REDUCTION MANDIBULOPLASTY FOR FACIAL AESTHETIC ENHANCEMENT IN WESTERN WOMEN - A CASE REPORT

MANDIBULOPLASTIA DE REDUÇÃO PARA MELHORIA ESTÉTICA FACIAL NA MULHER OCIDENTAL - RELATO DE CASO

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ABSTRACT: This paper reports on the case of a Western female patient with square jaw and low mandibular angle deformity who sought treatment for aesthetic facial enhancement. While face-narrowing surgical procedures are especially popular among Asian women, there seems to be a general, cross-cultural agreement that a beautiful female face should be oval and slender. Under general anesthesia, intra-oral incisions were performed bilaterally to approach the mandibular angles. After periosteal elevation, bilateral corticectomies of the mandibular rami and "V" ostectomies of the mandibular base were executed. Postoperative recovery was uneventful. Six months after surgery, the patient's face was not only rounder and gentler in the frontal view, but also showed an evident increase of the gonial angles in the profile and three-quarter views.

KEYWORDS: Mandibular osteotomy. Face. Esthetics.

INTRODUCTION

The square jaw with low angle deformity, commonly referred to as "square face", is a condition defined by a gonial angle between 120 and 90 degree accompanied by a mandibular plane angle lower than 30 degrees, which results in a face with a flat mandibular outline (HSU et al, 2010). While the prominent mandibular angle is a common facial trait throughout the world, it is especially prevalent in Asia. When combined with masseteric hypertrophy, it results in the characteristic "square face" (DEGUCHI et al., 1997). Causes of prominent mandibular angle have been ascribed to hereditary conditions and parafunctional habits such as bruxism and long-lasting unilateral chewing (GUI et al., 2005). While the presence of a prominent mandibular angle does not lead to any functional impairment, the condition is usually considered anti-aesthetic and may erode an individual's self-perception (GUI et al., 2005).

After few reports on masseteric hypertrophy in the late 19th century, several surgeons proposed different procedures for correcting the "square jaw" (BAEK et al., 1989). Intraoral mandibular angle reduction with an oscillating saw became the primary technique for reduction mandibuloplasty. However, while mandibular angle ostectomy may improve the contour of the mandibular angle from a lateral perspective, it does not narrow the mandible effectively in the frontal view; therefore, mandibular angle-splitting ostectomy and other surgical refinements were developed to enhance the aesthetic effect (DEGUCHI et al., 1997). A combined approach naturally followed, with mandibular angle resection being performed concomitantly with angle-splitting ostectomy, which enabled the narrowing of the lower face and the improvement of the mandibular plane with a single procedure (HWANG et al., 2004; CHEN et al., 2013).

In Asian cultures, women with wide and square faces are considered of forceful or unfriendly character, since the prominent mandibular angle creates a quadrangular, masculine appearance (HSU et al., 2010). Asian women with prominent mandibular angle seem to regard oval and slender faces as more feminine, beautiful and attractive; thus, facial recontouring in pursue of such "ideal" face is extremely popular in Asia (HWANG et al., 2004; LI et al., 2012).

Still, people from different cultural and ethnical backgrounds generally agree on which faces are attractive. One study involving Japanese and Caucasian individuals showed similar preferences for female facial composites (PERRETT et al., 1994), and concluded that aesthetic judgments of female faces are similar across different cultures and ethnicities. Unpleasant facial features were also a matter of scientific scrutiny: faces that are wider at the mouth/mandibular angle level correlated negatively, while not significantly, with facial attractiveness in women (BAUDOUIN;

TIBERGHIEN, 2004). In another study, mandibular angle width (Go-Go) was a major component of cheekbones-jaw prominence, a trait both largely and positively correlated with masculinity as rated by male volunteers (PIVONKOVA et al., 2011).
In this paper, we report on the case of a Western female patient with square jaw and low angle deformity who sought treatment for aesthetic facial enhancement.

CASE REPORT

A 28-year-old female visited our service complaining of general dissatisfaction with her facial appearance. The main concern was her "big jaw", which gave her face a masculine look. At clinical examination, we observed an enlargement of the mandibular angles with a somewhat "square face" appearance in the frontal view (Figure 1A), while her profile revealed low gonial angles bilaterally (Figure 1B and C). Masseter hypertrophy and sialopathies were ruled out after imaging studies (panorex and ultrasonography) identified solely the relatively enlarged mandibular angles (Figure 2).

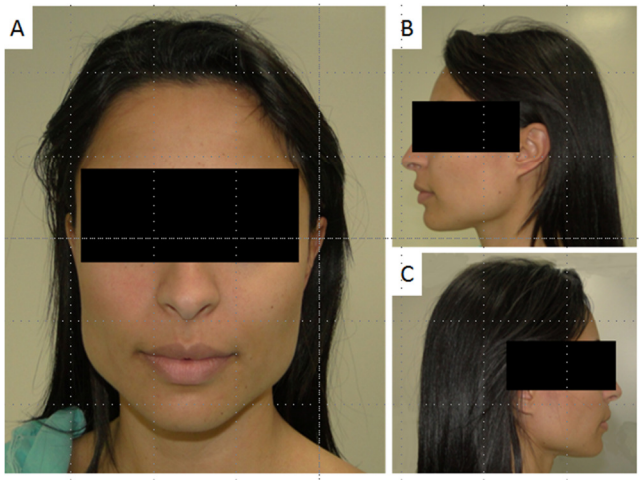

Figure 1. Frontal (A), left (B) and right (C) preoperative views. The lateral flaring of the posterior mandible and the low gonial angle are evident.

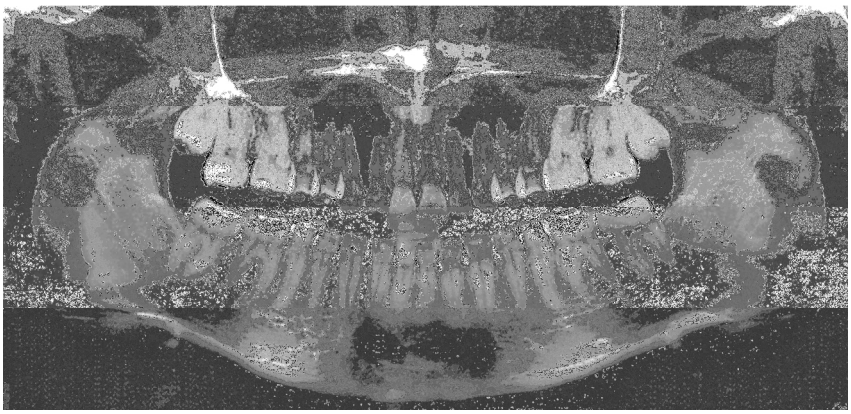

Figure 2. Panoramic radiograph clearly depicting the enlarged mandibular angles.

Given the clinical and imageological findings, we proposed a reduction mandibuloplasty to address her aesthetic concerns. Upon her acceptance, a real-sized prototype of her mandible was requested to aid with ostectomy planning (Figures 3A and B).
Under general anesthesia, the mandibular angles were approached through bilateral intraoral incisions, which extended from a midpoint between the upper and lower molars running down the lateral crest of the external oblique ridge and ending near the canine region on the same side. Utmost care was taken to preserve the mental nerve during incision and soft tissue retraction. Using a reciprocating saw and chisels, corticectomy of the lateral aspect of the mandibular ramus followed by "V" ostectomy of the mandibular base were performed bilaterally (Figure 3C-E).

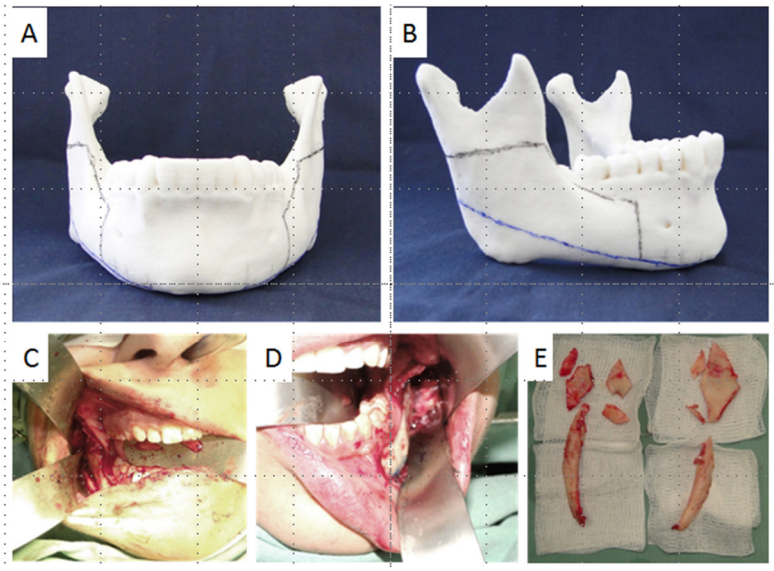

Figure 3. Prototype for preoperative planning (A and B). The "V-line" ostectomy is marked in blue, while the outer cortex ostectomy is marked in black. C and D, intraoperative views. E, bone fragments removed.

Six months postoperatively, her face was rounder and gentler in the frontal view, without any significant asymmetry (Fig. 4A). In the profile and three-quarter views, the increase of the gonial angles was evident (Figure 4B and C). The postoperative panoramic radiograph shows the attenuation of the mandibular angle. (Figure 5). The patient had no pain or paresthesia and was pleased with the surgical result.

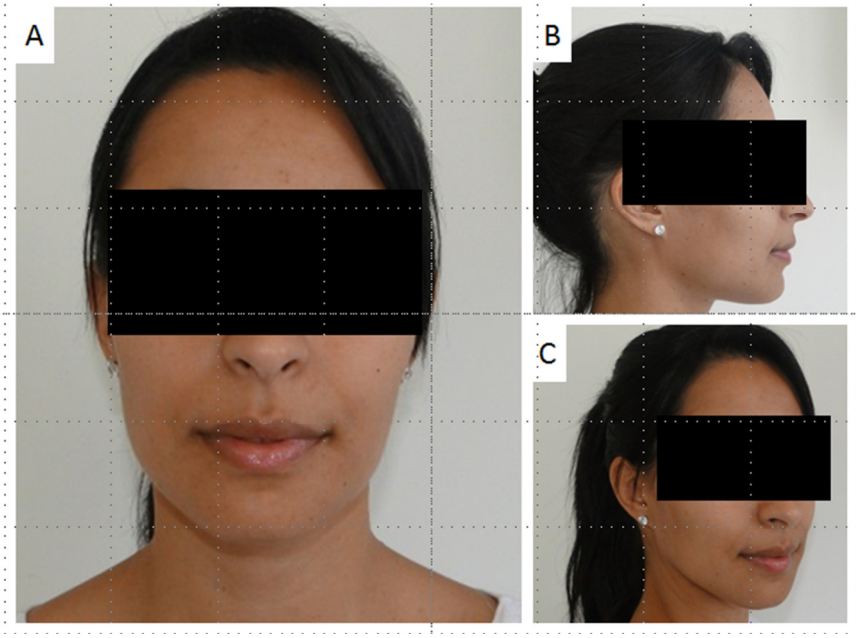

Figure 4. Frontal (A), right lateral (B) and right three-quarter (C) postoperative views. The face is rounder, and the profile, natural and graceful.

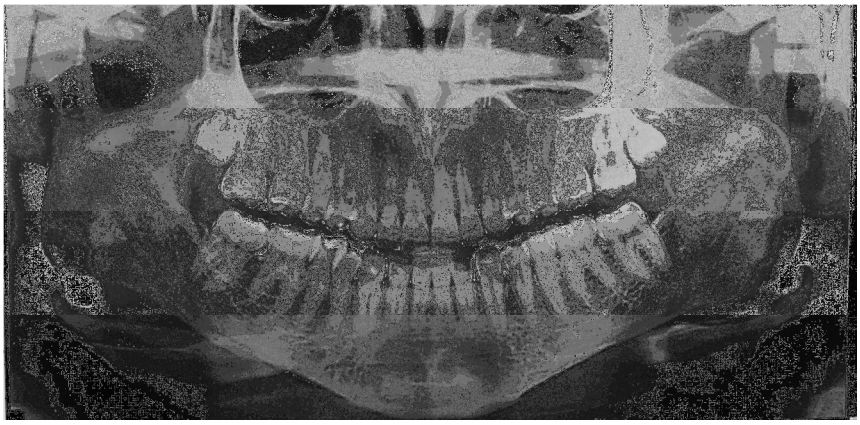

Figure 5. Postoperative panoramic radiograph shows the softening of the mandibular angle.

The prominent mandibular angle is a common facial trait across countries and ethnical backgrounds. In patients with prominent mandibular angles, varying degrees of masseteric hypertrophy may also be present in a condition known as "square face syndrome" (GUI et al., 2005). The low angle deformity is the feature most commonly seen in patients with square faces. In that deformity, the gonial angle is below 120^{o} and the mandibular plane angle is under 20 degrees (LI et al., 2012). In general, a beautiful female face is oval in the frontal view, with a slender lower facial third, a gonial angle around 120^{o} and a mandibular plane angle around 25 to 30^{o} in the profile view (HSU et al, 2010). The patient in this report had a gonial angle below 120^{o} and a mandibular plane angle under 20^{o}.

Hereditariness or parafunctions, among other conditions, can result in prominent mandibular angles. While the condition is not usually associated with craniofacial dysfunctions, it surely has an impact on facial contour and may erode one's self-perception (GUI et al., 2005). Our patient reported that she "looked like her mother", leading us to the conclusion that her condition was hereditary.

Li and coworkers (2013) published a case series in which 17 patients were subjected to lateral corticectomies of the mandibular rami and "V" ostectomies of the mandibular base. Fourteen out of the 17 pacients reported being very satisfied with the result. The authors suggested that best results can be achieved only after thorough facial analysis, which then determines what surgical procedures must be performed.

Reshaping of the mandible is more effective than any soft tissue surgery in reducing the width of the lower face (BAEK et al., 1989; DEGUCHI et al., 1997). Baek and coworkers coined the term "prominent mandibular angle" when presenting their technique to reduce the width of the lower face through mandible recontouring (BAEK et al., 1989). In 1994, the same group categorized prominent mandibular angles into three types (A, B and C) based on the degree of lateral flaring and posterior projection of the mandibular angle region (BAEK et al., 1994). The main deformity of group A is the posteroinferior projection of the gonial angle. Group B deformities feature lateral flaring mostly, and group C deformities combine A and B groups' features. Based on this classification, the authors proposed three different surgical strategies: group A patients would receive a curved or a "V-line" ostectomy, while tangential or outer cortex ostectomy were indicated for patients in group B. For group C patients, both curved and tangential ostectomy should be used. Our patient's case could be considered as a C type, and the treatment option was therefore one that included outer cortex and "V-line" mandibular ostectomies.

This combination narrows the lower facial third, giving the whole face a "melon seed" contour that is considered pleasant in females (HSU et al., 2010). The "V-line" ostectomy is designed according to each individual patient, since the inclination of the cut has to consider the location of the mandibular canal, the shape of mental region, and the adjustment of the lower mandibular plane angle (HSU et al., 2010). These authors also wrote that, in a woman of consensual beauty, the distance between the auricular lobule and the gonial angle is around 2 cm on a body-surface projection. Therefore, if the ostectomy is excessive and brings the gonial angle and the ear lobule too close together, the resultant facial contour may be unnatural especially in the lateral view. As seen in figure 4B and C, we were fortunate enough to have achieved a natural and elegant profile.

Complications intrinsic to the procedures reported in this work are best treated by prevention. The design of the ostectomies should be carefully planned, accurately measured and drawn with a surgical marker before bone cuts are made. The surgeon must always define precisely where the

inferior border of the mandible is, and measure from this point upwards to avoid nerve injury and assimetries. If the ostectomy is made too high on the mandibular body, the inferior alveolar nerve may be injured. Surgical templates are useful, since it is always best to err on the side of safety and risk avoidance. Kang (2014) reported on sensory deficits after revisiting 588 cases. Prevalence of this complication was 6.46%, with complete resolution happening within one year after surgery in all cases. Other less common complications of the procedures used here are infection, facial palsy and excessive bleeding (KANG, 2014). Fortunately, we experienced none of such complications.

As demonstrated in this case report, the combination of lateral corticectomy of mandibular rami and "V" ostectomy of the mandibular base is a feasible approach for treating the square jaw and low angle deformity.

RESUMO: Este trabalho relata o caso de uma paciente ocidental do sexo feminino com "face quadrada" e ângulo mandibular baixo que procurou tratamento para o aprimoramento estético facial. Embora procedimentos cirúrgicos que produzem um rosto mais estreito sejam especialmente populares entre mulheres asiáticas, parece haver um consenso geral e transcultural com relação às características de um rosto feminino bonito, que tende a ser oval e afilado. Sob anestesia geral, realizou-se incisões intra-orais para abordagem dos ângulos mandibulares. Após a elevação do periósteo, executou-se corticectomias das faces laterais dos ramos mandibulares e ostectomias em "V" das bordas inferiores da mandíbula. Não houve complicação pós-operatória. Seis meses após a cirurgia, a face da paciente mostrava-se não só mais arredondada e delicada na vista frontal, mas também com um aumento evidente dos ângulos goníacos nas vistas lateral e oblíqua.

PALAVRAS-CHAVE: Osteotomia mandibular. Face. Estética.

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