BILATERAL MAXILLARY AND MANDIBULAR NERVE BLOCKS FOR POST-OPERATIVE PAIN MANAGEMENT IN MAXILLOFACIAL SURGERY FOR TREACHER-COLLINS SYNDROME: A CASE-REPORT

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Introduction. We present the case of a 17 year-old female patient with Treacher-Collins Syndrome, proposed for extensive maxillary osteotomy as well as mandibular orthognathic surgery. We detail the anaesthetic management, with particular focus on a multimodal and unconventional approach to pain management including multiple facial blocks, which we propose could represent a safe, effective and unburdensome protocol for dealing with maxillofacial surgery in a variety of patient profiles.

The patient.

- A 17 year-old female with no relevant medical history and a previous surgical facial intervention without complications.

Figure 1. Lateral view of the pre-surgical anatomic details of the patient, with projected rendering of bone structures. Represented are the approximate puncture sites for the application of maxillary (1) and mandibular (2) blocks.

Nerve block methodology

Maxillary.

- Suprazygomatic landmark approach: angle formed by the superior edge of the zygomatic arch below and the posterior orbital rim forward; insertion of 25G IM needle perpendicular to the skin and advanced to reach the greater wing of the sphenoid; caudal and posterior reorientation and further (3cm) introduction to reach the pterygopalatine fossa.

Mandibular.

- Ultrasound guidance combined with landmark knowledge and nerve stimulation
- Ecography particularly useful due to the variant anatomy.
- Probe placement^{2,3}: oblique position below the zygoma and transverse and slight anteriorly to the mandible and masseter muscle; identification of the lateral pterygoid plate and ideally the maxillary artery and nerve. In-plane insertion of 22G needle, in an anterior-to-posterior direction (point 2, figure 1).

Treacher-Collins Syndrome.

- Autosomal dominant condition with variable expressivity, caused by variable mutations in the TCS gene (chromosome 5q31.3-q33.3),
- Musculoskeletal abnormalities in the regions of the first and second branchial arches¹:
 - Hypoplasia of the malar bone, the maxilla and mandible, anterior open bite, retrognathia (as seen in this case, figure 1), etc.

The plan.

- Total intravenous *anaesthesia* with propofol and remifentanyl TIVA.
- *Analgesia* by means of bilateral maxillary and mandibular blocks. IV paracetamol + magnesium metamizole
- Airway management by use of videolaryngoscope-assisted intubation, fibroscopic backdrop availability

Unrelated complication- an unexpected additional anaesthetic challenge

- Surgical field haemorrhage with alveolar leakage and unilateral atelectasis despite throat packing and absence of cuff-leak: presented as delayed awakening and respiratory distress with asymmetrical thoracic excursion.
- Solved by fibroscopic aspiration and alveolar lavage with immediate full recovery

Outcomes at 48h follow-up.

- Minimal reported pain (VAS<3)
- No rescue opioid requirements.
- Facial numbness reported as tolerable
- Rapidly subsiding face swelling (figures 2 and 3).

Figures 2 and 3. Post-operative day 1 lateral and frontal pictures of the patient.

Conclusions.

- Extensive facial surgery might prove challenging in terms of anaesthetic management. Such challenges include haemodynamic control, airway securement and pain management.
- In that regard, nerve blocks should be used with caution, and ideally making use of guidance methods such as ultrasound or nerve-stimulators, given the potentially altered anatomy.
- We propose that a combined general plus regional anaesthetic technique, using low concentrations of local anaesthetic, might provide adequate analgesic coverage whilst minimizing side-effects.
- Further comparative studies are needed to access optimal dosage and possible effects of dexamethasone not only in extending block duration⁴, but also in minimizing tissue edema⁵ during the immediate post-operative period.

Sources:
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