SCIENTIFIC ARCHIVES OF DENTAL SCIENCES

Volume 2 Issue 8 August 2019

Case Report

Anterior Open Bite Surgical Treatment (Tt) Surgery

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Received: June 26, 2019; **Published:** July 04, 2019

Abstract

Whatever was the cause of the anterior open bite, patient will end of having beside his Dental problem or situation, an increase in the vertical dimension of his maxilla posterior part, Pushing the lower jaw downwards, leading to a long lower third of the face comparing with the Upper and midface. In other words patient will end of having a skeletal open bite, that makes. Any orthodontic treatment trying to close the dental open bite, with also of its limitation in correcting this facial deformity. The orthodontic treatment will not give the ideal solution to a patient with skeletal open bite. That could be only achieved through surgery done on the elongated maxilla. The purpose of this article is to present a case of open bite that was treated surgically, through a What I tried to name (Tt) operation (Touleimat technique).

Keywords: Open Bite; Upper Jaw; Maxilla; Anterior; Malocclusion

Introduction

An anterior open bite is generally defined as a condition where the upper and lower posterior teeth are touching when the patient bites down, but the anterior teeth are not in occlusion. Or; An anterior open bite is generally defined as a condition where the upper and lower posterior teeth are touching when the patient bites down, but the anterior teeth are not in occlusion (Figure 1).

Figure 1

Anterior open bite is found in 17% of patients seeking orthodontic treatment [1,2].

Orthodontists face several challenges in treating this malocclusion, including whether to recommend extractions or surgery and how to maintain stability after correction [3,4].

Because the etiology of anterior open bite may be multifactorial, it often requires comprehensive, multidisciplinary treatment. Physical characteristics such as facial pattern may be involved in its development [5].

Anterior open bite, like most other malocclusions, can either be hereditary or have environmental causes and most of the time are usually a combination of both.

Some of the more common causes for open bite are:

- Thumb, finger or pacifier sucking
- Abnormal tongue function (such as tongue thrusting) or large tongue that occupies the space between the teeth
- Trauma or pathology to one or both condyles
- Neurologic disturbances iatrogenic factors, e.g. extruding molars during treatment
- Airway pathology.

Other contributing factors include habits such as non-nutritive sucking [6,7], abnormal swallowing, atypical speech, mouth breathing, variable resting tongue postures [8] and occlusive and eruptive forces in disequilibrium [9].

Effective and stable correction depends on an accurate diagnosis of the anterior open bite.

Since this state of malocclusion is created by somehow by elongation of the vertical dimension.

Of the upper jaw, it will be characterized with a long lower third of the patient. That could not be corrected by orthodontic treatment alone to make surgery always indicated as the treatment of choice to achieve the best cosmetic and functional results (Figure 2).

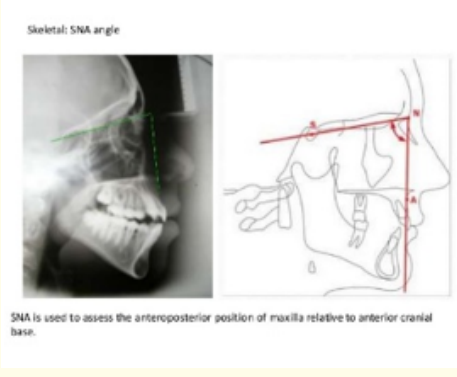

Table 1. Comparison of the dental pattern of the patients with anterior open bite and normal overbite.

Cephalometric measurements	Anterior open bite			Normal overbite			p
	Median	Min	Max	Median	Min	Max	
SN.PlO	18.0	10.0	24.5	18.75	9.0	26.0	n.s
1.1	129.5	117.0	140.0	122.0	108.0	127.0	*
1.NA	21.5	17.0	29.5	28.5	20.5	44.0	*
1.NB	25.0	18.5	32.0	30.0	23.0	38.5	*
1-NA	4.0	2.5	8.5	5.5	3.5	12.0	n.s
1-NB	4.0	1.5	7.5	5.0	2.5	11.0	n.s

n.s. = non-significant; * = significant at 5% ($p<0.05$).

Figure 2: *From a Study done by: David J Dung DDS, MS[a] Richard J. Smith DMD, PhDa.*

Case Report

A 32 years old man was referred to my office by an orthodontist has his own practice in the gulf area. His CC was difficulty of bitting his sandwich and some difficulty pronouncing certain wards.

Clinical exam revealed:

- Long face, because of a long lower third.
- Open bite started anterior to the upper canine.
- Lips separation.
- Diastema (Figure 3-5).

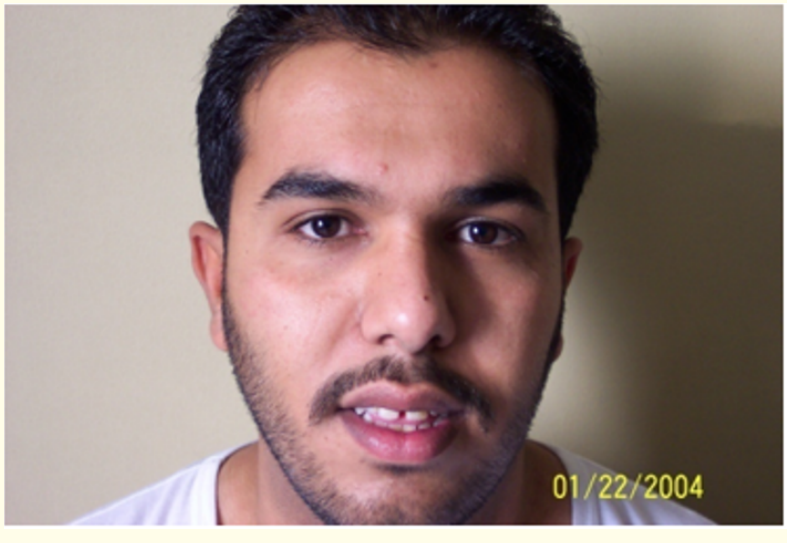

Figure 3

Figure 4

Figure 5

Incisal /lip relation was a little acceptable and will be better after the reduction of the posterior part of max (Figure 6).

Figure 6

It is good to notice that

- In such cases The mandible teeth will stay in normal position as if no effects to the upper jaw on the lower one.
- The only thing is that the lower jaw has rotated downward and backward because of the over grout of pos. max (Figure 7).

Model surgery

According to the cephalometric evaluation; the amount of bone reduction on the upper jaw was estimated (Figure 8).

- Elongation of pos. max.
- Central incisor prot.

Figure 7

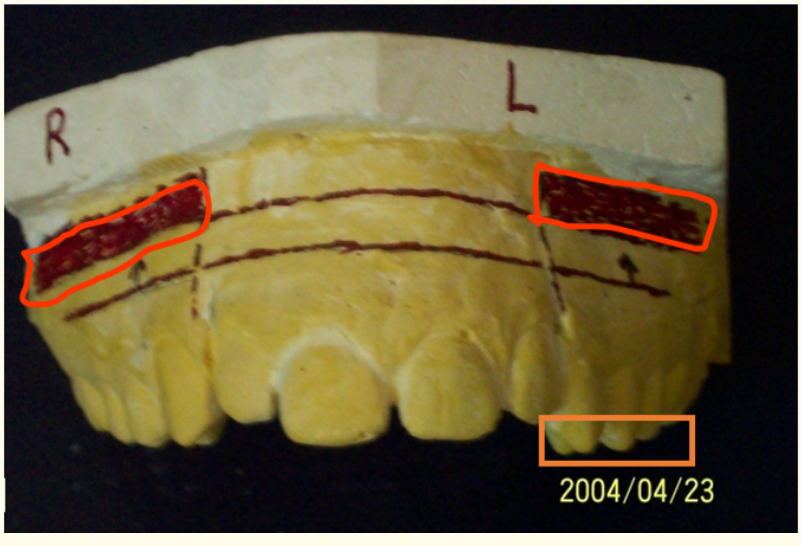

Figure 8

- The amount of max.post portion elongation.
- That means the amount of bone should be removed to in the same time the amount of lower face reduction.

To do so

1- The max. should be cut to three parts
2- Free the two posterior parts from the other facial bones
3- Keeping the middle part intact
4- Removing the amount of bone
5- Fixing all parts together in the new position (Figure 9-11).

Figure 9

Figure 10

Figure 11

The new relation

- To secure blood supply to the fragments:
- Surgery will be done in two stages.

1. Separation from the palatal area. (The bone is cut through the palatal flap between the lit and canine and long way back to the tuberosity. 1st Stage (Figure 12 and 13).

2. Then removing bone from buccal side with 10 days intervals (From the buccal side the posterior segments are freed and the amount of bone to be removed is cut) 2nd Stage (Figure 14-16).

Figure 17 and 18 show the amount of bone that was remove on both sides, from the posterior part of the Max.to close the anterior dental open bite, and to reduce in the same time the length of the lower third of the face (close the skeletal open bite).

Figure 12

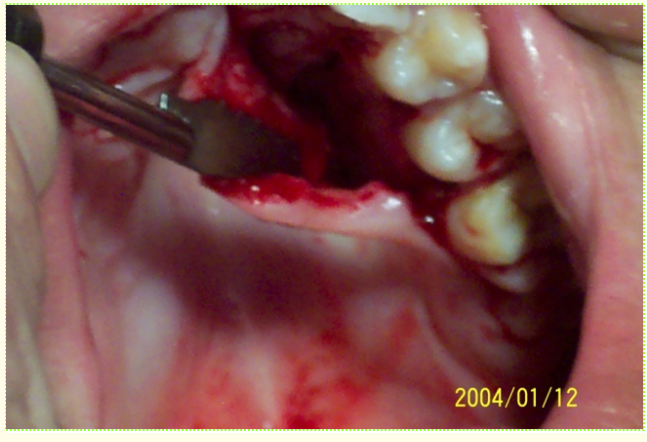

Figure 13

Figure 14

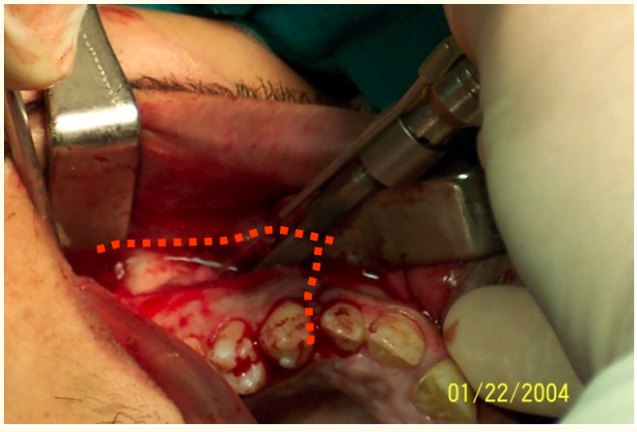

Figure 15

Figure 16

Figure 17

Figure 18

With also some trimming using a surgical bur.to fit the segments in the wright place (Figure 19).

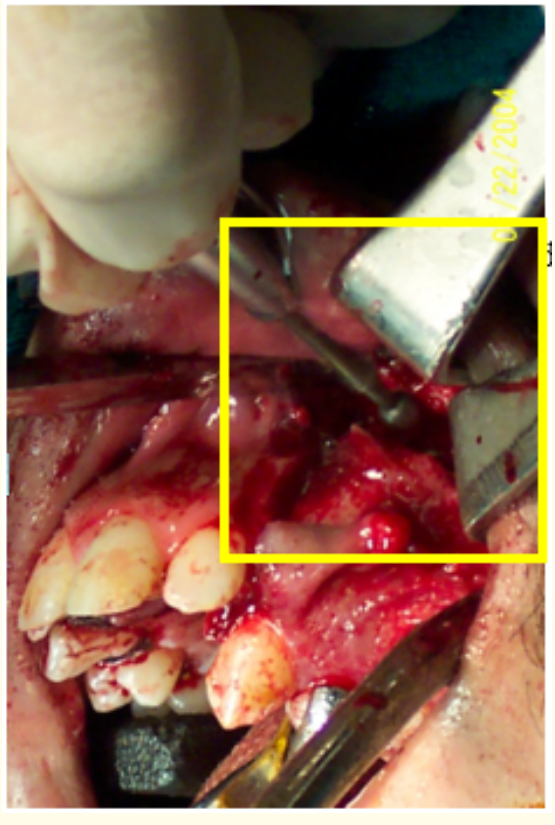

Figure 19

IMF in the new position (Figure 20).

Removal of IMF after 3 weeks (Figure 21).

Post op results.

The orthodontics will bring the teeth to good relation and position.

The case after 7 months, Shorter face and good lips relation (Figure 22-24).

Figure 20

Figure 21

Figure 22: *Post.*

Figure 23: *Pre.*

Figure 24: *Pre. Op.*

Figure 25: *Post. OP.*

Discussion

Nonsurgical correction is more complicated and usually requires longer treatment [10]. To my experience, no surgical treatment alone could be a solution for a limited numbers and non-severe cases.

Skeletal open bite is ideally treated with a combination of orthodontics and orthognathic surgery. The advantages of the surgical option are that the overbite can be overcorrected, a gummy smile can be resolved, and post-treatment stability will be improved [11]. The presented case, concerning the severity of the anterior open bite and the age of full grown patient, time consuming, this kind of a combination of orthodontics and orthognathic surgery was indicated.

Conclusion

As in many cases of skeletal orthognathic cases, were the basal bone is involved the cooperation between the surgical and orthodontic groups, for ideal and stable results of treatment is really necessary and indicated.

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