



## Case Study

### Single Injection Combined Maxillary And Ophthalmic Nerve Block For Debridement Of Facial Injuries

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#### ABSTRACT

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Anesthetic management of facial injuries form an essential component of road traffic accidents. Such cases report to us as emergencies with varied systemic illness and full stomach. We report such a case where we successfully managed with combined maxillary and ophthalmic nerve block alone.

## INTRODUCTION:

Anesthetic management of facial injuries form an essential component in the treatment of road traffic accidents (RTA). General anesthesia with endotracheal intubation is usually practiced due to difficulty and interference in the field with either masks or supraglottic airways. In these cases, we encounter many patients with a either a systemic disease like bronchial asthma or an anesthetic scenario like full stomach or a difficult airway which preclude the use of general anesthesia. But blocks of the face especially involving the ophthalmic branch of the trigeminal nerve are difficult to administer successfully<sup>1</sup>. Here we report a successful management of a facial injury for debridement with

collagen patch application with combined ophthalmic and maxillary nerve block.

## Case report:

A case of 18 year old male patient involved in RTA and sustained injuries to right side of the face resulting in deep lacerations to forehead and supraorbital region and abrasions to infraorbital region ( fig 1). There was no history of loss of consciousness or seizures. There were no injuries either in chest or abdomen. Patient had a history of Bronchial Asthma on rotahaler and at the time of presenting in casualty, he had severe bilateral wheeze. He had a solid meal three hours prior.

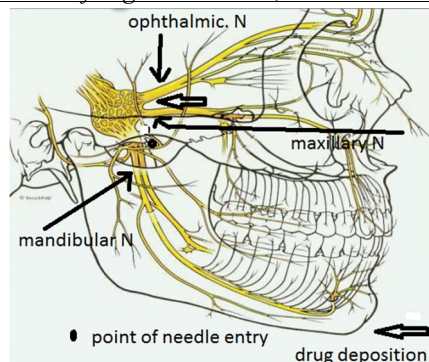
*Fig. 1 showing the nature and site of facial injury.*



After consultation by plastic surgery team, patient was posted for immediate debridement and suturing and collagen application of the injury. It was decided to conduct the case under nerve block as the other choice was GA which was contraindicated due to the reactive nature of the airway, fear of intraoperative bronchospasm and the risk of aspiration. The primary block in this case could have been supraorbital, supratrochlear and maxillary nerve block given individually but the nature of the injuries was such that the raw area of the injury extended over the prospective area where our needle prick would have been to deliver the block. Hence we decided to establish a combined ophthalmic and maxillary nerve block with a single point injection. After sterile preparation, the right intercondylar

notch was palpated in front of tragus of ear. The needle was introduced perpendicularly to hit the pterygoid plate. After the bone was hit, the needle was slid anteriorly to slip off the edge of the bone to deposit ten ml of 0.5% Bupivacaine with 0.1 ml of sodium bicarbonate (fig 2). The volume was slightly increased to target the more anterior and superiorly placed ophthalmic branch. In the next five minutes, anesthesia was satisfactory in the maxillary and ophthalmic divisions of the fifth nerve with sparing of the mandibular branch. Surgery was started and continued for forty minutes which went without any untoward events. There were no perioperative complications. We could not find such case reports with our literature search.

*Fig 2 showing the branches of trigeminal nerve, the needle entry and drug deposition*



**Discussion:**

Anaesthesia for common oral and maxillofacial emergencies can present significant challenges to the attending anaesthetist. They can often be healthy patients who are previously absolutely fit and well but who now have 'temporarily' difficult or life threatening compromised airways. Establishment of a secure airway may be very challenging in such cases. Still controlled general anesthesia with throat packing in selected cases is the technique of choice in most of the cases. Our patient has a history of bronchial asthma with active wheezing. Even though we gave nebulized steroids and bronchodilators along with parenteral hydrocortisone, we thought any manipulation of airway may be detrimental to his bronchospastic status. The other confounding factor in our case was the presence of full stomach. Hence we decided to ahead with block. Usually the ophthalmic branch is blocked at the level of terminal branches like supra orbital and supra trochlear nerves. But in our case, this was not possible due to the presence of injury at that site. We hypothesized that after the needle hitting the pterygoid plate, if we move anteriorly and slightly superior, probably we may reach an area of injection where we may be able to block both the first two branches. We can deduct from figure 2 that the mandibular branch is distal from the depositing point of local anesthetic. As such we did not get sensory loss in the mandibular area. It is possible from the injection site that the whole ganglion may be soaked in the local anesthetic solution as a rationale explanation to the anesthesia achieved in our case. But as the mandibular area was spared, we hypothesize that the injection site could have been the area marked in the figure. Literature review did not reveal any such technique. Combined maxillary and mandibular nerve blocks have been used rarely as a sole anesthetic technique in dental surgeries<sup>2</sup>. There is a case report in which the author has administered maxillary and anterior ethmoidal nerve block ( branch of ophthalmic) for a case of nasal polypectomy in a patient with karatageners syndrome<sup>3</sup>. Even though there are sporadic reports of individual nerve branch block of ophthalmic nerve, the technique of blocking the whole nerve is not available in the literature. As such reports of trigeminal ganglion blocks have been more used for managing neuralgia rather than for anesthesia. Nader et al<sup>4</sup> have described an anesthetic technique of blocking the trigeminal nerve using ultrasound. In that report, the authors have deposited the drug in

the compact pterygopalatine fossa in the hope the drug will track to trigeminal ganglion. As such there is only a single case report of intraoral infraorbital nerve block for excision of nasolabial cyst as a sole anesthetic technique<sup>5</sup>. Hence we report this case for an innovation with a possible explanation of blocking the first two branches of the trigeminal nerve alone for anesthetic purpose. It is well known that bronchospasm can be provoked by laryngoscopy, intubation of trachea, airway suctioning, administration of cold inspired gases, and possibly even tracheal extubation<sup>6</sup>. Hence our decision to avoid airway manipulation and to stick with regional anesthesia has scientific rationale. We did add recommended dose of sodium bicarbonate<sup>7</sup> for the possible combined effect of improved onset and quality of nerve blockade.

**Conclusion:**

Successful management of facial injuries is possible with combined nerve blocks in select situations. We report such a case of facial injury with active wheezing and full stomach for debridement and collagen application with combined ophthalmic and maxillary nerve block with a single point injection. This is possibly the first such reported case, as our literature search regarding the same topic proved futile.

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