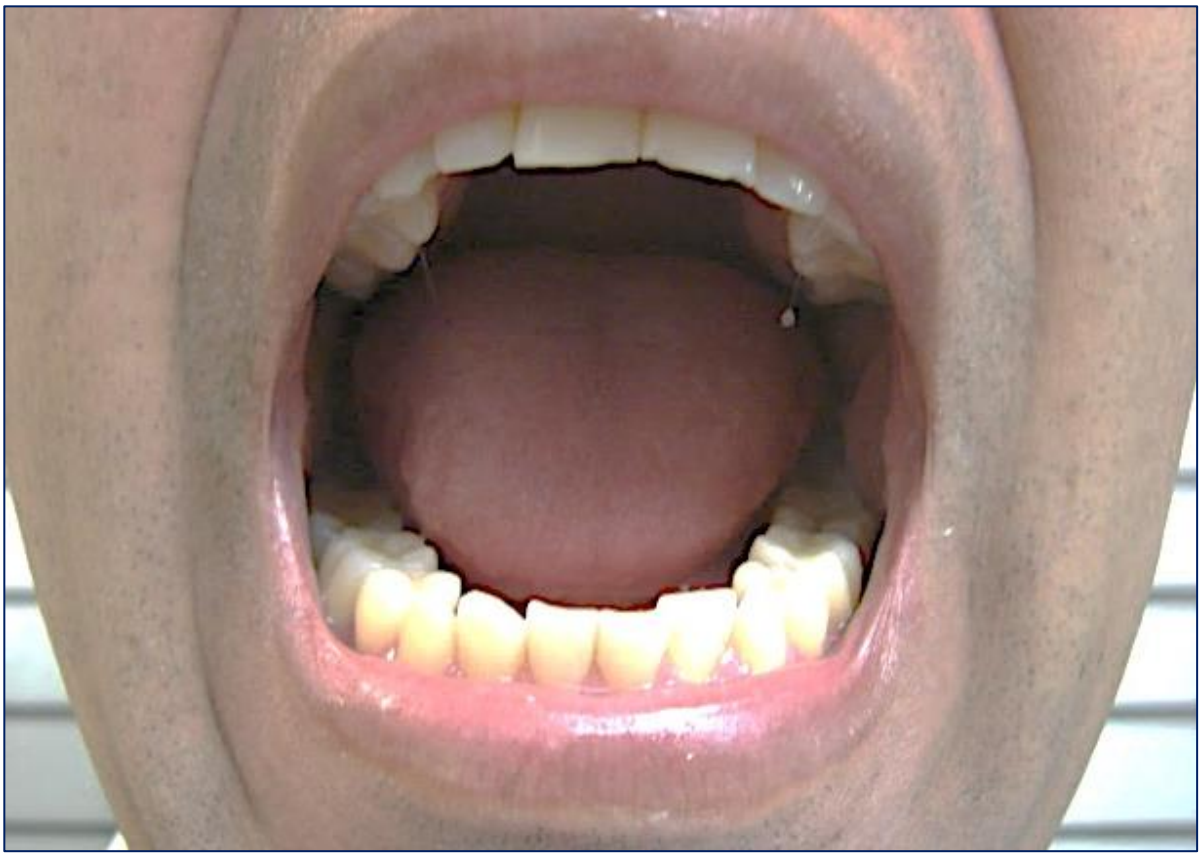

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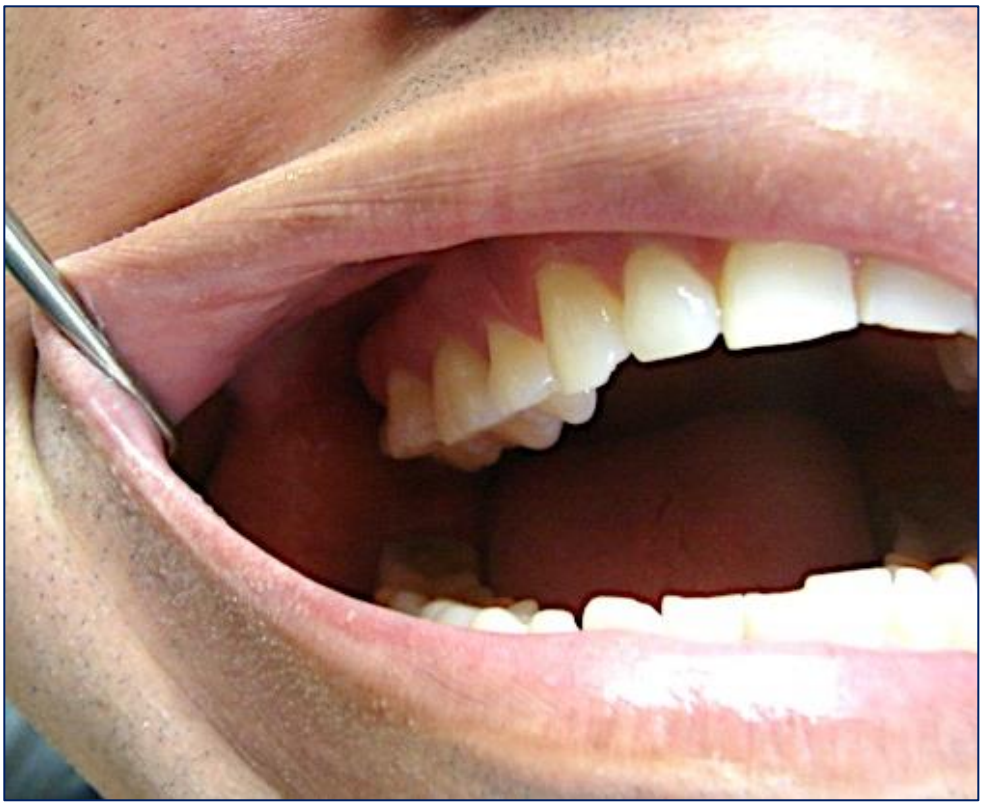

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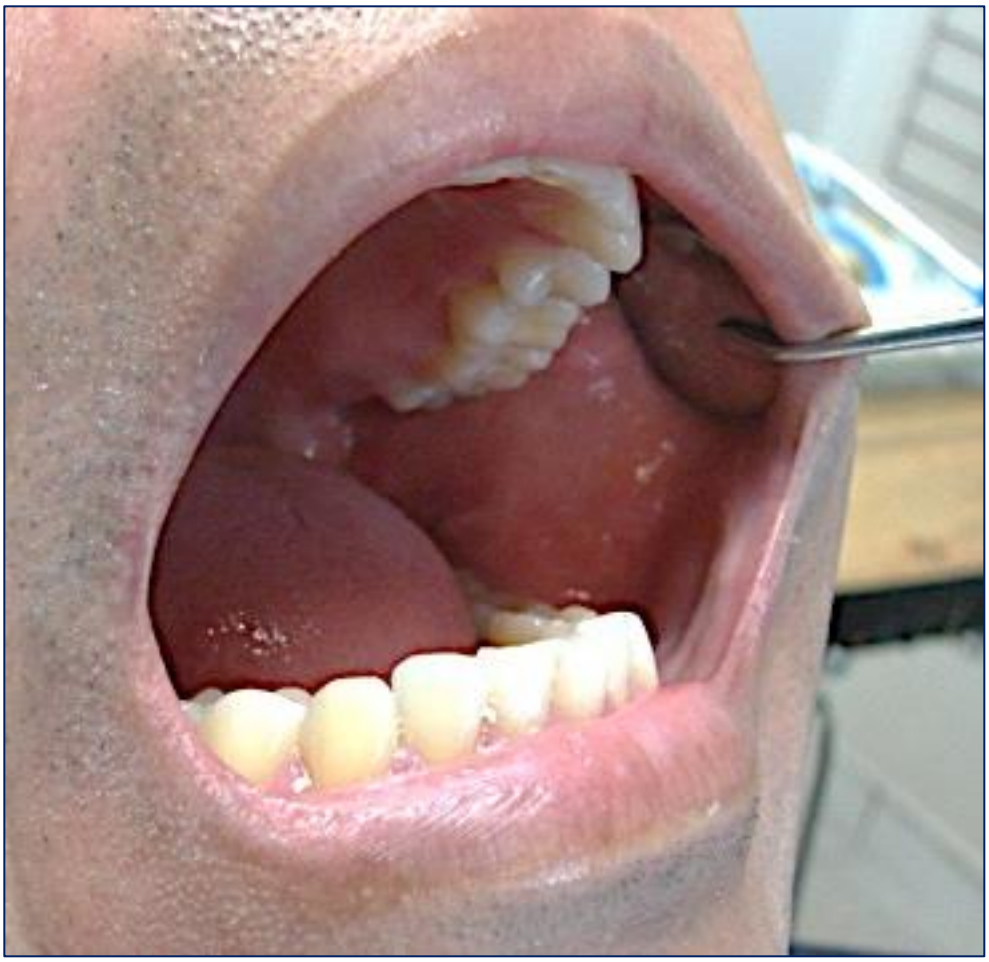

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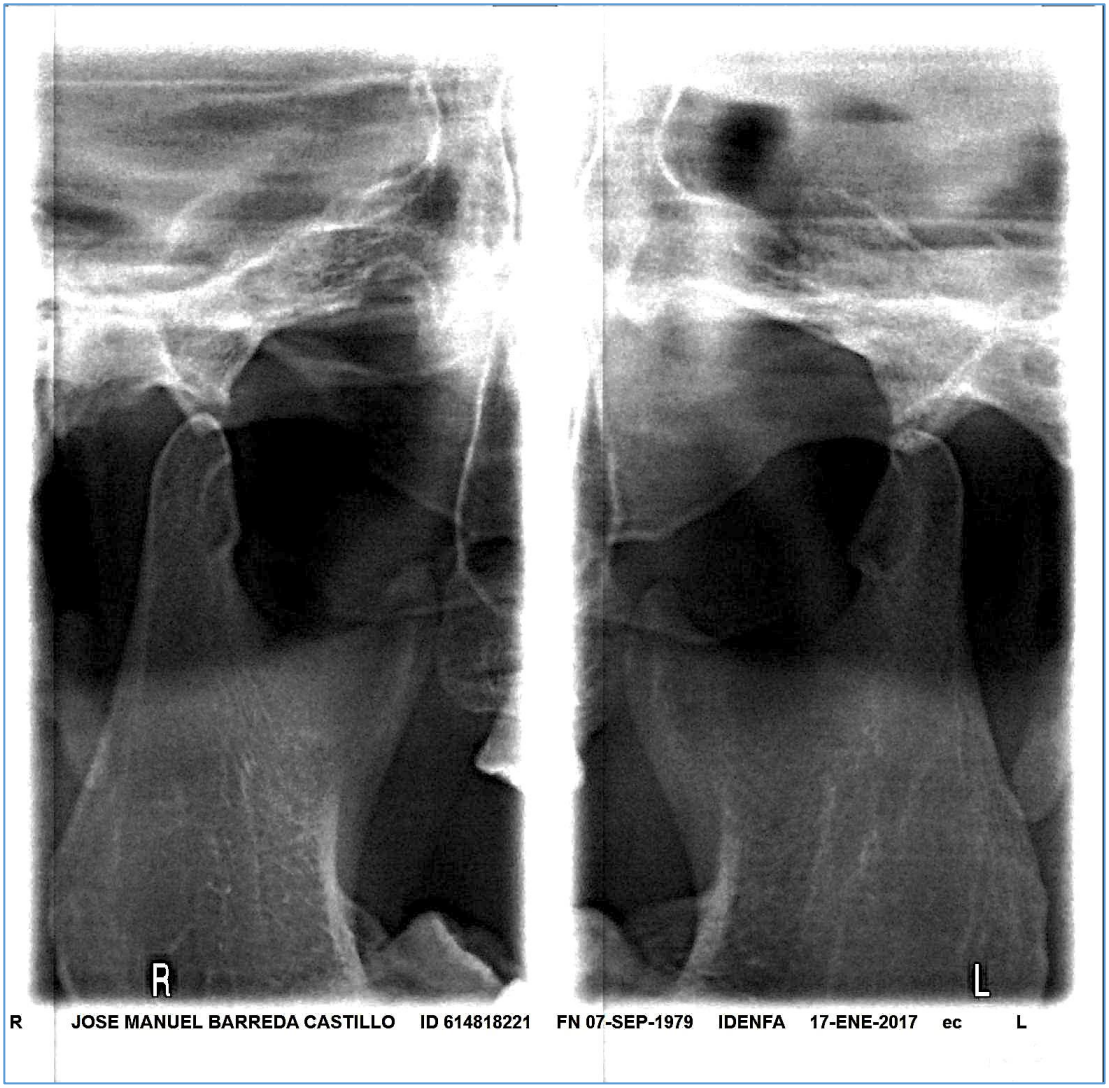

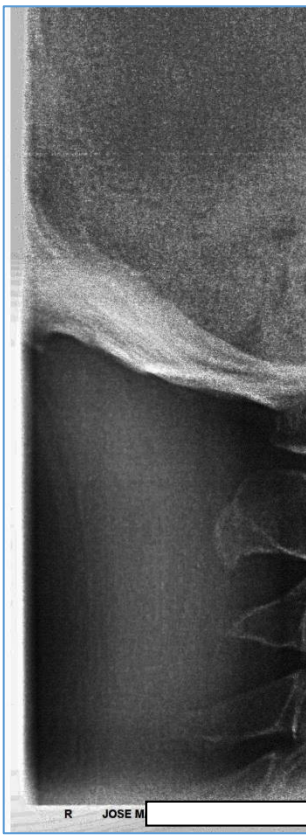

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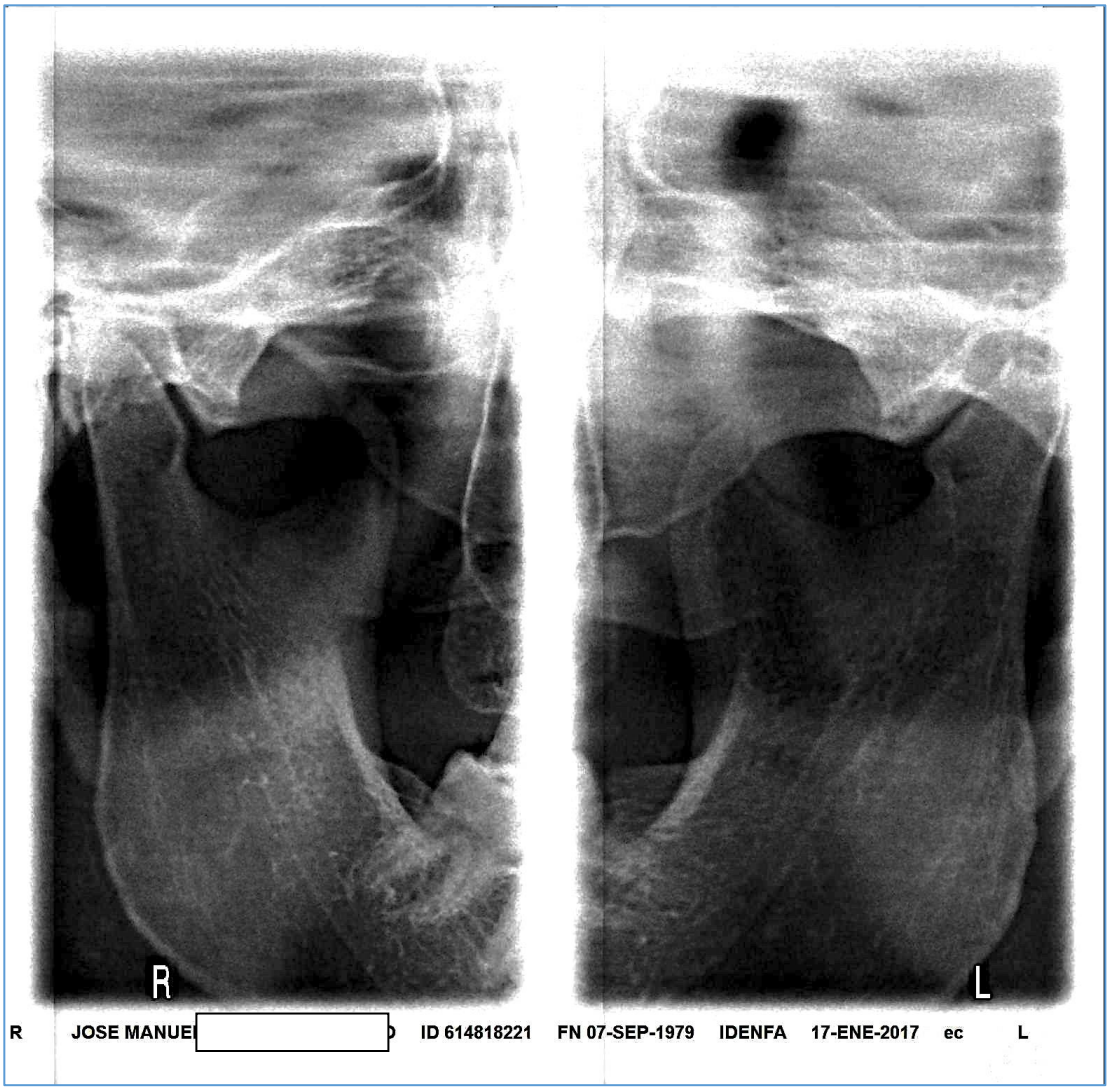
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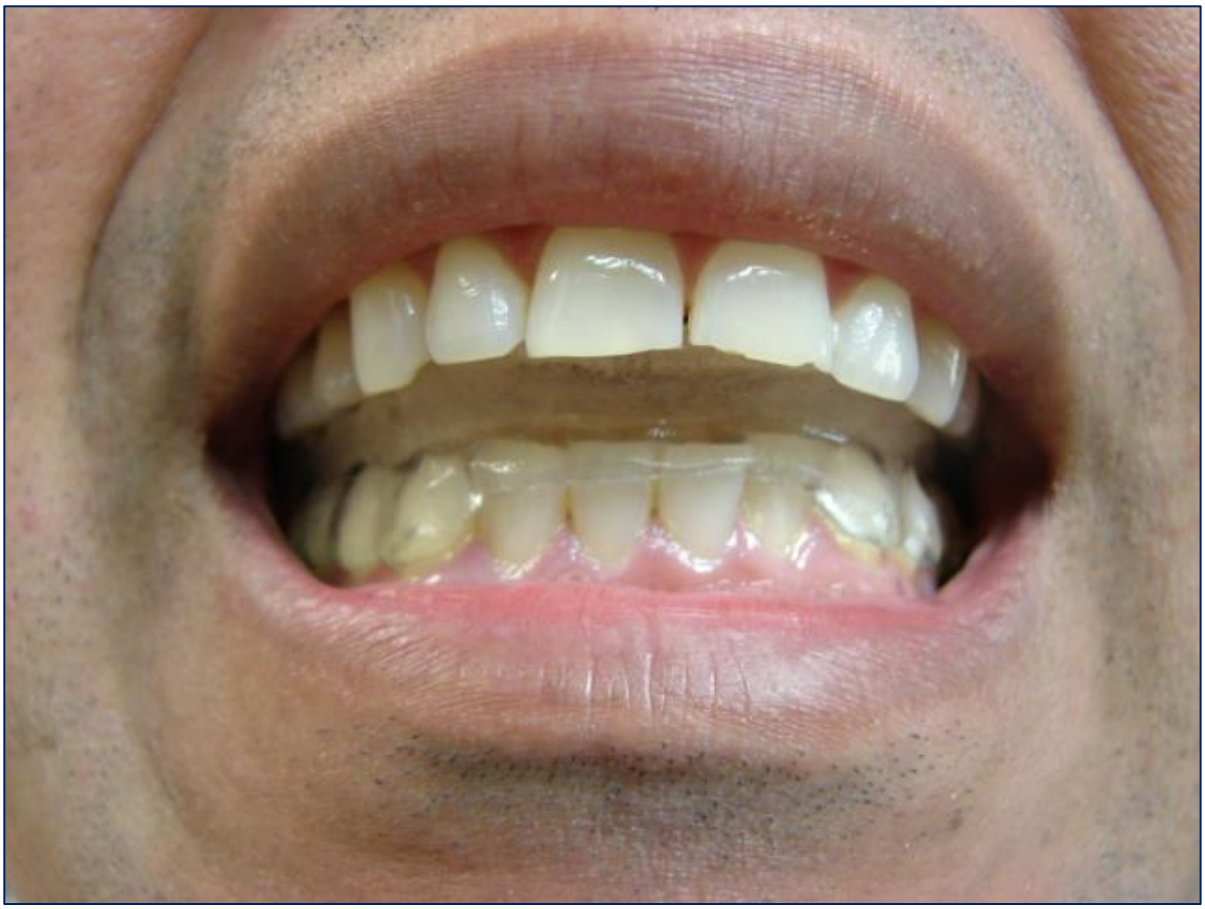

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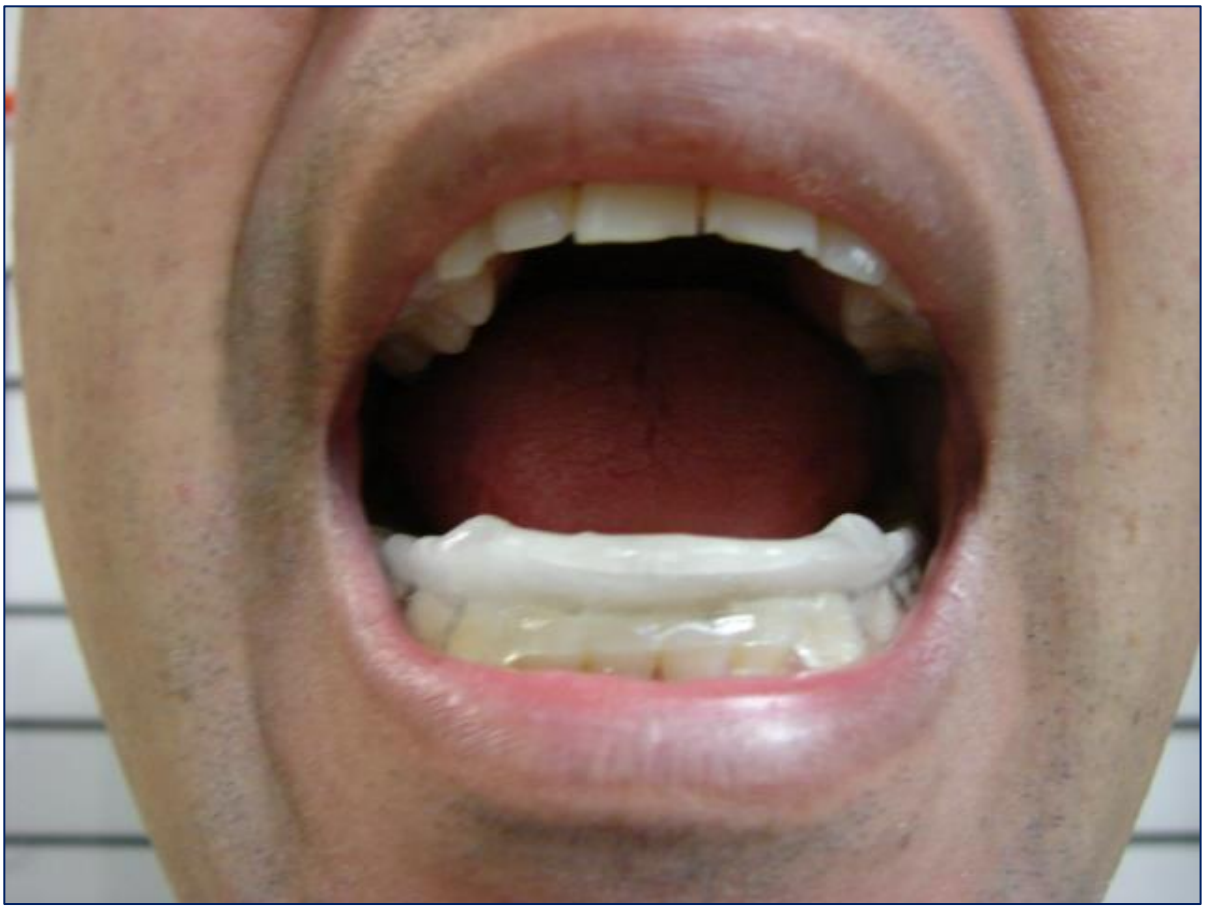

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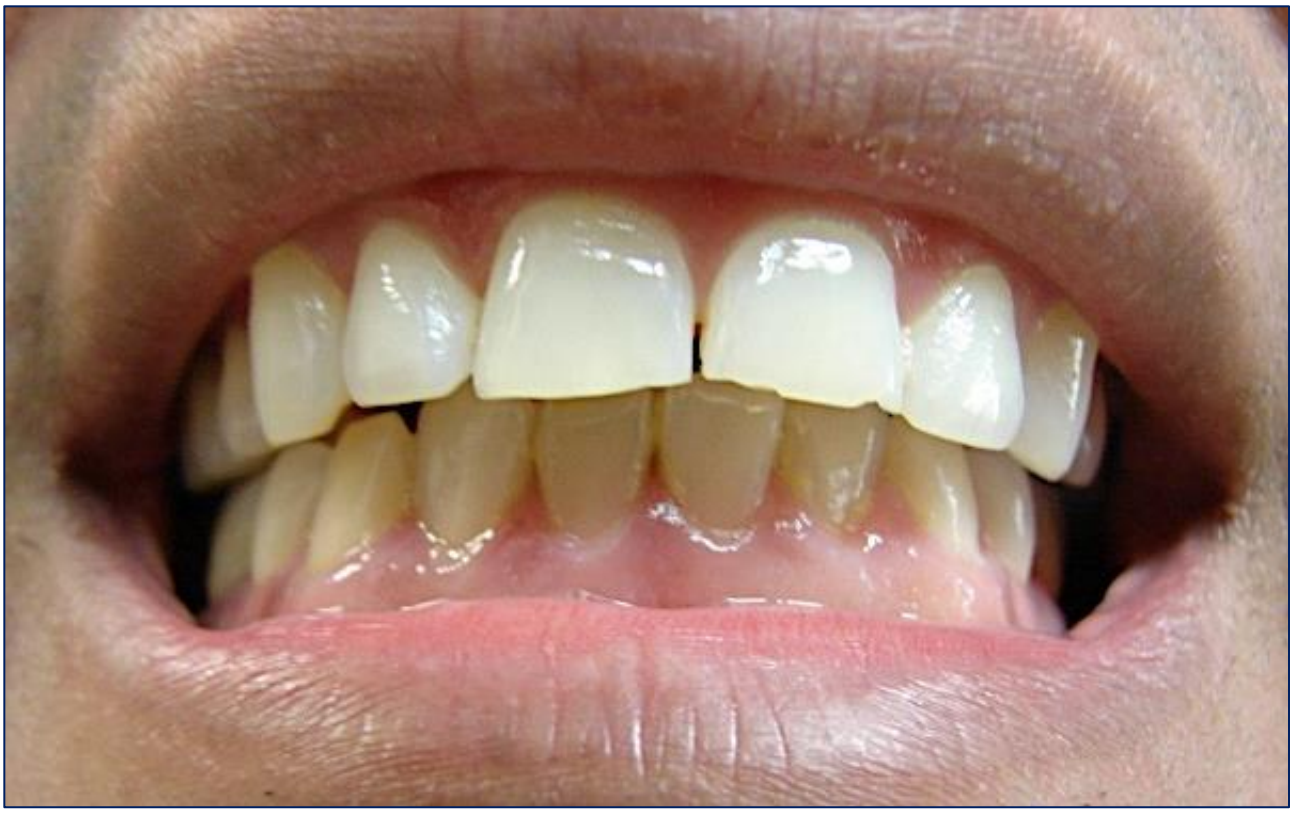

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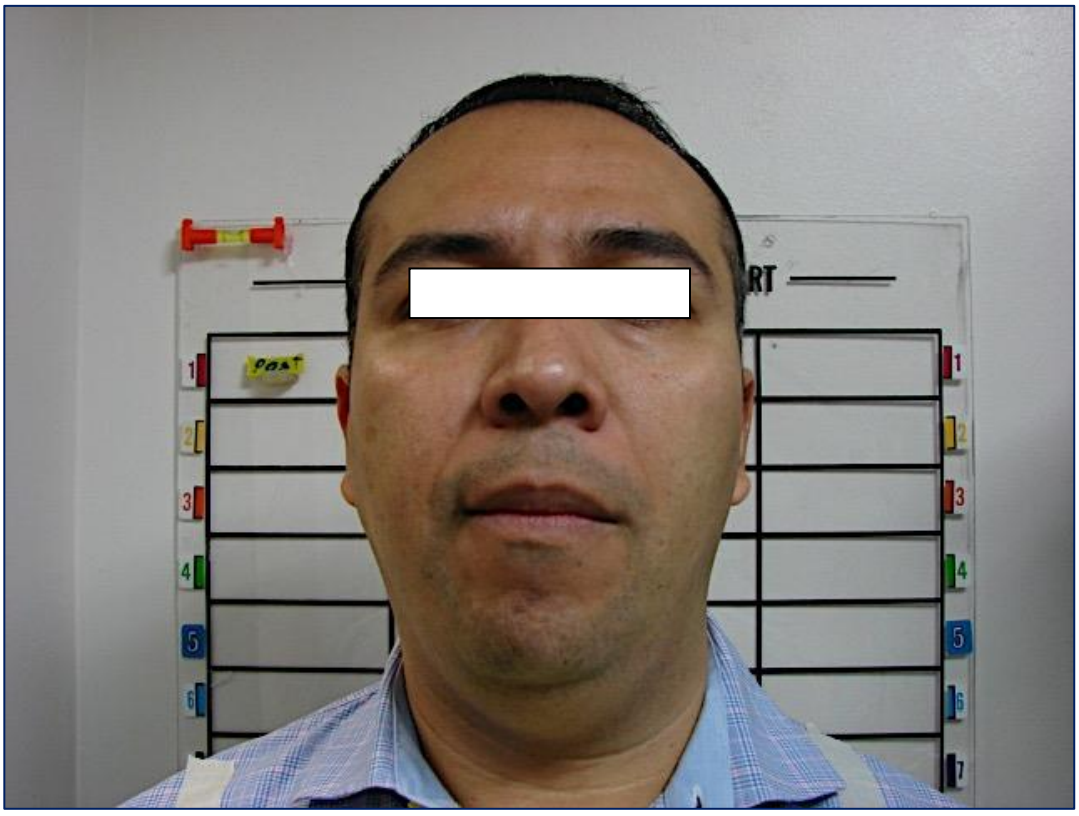

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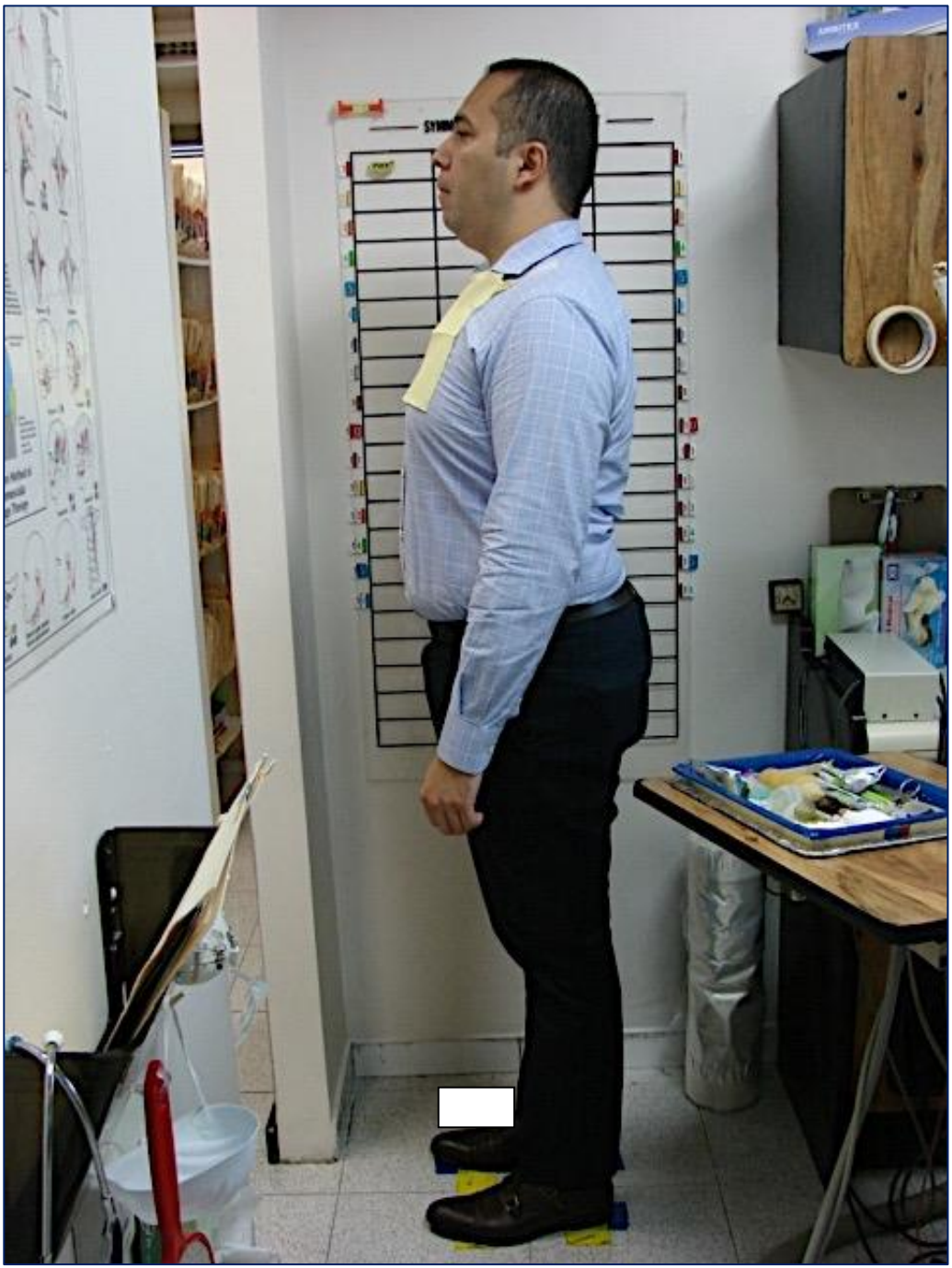

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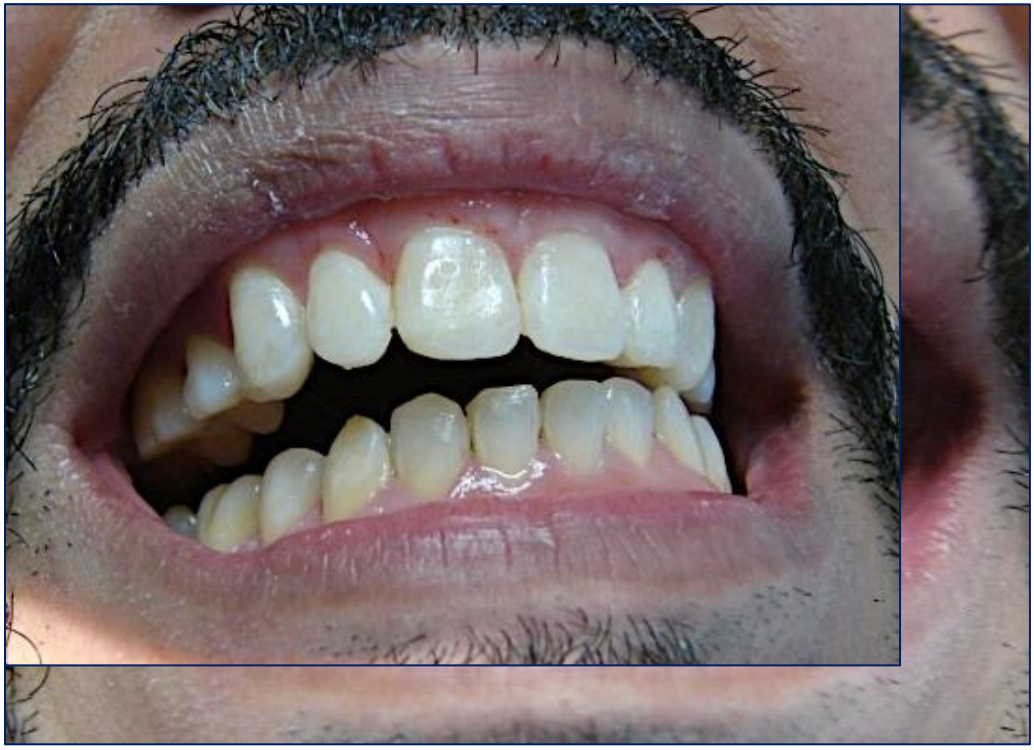

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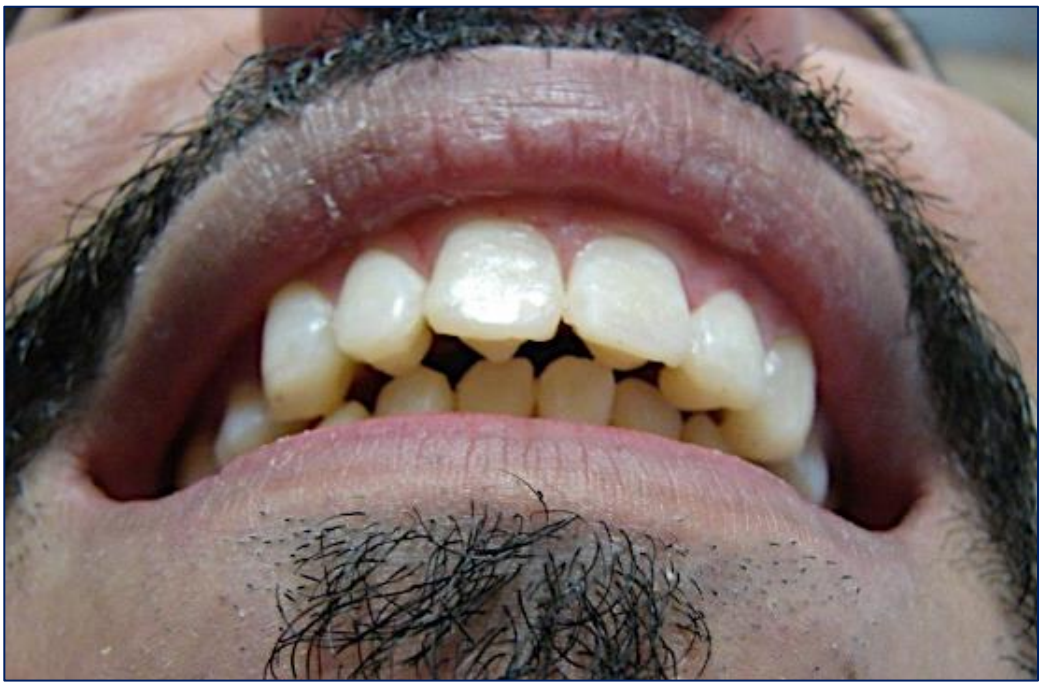
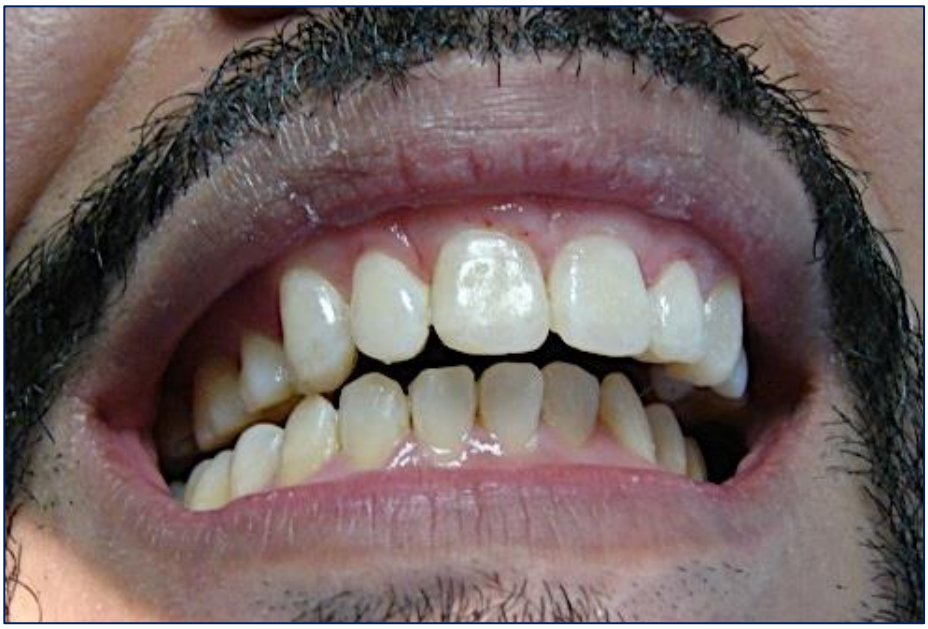


Figure 21.

Figure 22.



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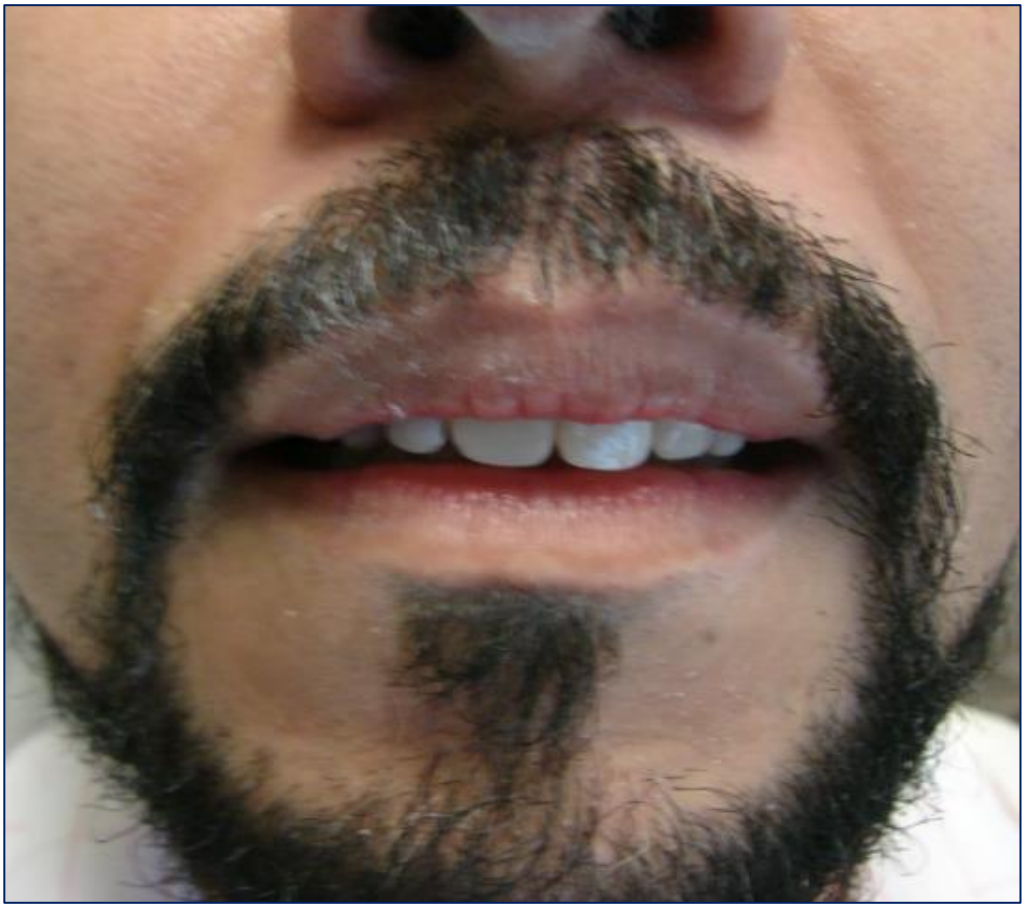

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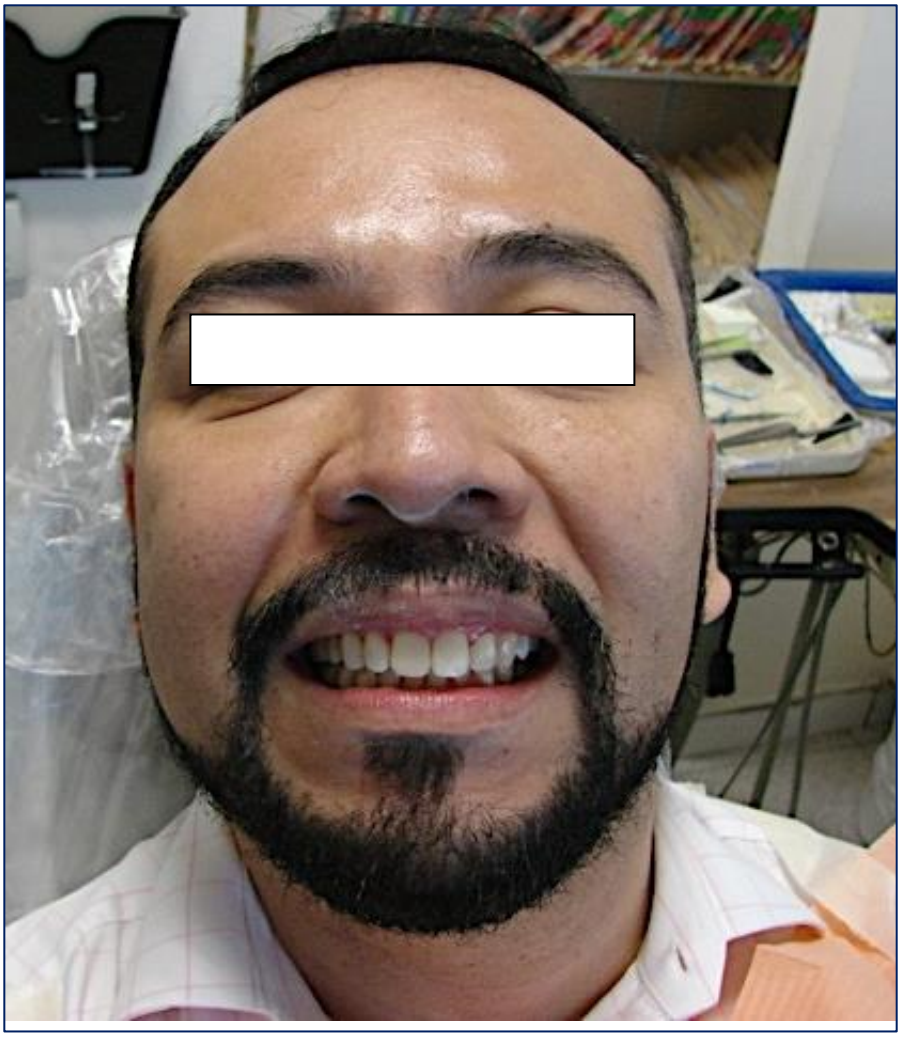

Figure 25.

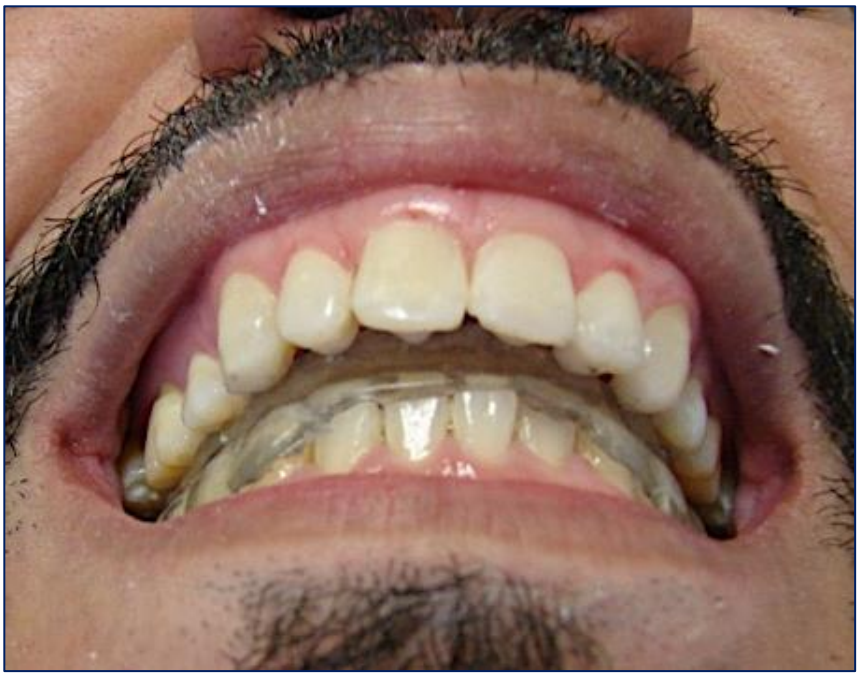

Figure 26.