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CASE SERIES

Blockade of the mental nerve for lower lip surgery as a safe alternative to general anesthesia in two very old patients

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Ferdinand Frederik Som Ling Tan[1]
Sjouke Schiere[1]
Auke C Reidinga[2]
Fennie Wit[3]
Peter HJM Veldman[3]

[1]Department of Anesthesiology, University Medical Center Groningen, Groningen, the Netherlands; [2]Department of Anesthesiology, de Tjongerschans Hospital, Heerenveen, the Netherlands; [3]Department of Surgery, de Tjongerschans Hospital, Heerenveen, the Netherlands

Purpose: Regional anesthesia is gaining popularity with anesthesiologists as it offers superb postoperative analgesia. However, as the sole anesthetic technique in high-risk patients in whom general anesthesia is not preferred, some regional anesthetic possibilities may be easily overlooked. By presenting two cases of very old patients with considerable comorbidities, we would like to bring the mental nerve field block under renewed attention as a safe alternative to general anesthesia and to achieve broader application of this simple nerve block.

Patients and methods: Two very old male patients (84 and 91 years) both presented with an ulcerative lesion at the lower lip for which surgical removal was scheduled. Because of their considerable comorbidities and increased frailty, bilateral blockade of the mental nerve was considered superior to general anesthesia. As an additional advantage for the 84-year-old patient, who had a pneumonectomy in his medical history, the procedure could be safely performed in a beach-chair position to prevent atelectasis and optimize the ventilation/perfusion ratio of the single lung. The mental nerve blockades were performed intraorally in a blind fashion, after eversion of the lip and identifying the lower canine. A 5 mL syringe with a 23-gauge needle attached was passed into the buccal mucosa until it approximated the mental foramen, where 2 mL of lidocaine 2% with adrenaline 1:100.000 was injected . The other side was anesthetized in a similar fashion.

Results: Both patients underwent the surgical procedure uneventfully under a bilateral mental nerve block and were discharged from the hospital on the same day.

Conclusion: A mental nerve block is an easy-to-perform regional anesthetic technique for lower lip surgery. This technique might be especially advantageous in the very old, frail patient.

Keywords: intraoral, regional anesthesia, percutaneous, ultrasound, mental nerve block

Introduction

Regional anesthesia is gaining popularity as a sole anesthetic technique and is also performed in conjunction with general anesthesia for a large diversity of surgical procedures.[1] It offers superb postoperative analgesia, has preventive effects in regards to the occurrence of postoperative complications, and may play a role in enhanced recovery programs.[2–4] Furthermore, an increasing number of anesthesiologists are trained and educated in performing regional anesthesia during their residency, resulting in wider application of regional anesthetic techniques with or without ultrasound (US) guidance.[5] In daily practice, however, some regional anesthetic possibilities may be easily overlooked. This is illustrated in the following cases of two very old patients with considerable comorbidities in whom, eventually, a mental nerve blockade was used as the sole anesthetic technique.

Correspondence: Ferdinand Frederik Som Ling Tan
Department of Anesthesiology, University Medical Center Groningen, Hanzeplein 1, 9700 RB, Groningen, the Netherlands
Tel +31 50 361 6161
Email f.f.s.l.tan@gmail.com

By presenting these two cases, we would like to bring the mental nerve field block under renewed attention as a safe alternative to general anesthesia in high-risk patients and to achieve broader application of this easy-to-perform nerve block.

Case presentation

Patient A

An 84-year-old man was scheduled for surgical excision of an ulcerative lesion at the lower lip under general anesthesia.

He suffered from chronic obstructive pulmonary disease and had had a pneumonectomy at the age of 68 years resulting in a forced vital capacity of 1.78 L and a forced expiratory volume of 1.4 L after 1 second. His exercise tolerance was estimated to correspond to 4–8 metabolic equivalents.[6] According to the consultant pulmonologist, the chronic obstructive pulmonary disease was optimally treated.

Because of the patient's age and comorbidity, blockade of the mental nerve on both sides as an alternative anesthetic technique was considered superior to general anesthesia and informed consent was obtained from the patient.

On the day of surgery, a bilateral intraoral mental nerve block was performed. After eversion of the lip, the lower canine was identified. A 23-gauge needle was directed into the buccal mucosa until it approximated the mental foramen. After careful aspiration to exclude intravascular placement, a dose of 2 mL of lidocaine 2% with adrenaline 1:100.000 was given and the same procedure repeated on the other side. After a few minutes, the anesthesiologist stimulated the lower lip and chin with an ice cube to determine the onset and area of desensitization. Before incision, the surgeon confirmed effective analgesia of the lower lip and chin by giving a sharp stimulus with a surgical forceps. A squamous cell carcinoma was surgically removed from the lower lip uneventfully followed by same-day discharge to home.

Patient B

A 91-year-old man was also scheduled for surgical excision of an ulcerative lesion at the lower lip under general anesthesia.

His medical history showed a cured non-Hodgkin lymphoma. In addition, a transient ischemic attack and vascular encephalopathy had resulted in an abnormal gait. Preoperative consultation by the cardiologist revealed a preexisting, silent anteroseptal myocardial infarction that had resulted in a hypokinetic anteroseptal wall with a satisfactorily contracting left ventricle (dimensions diastolic/systolic: 46 mm/24 mm). His exercise tolerance was estimated to correspond to 2–4 metabolic equivalents.[6]

The patient gave consent to undergo the procedure receiving regional anesthesia only. A bilateral mental nerve block was performed in a similar fashion as with patient A, using 2 mL of lidocaine 2% with adrenaline 1:100.000 for each mental nerve. After an uneventful procedure, the patient was discharged from our hospital the same day. Histological examination showed a complete removal of a basal cell carcinoma.

Discussion

In both cases, a carcinoma of the lower lip was successfully removed using a mental nerve block.

Basal and squamous cell carcinoma are common skin cancers in Caucasians, and sun (ultraviolet light) exposure is the most prominent risk factor. Due to the strong relationship with solar radiation, the majority of skin cancers occur on the face and head. Most of these tumors are removed under local anesthesia. Unawareness of and inexperience in orofacial, regional anesthetic techniques for the removal of lower lip cancer were the reasons that these techniques were originally not considered in the preoperative period.

The mental nerve is a terminal branch of the mandibular nerve, which in turn is part of the fifth cranial, trigeminal nerve and innervates the ipsilateral side of the lower lip, mucosa, and skin of the chin. The mental nerve leaves the mental foramen, which can be palpated intraorally just caudal to the lower first and second premolar, midway between the tooth and inferior mandibular border. The mental foramen can be localized extraorally, in a vertical plane with the ipsilateral pupil in mid-position. After eversion of the lip, the mental foramen can be reached intraorally by directing a 23-gauge needle with a 5 mL syringe attached into the buccal mucosa. However, to prevent nerve injury, it is advised not to enter the mental foramen. Infiltration with 2 mL of anesthetic solution will suffice to produce effective analgesia of the lower lip and chin for operative procedures; in our clinic, oral and maxillofacial surgeons use this volume for intraoral mental nerve blocks. The time to onset of analgesia and the duration of the nerve block were comparable in both patients in this report, ie, less than 3 minutes and approximately 60 minutes, respectively.

We performed our nerve blocks using the intraoral approach in a blind fashion, but US guidance for percutaneous mental nerve block seems recommendable for several reasons. First, anatomic variations in the position of the mental foramen, related to age and dentition, are known. The mental foramen is more caudal on the mandibular ramus in youth and closer to the alveolar margin of the mandible in the edentulous aged person.[1] Therefore, US anatomy

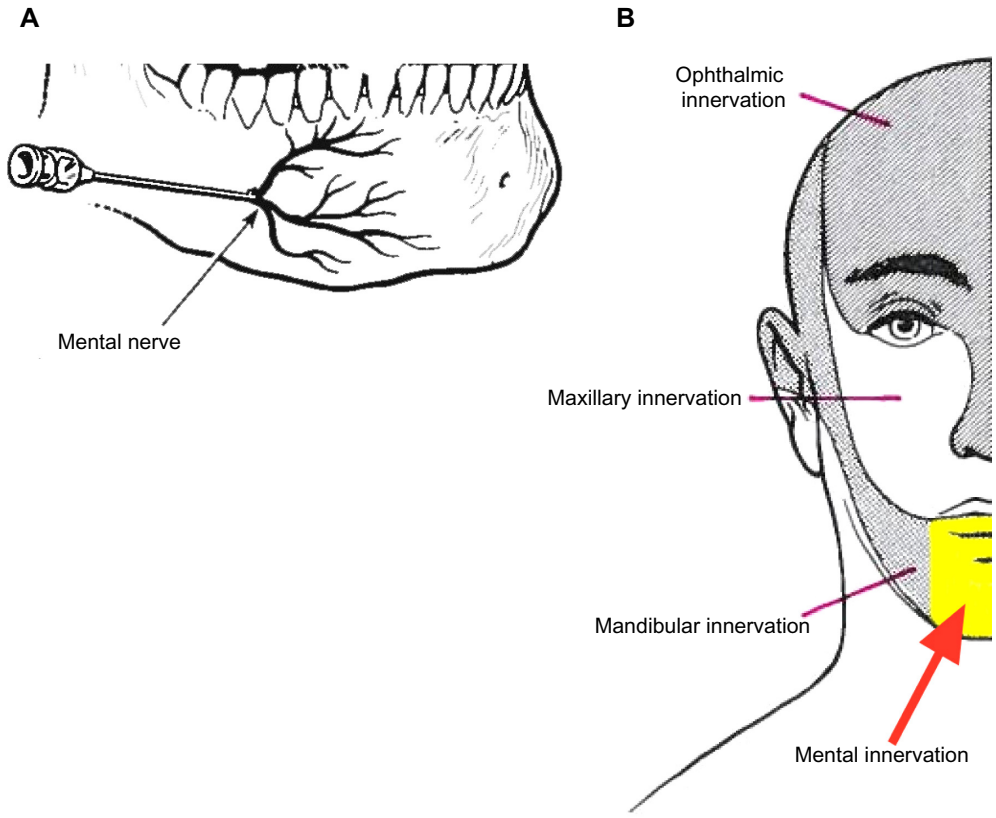

Figure 1 Anatomy and innervation of the mental nerve.
Notes: The mental nerve is a branch of the mandibular branch of the trigeminal nerve and exits the mental foramen (**A**). The innervation is indicated by the yellow area on the lower lip and chin (**B**).

becomes more important than surface anatomy landmarks. Second, the more widespread use of US by a growing number of anesthesiologists confirms a trend of questioning not if US guidance is useful, but rather where it can be applied. Finally, US guidance is suitable for educational purposes as well as improving learning curves. Recently, US guidance for mental nerve block was used with success in three cases of postherpetic neuralgia.[7]

In both of the present cases, a regional anesthetic technique was considered preferable and superior to general anesthesia, because the patients were very old with an estimated increased frailty due to their serious comorbidities. Additionally, the procedure in patient A was performed in a beach-chair position to keep the closing capacity of the lung below the functional residual capacity, thereby preventing atelectasis and optimizing the ventilation/perfusion ratio of the single lung. This beach-chair position would be more challenging under general anesthesia, leading to a greater risk of complications.

To our knowledge, this case report is the first to describe successfully performed mental nerve blocks in clinical practice in two very old patients for the surgical removal of lower lip carcinoma. An older study compared the percutaneous versus intraoral technique in terms of pain of administration and effectiveness of anesthesia, but all subjects were healthy volunteers aged 22 to 33 years.[8]

Conclusion

Lower lip surgery can be successfully performed under a mental nerve block, which is an easy-to-perform field block. This technique might be especially advantageous in the very old, frail patient.

Disclosure

The authors report no conflicts of interest in this work.

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