



**CASE REPORT**

**OPIOID FREE ANESTHESIA AT MULTIPLE ODONTECTOMY PROCEDURE - A CASE REPORT**

**Rangga Ayudha<sup>1,2\*</sup>, Herdiani Sulisty Putri<sup>1,2</sup>**

1. Department of Anaesthesiology and Intensive Therapy, Dr. Soetomo General Academic Hospital, Surabaya 60132, East Java, Indonesia

2. Department of Anaesthesiology and Intensive Therapy, Faculty of Medicine, Universitas Airlangga, Surabaya 60132, East Java, Indonesia

**\*Corresponding Author:** Rangga Ayudha, Department of Anaesthesiology and Intensive Therapy, Dr. Soetomo General Academic Hospital, Surabaya 60132, East Java, Indonesia. Email ID: [dr.rangga\\_a@yahoo.com](mailto:dr.rangga_a@yahoo.com)

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**ABSTRACT**

The odontectomy procedure is still commonly used to address the impaction of the third molar. Impaction of the third molar usually causes discomfort, prolonged pain, swelling, accumulation of leftover food, and recurrent infections due to the abnormal position of the tooth. Third molar impaction generally requires surgical intervention, where simple cases can be managed with local anesthesia, but in some complex cases, odontectomy is often performed under general anesthesia. The opioid free anesthesia technique is now widely used for several surgical procedures. This case highlights the use of opioid free anesthesia in complex tooth extraction procedures and the outcomes produced with this technique.

**Keywords:** Multimodal Analgesia, Odontectomy, Opioid Free Anesthesia, General Anesthesia

**INTRODUCTION**

In the past twenty years, multiple research studies have raised doubts about the effectiveness of opioids because of the adverse reactions they cause, such as respiratory depression, hypotension, delayed emergence, delirium, urinary retention, constipation, ileus, pruritus, and post-operative nausea and vomiting (PONV) and opioid-induced hyperalgesia. Opioid dose reduction, the use of opioid-sparing agents, or multimodal analgesia can reduce risk.<sup>1</sup> The enhanced recovery after surgery (ERAS) protocol uses a combination of different anesthesia and pain relief methods that avoid or reduce the use of opioids to lower the amount of opioids used during surgery, which can help lessen side effects, shorten hospital stays, and improve patient satisfaction.<sup>2,3</sup> The opioid free anesthesia (OFA) technique is based on a multimodal analgesia approach using anesthetic drugs in subanesthetic doses combined with other drugs with analgesic properties to achieve the desired effect. Several case series have shown that OFA can provide adequate pain management, successful outcomes, and avoid opioid use.<sup>4</sup>

The meta-analysis did not find any notable distinction in postoperative pain between OFA and anesthesia with opioids. However, there are clinical differences in the reduction of PONV incidence, shivering, and sedation.<sup>5</sup> A 21-year-old young woman, weighing 60 kg, complained of her bilateral impacted third molar, swelling, pain, and poor chewing function. The panoramic film showed the bilateral impacted maxillary third molars (Fig. 1).



**Figure 1.** Panoramic film shows the third molars on the lower right and left appear to be in a horizontally impacted position

Patient Physical Status - American Society of Anesthesiologists (PS ASA) 1, physical and laboratory examinations within normal limits. After obtaining the patient's consent, we applied OFA to this patient. Upon reaching the premedication area, the patient was given 1,000 mg of paracetamol through an IV roughly 20 minutes prior to the operation. The anesthesia process began with the administration of propofol at a dosage of 1-2 mg/kg, atracurium at 0.5 mg/kg, and right before intubation, a bolus of lidocaine weighing 1.5 mg/kg was provided.

The patient was intubated using a non-kink endotracheal tube size 6.5Fr through the nose, and we placed an intraoral tampon to prevent aspiration. After intubation, 30 mg of ketorolac IV, 10 mg of dexamethasone intravenous (IV), and 0.3 mg/kg of ketamine were administered. Maintenance of anesthesia with isoflurane 1-1.5 vol% and continuous lidocaine 1.5 mg/kg/hour. The patient was operated on for approximately 2 hours. No

significant hemodynamic changes were recorded in the patient (Fig. 2). After the surgery ended, lidocaine and isoflurane were discontinued. The patient's vital signs remained steady in the recovery room after receiving anesthesia; there were no signs of lidocaine toxicity, PONV, signs of intraoral bleeding, or desaturation reported in the recovery room. No significant visual analogue scale (VAS 1-2) was reported by the patient after fully waking up. Postoperative pain management was administered with paracetamol 500 mg orally every 6 hours and ketorolac 30 mg IV. Four hours post-surgery, The patient did not report feeling sick or experiencing vomiting, and the patient started eating orally. In the ward, the patient experienced moderate pain (VAS 3-4) 6 hours post-operation, but it was managed with an additional 1,000 mg IV paracetamol, and the pain scale decreased to VAS 1-2. The paracetamol dose was then increased to 1,000 mg every 6 hours. The patient was released from the hospital the following day without any issues or unusual results during the physical examination.

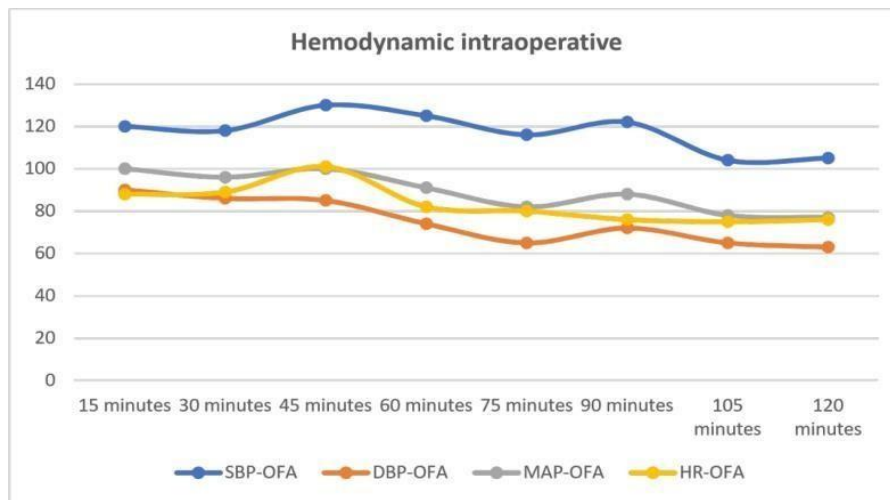


Figure 2. Intraoperative hemodynamic parameters of odontotomy surgery

SBP= systolic blood pressure, DBP= diastolic blood pressure, MAP= mean arterial pressure, HR= heart rate, OFA= opioid free anesthesia

DISCUSSION

OFA is an anesthesia technique where anesthesiologists avoid the use of intraoperative opioids due to the side effects of opioids such as constipation, PONV, sedation, confusion, respiratory depression, hyperalgesia, addiction, and opioid misuse.<sup>7,8</sup> In our case, it shows that our OFA can provide adequate intraoperative anesthesia and optimal postoperative pain management in odontectomy procedure. Our OFA utilizes the strategy of preemptive pain relief and the administration of intravenous lidocaine during surgery. In our case, preemptive analgesia with paracetamol, corticosteroids, non steroid anti inflammatory drugs (NSAIDs), and ketamine showed good perioperative

pain control. The objective of preemptive analgesia is to stop the development of central sensitization due to painful stimuli, which can result in heightened sensitivity.<sup>9</sup> The goal of giving painkillers before pain starts is to stop the brain from becoming more sensitive and reduce future pain levels.<sup>10</sup> A multimodal analgesia approach has been found effective in providing optimal intraoperative and postoperative pain control.<sup>11,12</sup> Paracetamol, steroids, NSAIDs, and administering ketamine prior to surgical stimulation has been demonstrated to result in decreased levels of pain, decreased need for pain medication, and delayed administration of the first dose of pain medication.<sup>13-15</sup>

## CONCLUSION

In our case report, OFA is effective and safe in odontectomy surgery. The multimodal preemptive analgesia approach and intraoperative lidocaine infusion were found to be effective in managing intraoperative and postoperative pain, reducing the incidence of PONV without signs of lidocaine toxicity. Although in our case shivering was the main postoperative issue, it was well managed with rewarming blanket. We found in our case that sedation and extubation took less than 15 minutes, which can help reduce turnover and improve the efficiency of the operating room. However, further research is needed to demonstrate the efficacy and safety of our OFA procedure performed during surgery.

## DECLARATIONS

### Ethics approval and consent to participate

The patient provided written consent to participate and have their case report published.

### Consent for publication

Not applicable.

### Competing interests

The authors declare no conflict of interest.

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This research received no external funding.

Ethical approval was granted by the Institutional Human Ethical Committee

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