

Case report

In-hospital surgical treatment for haemorrhage after aesthetic mandibular osteotomy performed as an office-based day surgery: A case report



Kosuke Kanke^a, Takahiro Abe^{a,*}, Masanobu Abe^a, Yoshiyuki Mori^b, Kazuto Hoshi^a, Tsuyoshi Takato^a

^a Department of Oral and Maxillofacial Surgery, Dentistry and Orthodontics, The University of Tokyo Hospital, Hongo 7-3-1 Bunkyo-ku, Tokyo, 113-8655, Japan

^b Department of Dentistry, Oral and Maxillofacial Surgery, Jichi Medical University, Yakushiji 3311-1, Shimotsuke-shi, Tochigi, 329-0498, Japan

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ABSTRACT

In East Asia, a square face is considered unattractive, and mandibular contouring surgery is commonly used to give a smooth contour to the lower jaw. Mandibular contouring surgery occasionally involves not only osteotomy of the mandibular angle but also resection of the masseter muscle via an intraoral approach. This type of mandibular contouring surgery poses a risk of injury to the premasseteric branch of the facial artery and massive haemorrhage.

Here we report a patient who presented to our hospital with severe haemorrhage, swelling and airway constriction after bilateral mandibular angle and plane osteotomy with resection of the masseter muscle performed elsewhere as an office-based day surgery. The swelling and haemorrhage were treated successfully with emergency bilateral ligation of the facial artery and vein under general anaesthesia.

We concluded that the haemorrhage was caused by rupture of the premasseteric branch of the facial artery during the resection of the masseter muscle in a day surgery.

1. Introduction

The demand for facial cosmetic surgery continues to grow, particularly in East Asia. In this region, a square face is considered unattractive because it gives the impression of a strong and stubborn personality. Angle resection, corticectomy and tubercle excisions are the most commonly used methods of mandibuloplasty [1]. Since its introduction by Beak et al. in 1989, resection to correct prominent mandibular angles has become a common surgical procedure, particularly in East Asia [2,3]. There are several variations of cosmetic mandibular contouring surgery, including mandibular angle reduction, mandibular plane reduction, outer corticectomy and combinations [4,5]. These procedures often include not only osteotomy of the mandibular angle but also resection of the masseter muscle via an intraoral approach [6]. Some modifications of aesthetic mandibular contouring surgery have also been reported [7,8]; taken together, the procedure is becoming complex.

Complex mandibular contouring surgery may have an increased rate of surgical complications, such as post-operative haemorrhage and nerve injury. Although mandibular contouring osteotomy undoubtedly reduces the protrusion of the mandibular angle, patients must be made aware of the potential risks of this cosmetic procedure, particularly

massive bleeding and swelling.

Despite many risks [9], this procedure is often performed as an office-based day surgery. Recent research showed that office-based procedures (surgical and non-surgical) doubled to approximately 10 million surgeries per year between 1995 and 2005 [10]. The safety of an office-based day surgery is still debatable. However, complex surgery can cause severe complications, such as airway constriction and massive haemorrhage, and should be avoided. Here we report a rare case of airway constriction and massive post-operative haemorrhage caused by the rupture of the premasseteric branch of the facial artery after mandibular contouring surgery. We also discuss the possibility of serious post-operative surgical complications of this procedure and the risks associated with an office-based day surgery. This case report complies with the SCARE criteria [11].

2. Presentation of case

A 22-year-old man who was dissatisfied with his appearance, particularly mandibular angle protrusion, underwent bilateral mandibular angle and plane osteotomy with resection of the masseter muscle under general anaesthesia. The procedure was performed by an experienced plastic surgeon as an office-based day surgery at another facility. This

* Corresponding author.

E-mail address: abet-ora@h.u-tokyo.ac.jp (T. Abe).

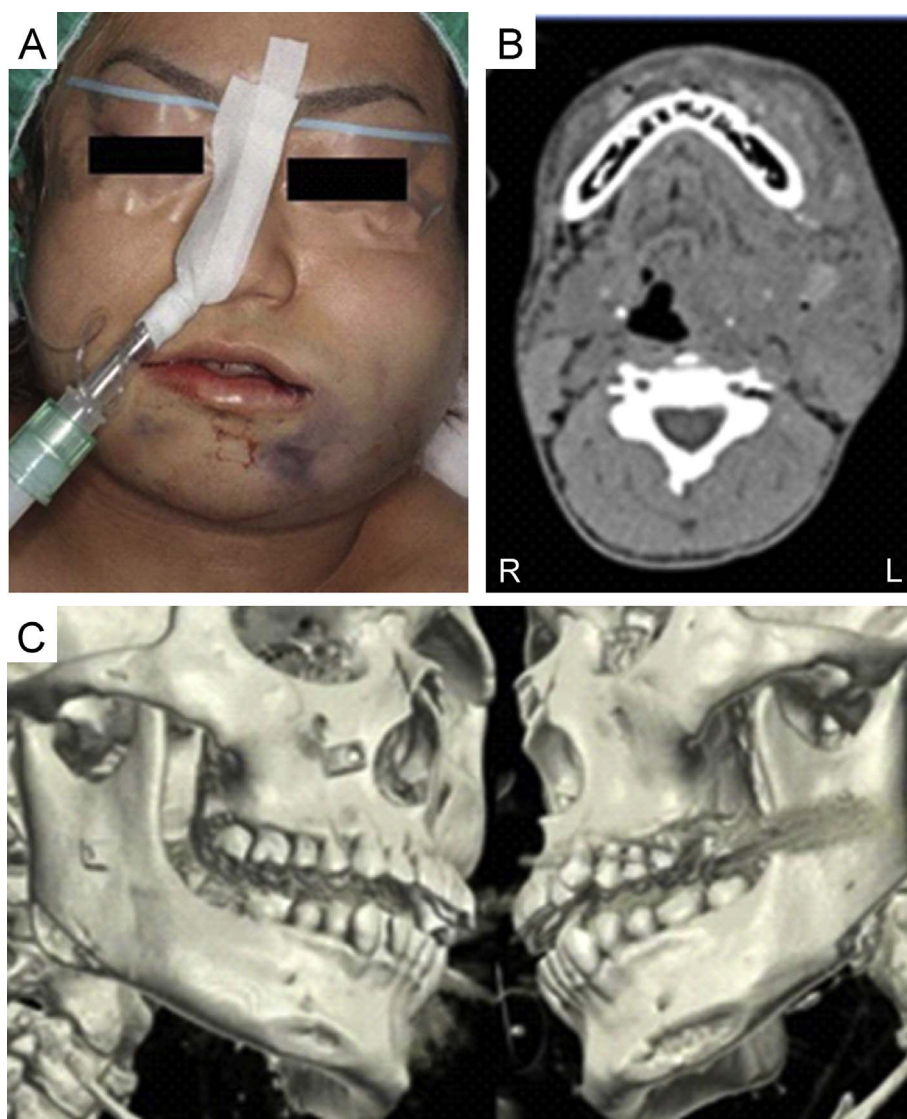


Fig. 1. Findings before haemostasis. A. Marked bilateral facial swelling was present. B. Horizontal computed tomography (CT) image showing internal swelling, predominantly on the left side. The respiratory tract shifted to the right owing to severe swelling. C. Three-dimensional CT image showing evidence of bilateral mandibular angle and plane osteotomy.

was the first cosmetic surgery for the patient. He was transferred to our hospital with a complaint of difficulty in breathing 10 hours after the surgery. His lower face was swollen, particularly on the left side (Fig. 1A), and mouth opening was limited to 13 mm. The soft palate and middle pharyngeal area were also swollen. Computed tomography (CT) revealed a severely constricted airway (Fig. 1B), evidence of bilateral mandibular angle and mandibular plane osteotomy (Fig. 1C) and features indicating continuous haemorrhage from the surgical site.

We performed intraoral haemostasis at the surgical site via transnasal intubation with a fiberscope under general anaesthesia. We found large blood clots and continuous haemorrhage and noted a dissected left mental nerve at the mandibular contouring site. We could not confirm the source of the bleeding, but haemostasis was temporarily achieved via electrocoagulation and the application of oxidised regenerated cellulose (Surgicel®; Ethicon, Somerville, NJ).

Intubation was continued for 3 days after our initial intervention under sedation at the high care unit in our hospital, with monitoring of haemorrhage, swelling and wound compression. Three days later, the patient developed bilateral swelling extending from the parietal to the supraclavicular area. His haemoglobin levels decreased from 14.5 g/dL to 10.9 g/dL on day 1, raising the suspicion of on-going bleeding. CT angiography revealed a narrowed airway (Fig. 2A), and rupture of the premaxillary branch of the facial artery near the mandible angle was suspected (Fig. 2B) but not confirmed. Haemostasis was achieved with

bilateral electrocoagulation and ligation of the facial artery and vein using tracheotomy via an extraoral approach.

The patient's swelling gradually resolved after ligature surgery and haemostasis. The sutures were removed on post-operative day 10. After we observed improvement of the laryngeal oedema via nasopharyngolaryngoscopy, we removed the tracheostomy and nasogastric tubes on post-operative day 10. The patient was discharged on post-operative day 14. We followed up with the patient 3 days after discharge (post-operative day 17). At the next follow-up (post-operative day 30), mouth opening had increased to 41 mm, and the swelling had disappeared (Fig. 3). The patient reported satisfaction with our treatment. At the final follow-up at 5 months after surgery, the patient showed mental nerve paralysis. We could not complete a longer-term follow-up owing to the patient's unexpected cancellation of a subsequent appointment.

3. Discussion

Mandibular angle osteotomy with an oscillating saw via an intraoral approach is a standard procedure to which a number of modifications and improvements have been made [4,5,7,8]. An extraoral approach leaves an external scar and risks damaging the marginal mandibular branch of the facial nerve. A previous report suggested that although the intraoral approach provides relatively satisfactory results, there is a small risk of complications, including transient facial nerve injury,

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