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Case Report

Peritonsillar Block with Triamcinolone as a Preemptive Analgesia in Tonsillectomy with Bipolar Electrocauter

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ABSTRACT

Background: Tonsillectomy is one of the common types of ear, nose, and throat (ENT) surgery. Patients undergoing tonsillectomy frequently experience significant postoperative pain due to oropharyngeal muscle spasms and irritation of afferent nerve fibers. According to previous studies, triamcinolone for peritonsillar block was used to reduce postoperative pain in patients who have undergone tonsillectomy. The aims and objectives of this study were to observe the effectiveness of peritonsillar block using triamcinolone for reducing pain in patients with post-tonsillectomy using the bipolar electrocautery technique.
Case: A 34-years-old male patient with chronic tonsillitis and obstructive sleep apnea (OSA) was undergoing tonsillectomy with general anesthesia and peritonsillar block after general anesthesia with triamcinolone 0,5 mg/kg body weight in the right and left fossa peritonsillar. Postoperative hemodynamic monitoring was carried out in the inpatient room. Patients were assessed for pain scale after tonsillectomy and side effects of triamcinolone, with pain indicator using the Wong-baker faces pain rating scale, numeric pain rating scale, and Face, legs, activity, cry and consolability (FLACC) Scale. Pain scales were assessed 1 hour after the tonsillectomy in the recovery room, 3 hours after the tonsillectomy in the inpatient room, 8 hours after the tonsillectomy in the inpatient room, 1 day after the tonsillectomy in the inpatient room, and 2 days after the tonsillectomy by phone. The patient went out of the hospital after 1 day of tonsillectomy.
Conclusion: Peritonsillar block with triamcinolone is effective in reducing pain after tonsillectomy and can be the drug of choice when administering peritonsillar block.

Keywords: Tonsillectomy, peritonsillar block, triamcinolone, pain

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INTRODUCTION

Tonsillitis is a common disease predominantly the result of a viral or bacterial infection, commonly presenting as a sore throat and difficulty swallowing. When the tonsils keep on being inflamed or suffer from sleep disorders, this is an indication for surgery called tonsillectomy.[1] Tonsillectomy is the most frequently performed ear, nose, and throat (ENT) surgery. This procedure primarily addresses sleep disorders and recurrent acute tonsillitis, although it is not limited to these conditions. The guidelines provided by the American Academy of Otolaryngology-Head and Neck Surgery (AAO-HNS) are the most commonly followed standards in current practice.[2]

Pain is the most common complaint by patients in the immediate post-tonsillectomy period. Patients undergoing tonsillectomy often experience a high incidence of postoperative pain caused by irritation of afferent nerve fibers and oropharyngeal muscle spasms. Muscle spasms occur because contracting muscles press on intramuscular blood vessels and reduce or completely stop blood flow. Muscle contraction causes relative muscle ischemia, resulting in characteristic ischemic pain. The pain that arises will cause a reflexory response in the muscles in the area around the source of the pain.[3] The peritonsillar block is known to alleviate pain following a tonsillectomy. Its effectiveness depends on the technique used, the type of drug administered, and the dosage given. In addition to that, what needs to be paid attention to in peritonsillar block is to avoid direct injection into blood vessels. It is necessary to aspirate before giving the injection so that it can prevent systemic side effects.[4] Corticosteroids are one of the agents used to decrease pain caused by inflammation. Small doses of steroids are used in the peritonsillar blocks, leading to effective concentration in the target organs without systemic side effects. Triamcinolone is an intermediate-acting synthetic glucocorticoid, 8 times more potent than prednisone and 5 times as hydrocortisone. Steroid decreases the production of interleukin 1,2 and interferon

Gamma, prostaglandin, leukotrienes, and platelet-activating factors that result from the activation of phospholipase A2. By suppressing the activity of the phospholipase enzyme, corticosteroids effectively obstruct both the cycloxygenase and lipoxygenase pathways, consequently impeding prostaglandin synthesis, which ultimately results in the alleviation of pain[4]

The study attempts to assess the scale of pain in patients post-tonsillectomy using the Wong-Baker Faces Pain Rating Scale, Numeric Pain Rating Scale, and FLACC Scale. The aims and objectives of this study were to observe the effectiveness of peritonsillar block using triamcinolone for reducing pain in patients with post-tonsillectomy using the bipolar electrocautery technique.

CASE

A 34-year-old male patient came in with complaints of frequent snoring, breathing through his mouth, stuttering during sleep, and difficulty swallowing. The patient has no history of chronic diseases such as hypertension or diabetes mellitus. From the physical examination, Glasgow coma scale (GCS) 456 was obtained with a free airway, no missing teeth, and adequate spontaneous breathing with 99% SpO_2 in room air. The respiratory frequency is 18 times/minute, pulse frequency is 80 times/minute, regular pulse, and blood pressure is 120/80 mmHg. There were no abnormalities in the heart and lung examination. On the examination of the pain scale, a Numerical rating scale (NRS) of pain was 1. From examining the patient's tonsils, the tonsils were swollen and red. The diagnosis established is chronic tonsillitis and obstructive sleep apnea (OSA). From the ear nose throat (ENT) Department, the patients have been educated and advised to perform surgery, namely tonsillectomy with bipolar electrocautery, and collaborate with the consult of anesthesia. Before the surgical procedure, a pharyngoscopy examination was performed. The result of the examination is shown in **Figure 1.**

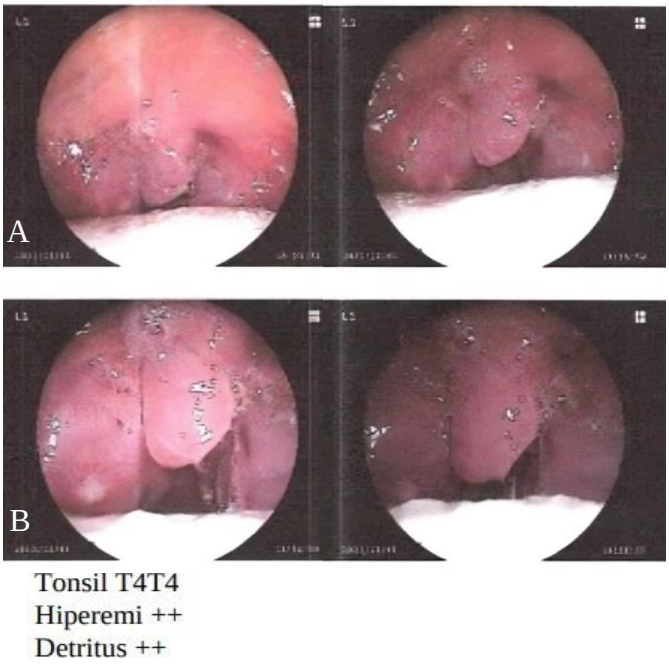

Figure 1. Swollen right (A) and left tonsils (B) in patients with T4-T4 results (Brodsky classification).

The patient is consulted with the anesthesia department and will perform general anesthesia and peritonsillar block with triamcinolone. The patient received informed consent regarding surgical procedures and the possibility of hemorrhage during surgery and postoperatively after 24 hours. The patient was treated in an inpatient room for postoperative hemodynamic observation. The patient was asked to fast 6 hours before surgery and, during fasting, rehydrating with 500 cc of Ringer Lactate infusion fluid within 6 hours before surgery. Premedication of Ondansetron injection 4 mg, Ranitidine injection 50 mg, and Paracetamol infusion 1 g was administered.

In the pre-induction period before surgery, GCS 456 was obtained with a blood pressure of 120/80 mmHg, a pulse of 80 times/min, and SpO_2 of 99% with nasal cannula. The patient then gets sedation with Midazolam 0.05 mg/kg body weight, Fentanyl 1 µg/kg body weight, Propofol 1 mg/kg body weight, and Atracurium 0.3 mg/kg body weight. After sedation, the patient gets a peritonsillar block with Triamcinolone 0.5 mg/kg body weight in the right and left fossa peritonsillar. Once the hemodynamics were confirmed to be stable, the patient was positioned supine, and the operation began.

The operation goes with stable hemodynamics. Blood pressure is obtained at 110/80 mmHg, the pulse is 70-80 times/min, and SpO_2 is 100% on a ventilator. The operation lasted 1 hour and 30 minutes, and the patient was given an injection of Ketorolac 30 mg. After surgery, the patient was extubated and observed for 2 hours in the recovery room. Before moving to the inpatient room, the patient is assessed with Aldrete Score to determine whether the patient can move to the inpatient room, where the patient can move to an inpatient room if the Aldrete Score is above 8. After being observed for 2 hours in the recovery room, blood pressure was obtained at 110/60 mmHg, the pulse was 70 times/minutes, and there were no complaints of nausea and vomiting in the patient.

After surgery, the patient's pain scale and side effects of peritonsillar block are assessed 1 hour after tonsillectomy in the recovery room, 3 hours after tonsillectomy in inpatient room, 8 hours after tonsillectomy in inpatient room, 1 day after tonsillectomy in inpatient room, and 2 days after tonsillectomy by phone, using the Wong-Baker Faces Pain Rating Scale, Numeric Pain Rating Scale, and Face, Legs, Activity, Cry and Consolability (FLACC) Scale. One hour after the tonsillectomy, the patient complained of thickness when swallowing. Three hours after tonsillectomy, the patient started to drink water, half sitting without dizziness and nausea, but still complained of thickness when swallowing. Eight hours after the tonsillectomy, the patient could walk to the bathroom, was on a liquid milk diet, and did not complain of pain. In 1 day after tonsillectomy, the patient went home from the hospital with no complaint. At 8 hours post-surgery, the patient showed the Wong-Baker Face Pain Rating Scale with no hurt. At 1-day post-surgery, the patient showed the Wong-Baker Face Pain Rating Scale with no hurt (**Table 1)**.

Two days after the tonsillectomy, the patient did not complain of pain or thickness when swallowing. As discharge medication, the patient was given Ciprofloxacin and Natrium Diclofenac.

Table 1. Summary of pain scale assessments in the patient after surgery.

Time (post-operative)	Pain Scale		
	Wong-Baker Face	Numeric Rating Scale	FLACC
1 hour	1	1	0
3 hours	0	0	0
8 hours	0	0	0
1 day	0	0	0

2 days	0	0	0

FLACC: Face, Legs, Activity, Cry and Consolability

DISCUSSION

viral or bacterial infection commonly presents as a sore throat and difficulty swallowing.[1] Chronic tonsillitis (CT) is characterized by an individual experiencing a minimum of seven episodes of acute tonsillitis annually. The primary causative agent of tonsillitis is β-hemolytic Streptococcus, commonly known as strep throat, with Staphylococcus aureus and various other bacteria playing a lesser role. Typical symptoms of acute tonsillitis encompass a sore throat, inflamed and enlarged tonsils, pain during swallowing, elevated body temperature, coughing, headaches, fatigue, shivering, swollen lymph nodes in the neck, as well as discomfort in the ears or neck. Less frequent manifestations include feelings of nausea, abdominal pain, vomiting, a coated tongue, halitosis, alterations in vocal quality, and challenges in mouth opening. The management of CT revolves around three main strategies: conservative measures, administration of antibiotics, or opting for tonsillectomy. The definitive intervention for this condition involves the surgical excision of the tonsils.[6]

Tonsillectomy represents the most prevalent form of surgical intervention in the field of Otolaryngology, specifically ear, nose, and throat (ENT) surgery. This procedure carries a notable risk of significant complications, notably hemorrhage, and discomfort, prompting the exploration of various surgical techniques in the context of adenoid tonsillitis surgery. Among the established methods is tonsillectomy via cold dissection, a conventional approach, alongside more recent innovations like bipolar cautery, plasma excision (coblation), harmonic scalpel, and powered intracapsular tonsillectomy. Over the last thirty years, monopolar tonsillectomy has emerged as the preferred choice due to its shorter duration and superior hemostatic properties. Nevertheless, the issue of postoperative pain remains a significant drawback to its widespread adoption. In principle, bipolar cautery is considered a more favorable option compared to monopolar electrocautery, as it is associated with reduced tissue trauma, leading to decreased postoperative pain, while still conferring advantages such as diminished intraoperative blood loss and shorter operation duration.[7]

Pain represents the prevailing grievance during the initial postoperative phase following tonsillectomy. Deficient management of pain subsequent to tonsillectomy presents numerous disadvantages, such as postponed oral consumption, prolonged hospital admissions leading to escalated expenses, and heightened incidence of secondary hemorrhage.[8] Post tonsillectomy pain arises because of damage to the mucosa and fibers of the trigeminal nerve and glossopharyngeal or vagus, inflammation, and muscle spasm pharynx causing ischemia. The pain cycle continues until the muscle has been re-sheathed by mucosa. Trauma that can occur during surgery tonsillectomy causes variable discharge mediators such as histamine, prostaglandins, bradykinin, and proinflammatory cytokines. Post-tonsillectomy pain can occur due to the mediator released during surgery stimulating pain nerve endings. Besides that, the more severe the stretching of the mucosa that occurs after surgery causes pain to arise heavier.[9] There are several efforts to reduce pain after tonsillectomy surgery, including improving the use of intra-operative anesthetic drugs, the use of corticosteroids and opioids or Non-steroidal anti-inflammatory drugs (NSAIDs), adjusting surgical techniques, and intra-operative injection of local anesthetic drugs (peritonsillar blocks).[10]

The role of peritonsillar blocks used intraoperatively as an adjunct to standard therapy under general anesthesia to reduce post-tonsillectomy pain is still controversial. The advantages of intraoperative peritonsillar blocks include: reducing postoperative pain, reducing blood loss and secondary bleeding, and simplifying the dissection technique performed during surgery.[9] Peritonsillar nerve blocks during tonsillectomy necessitate meticulous consideration, encompassing the intricacies of technique, the selection of anesthetic agents, and the appropriate dosage administered. Furthermore, in addition to this, what needs to be paid attention to in peritonsillar blocks or infiltration is to avoid direct injection into blood vessels. It is necessary to aspirate before giving the injection so that it can prevent systemic side effects. The injection should be superficial, and the submucosal tissue should be removed from the tonsillar pillars. This is done to avoid serious complications in the airway. It is also important to pay attention not to inject anesthetic drugs into the tonsil substance; this can inhibit the effect of the drug from reaching the target area located lateral to the tonsil capsule (peritonsillar).[11]

In previous studies, researchers suggest that using ketamine for peritonsillar block is considered effective and beneficial. Ketamine, belonging to the phencyclidine family, is an intravenous anesthetic known for its ability to antagonize N-Methyl-D-Aspartate (NMDA) receptors, which play a crucial role in central pain sensitization. This results in a regulatory impact on central sensitization and resistance to opium. Numerous research studies have demonstrated the efficacy of sub-analgesic doses of ketamine in reducing postoperative pain and opioid consumption. By reducing the need for postoperative analgesics, ketamine exhibits analgesic properties, particularly when administered prior to day-surgery tonsillectomy/adenotonsillectomy.[13] Nevertheless, ketamine is associated with various adverse effects such as hallucinations, delirium, agitation, nausea, vomiting, increased airway secretions, as well as elevated intracerebral and intraocular pressures.[12]

Corticosteroids are one of the agents used to decrease pain caused by inflammation. Small doses of steroids are used in the peritonsillar blocks, leading to effective concentration in the target organs without systemic side effects. One of the steroid drugs used is triamcinolone. Triamcinolone functions through the process of binding to specific cytosolic glucocorticoid receptors, followed by an interaction with the response elements of the glucocorticoid receptor in deoxyribonucleic acid, consequently leading to alterations in gene expression. This mechanism ultimately stimulates the synthesis of particular anti-inflammatory proteins and the suppression of the synthesis of specific inflammatory mediators. Consequently, a decrease in chronic inflammation and general autoimmune responses occurs. The previous study stated that pain levels among the local injection of steroids in the tonsillar pillar and bed were significantly less than in the deltoid muscle following tonsillectomy. The effectiveness of the analgesic action of triamcinolone, as shown in the previous study, is that it may reduce the dose of total analgesia, rescue analgesia, and decrease pain in the early postoperative period.[5] In this case report, it was proven that triamcinolone reduces pain levels after tonsillectomy with bipolar electrocautery.

CONCLUSION

Peritonsillar block with triamcinolone is effective in reducing pain after tonsillectomy and can be a drug of choice besides ketamine, considering that ketamine can cause quite a lot of side effects, including hallucinations, delirium, airway hypersecretion, and increased intra-cerebral pressure.

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CONFLICT OF INTEREST

The author declares there is no conflict of interest.

REFERENCES

1. Cologne. Tonsillitis: When is tonsil surgery a good idea in adults? *Institute for Quality and Efficiency in Health Care (IQWiG).* Oct 2019. Available from: https://www.ncbi.nlm.nih.gov/books/NBK564983/.
2. Eltelety AM, Swelam ME, Dewidar HM, Batawi AME. Outcomes of coblation tonsillectomy versus bipolar electrocautery tonsillectomy in pediatric population. *Egypt J Otolaryngo.* 2022;38(152). doi: 10.1186/s43163-022-00340-9
3. Guyton AC, Hall JE. Textbook of Medical Physiology. 12th Edition. *Philadelphia: WB Sauders Company.* 2015;583(92).
4. Nikandish R, Maghsodi B, Khademi S, Motazedim S, Kaboodkhani R. Peritonsillar infiltration with Buvipacaine and pethidine fer relief of post tonsillectomy pain: A randomised double-blind study. *Anesthesia.* 2008;63(20):5.
5. Neupane Y, Acharya K, Sinha BK, Baskota DK. Effect Of Perioperative Infiltration Of Steroids In Tonsillar Bed Following Tonsillectomy On Post Tonsillectomy Pain. *Nepalese J ENT Head Neck Surg.* 2016;7(1).
6. Alrayah M. The Prevalence and Management of Chronic Tonsillitis: Experience From Secondary Care Hospitals in Rabak City, Sudan. *Cureus*. 2023;15(2).
7. Dadgarnia MH, Aghaei MA, Atighechi S, et al. The comparison of bleeding and pain after tonsillectomy in bipolar electrocautery vs cold dissection. *Int J Pediatr Otorhinolaryngol*. 2016;89:38-41. doi:10.1016/j.ijporl.2016.07.022
8. Farmawy MS, Rashad MM. Preemptive analgesia by peritonsillar ketamine versus ropivacaine for post-tonsillectomy pain in children. *Egypt J Anaesth.* 2014;30: 1-5. doi:10.1016/j.egja.2013.04.002.
9. Hermani B, Fachrudin D, Hutauruk SM, Riyanto BU, Susilo, Nazar HN. Tonsilektomi pada Anak dan Dewasa. *Health Technology Assesment (HTA) Indonesia*. 2004: 1-25.
10. Ohlms LA. Injection of local anesthetic in tonsillectomy. *Arch Otolaryngol Head Neck Surg.* 2001;127(10).
11. Nikandish R, Maghsodi B, Khademi S, Motazedim S, Kaboodkhani R. Peritonsillar infiltration with Buvipacaine and pethidine fer relief of post tonsillectomy pain: A randomised double-blind study. *Anesthesia*. 2008;63:20-5.
12. Ayatollahi V, Behdad S, Hatami M, Moshtaghiun H, Baghianimoghadam B. Comparison of peritonsillar infiltration effects of ketamine and tramadol on post tonsillectomy pain: a doubleblinded randomized placebocontrolled clinical trial. *Croat Med J.* 2012;53:155-61. doi: 10.3325/cmj.2012.53.155.
13. Siddiqui AS, Raees US, Siddiqui SZ, Raza SA. Efficacy of pre-incisional peritonsillar infiltration of ketamine for post-tonsillectomy analgesia in children. *J Coll Physicians Surg Pak*. 2013;23(8):533-537.