

Tumescent Local Anesthesia in Parotid Abscess - Novel Application of Old Technique

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Citation

Raghuraman MS, Gopi S, Radhakrishnan A, Madhu G, Ishwaryarajan MS, Selvam P. Tumescent Local Anesthesia in Parotid Abscess - Novel Application of Old Technique. *Kathmandu Univ Med J.* 2021;75(3):393-5.

INTRODUCTION

Tumescent local anesthesia (TLA) has been in practice since over three decades following its first description in literature in 1987.¹ Although initially intended for liposuction, application of this technique has widened to many procedures such as mastectomy and thyroidectomy.¹⁻⁴ Furthermore, this technique has a role in Endovenous Laser Therapy (EVLT) also.⁵

TLA is a regional anesthetic technique wherein the diluted lidocaine and epinephrine solution in large volume is injected subcutaneously around the incision. The main advantages of TLA are excellent bloodless field due to addition of epinephrine and longer duration of analgesia.⁶ In addition, it may also strongly have better economic prospects because of avoidance of general or regional anesthesia, early ambulation and discharge.⁶

We present an interesting case wherein this old technique was very helpful and handy in avoiding general anesthesia and its sequelae.

ABSTRACT

Tumescent local anesthesia (TLA) is a regional anesthetic technique in which the diluted local anesthetic drug (commonly lidocaine) and epinephrine solution in large volume is injected subcutaneously around the site of incision. The main advantages of TLA are excellent bloodless field and longer duration of analgesia because of addition of epinephrine. Although TLA was used in various surgical procedures, there is no literature to date that has reported its use in the parotid region. Hence, we present an interesting case where this old technique found a novel application in avoiding general anesthesia and its sequelae. We also believe that it provides valuable information to doctors of various categories such as surgeons, Anesthesiologists and general practitioners/family physicians.

KEY WORDS

Anesthetic technique, Parotid abscess, Tumescent local anesthesia

CASE REPORT

A forty-five year old lady presented to our hospital with complaints of swelling and pain over the left parotid region for few days. It was diagnosed as "Parotid abscess" and she was started on antibiotics and analgesics. She was a known case of hypertension and was on Tab. Amlodipine 5mg once daily. She was weighing 118 Kgs and her height was 152 ms making her BMI 51 (kg/m²). Initially, she was posted for incision and drainage after our routine hours. However, after evaluating the details of the case and considering the risk factors such as obesity, difficult airway and the nature of the surgical procedure, the duty anesthesiologist deferred the case for the next day. She caught up with respiratory infection probably overnight and we could note an audible wheeze over the lower zones on the day of surgery. Following nebulisation with levosalbutamol and ipratropium bromide as well as budesonide, the rhonchi decreased a little bit only. Hence, we had changed our plan of anesthesia from general anesthesia to TLA for which the patient also accepted wholeheartedly. She

was premedicated with 1.5 mg of midazolam and fifty microgram of fentanyl intravenously. After connecting to basic monitoring such as electrocardiogram, non-invasive blood pressure and pulse-oximetry, we proceeded for TLA. Thirty ml of 2% lignocaine was added to 450 ml of Lactated Ringer's solution along with 1 mg adrenaline, 1500 I.U hyaluronidase and approximately 9 mEq of sodium bicarbonate. Forty ml of this solution was given around the surgical site subcutaneously. Analgesia was confirmed with pin prick over the surgical site. In addition, we kept injection dexmedetomidine (bolus followed by infusion) as a backup should the need arises. There were no significant changes in hemodynamics during incision and throughout the procedure (which lasted for twenty minutes) and the patient was comfortable with the TLA as a sole technique with minimal sedation given as premedication. The duration of analgesia lasted for eight hours postoperatively.

DISCUSSION

Although TLA was used in many surgical procedures including the facial region.⁷ There is no literature to date that has reported its use in the parotid region particularly the inflamed one like in our case. The local anesthetic in dilute form is injected into the subcutaneous plane in this technique. Lidocaine is the commonly used local anesthetic drug. Originally invented tumescent solution (also called as Klein's solution) contains 500 mg of lidocaine, 1 mg of epinephrine, 12.5 mEq of sodium bicarbonate added to 1 L of isotonic saline.⁸

Introduced for liposuction about three decades ago, TLA solution has undergone some modifications according to the type of surgery and individual preferences. For example, some clinicians prefer lactated Ringer's solution as it causes lesser pain during injection and lower sodium load when compared to isotonic saline.⁶ Hudson et al. had studied the effects of TLA in the form of lidocaine without adrenaline in EVLT and observed that the peak concentration was achieved in 60 to 120 minutes.⁹

Although other local anesthetic drugs such as Prilocaine, Bupivacaine and Ropivacaine have been used in some studies, Lidocaine is still preferable because of its safety over the others and also a reasonably good duration of analgesia when added to epinephrine.⁶ It is a common practice to add hyaluronidase in ophthalmic surgeries done under peribulbar or retrobulbar blocks as it causes diffusion of local anesthetic into the tissue planes resulting in better quality of block in these procedures.¹⁰ However, its role is questionable in TLA because it hastens the absorption of local anesthetic from the site of injection.⁶ In addition, it also causes greater pain when injected subcutaneously.⁶

We were adding hyaluronidase in our practice routinely including the current case without being aware of these demerits. Although we did not encounter any problem by adding hyaluronidase, we have decided to omit it in our TLA practice in future after reading these literatures.^{6,10}

The reasons for choosing tumescent solution rather than simple local anesthetic infiltration in our case were:

1. The abscess was deep seated and measured 1.4 x 1 cm as per the ultrasound report. The swelling was slightly diffuse with a size of about 6x3 cms clinically for which the total amount of TLA solution needed was forty ml. The incision



Figure 1. Showing the size of the swelling and the length of the incision

was about 5 cms length (figure 1). We were afraid of the adverse effects of both local anesthetic as well as adrenaline if we had to choose simple local infiltration (concentrated solution) on a highly vascular area physiologically, with the inflammation compounding it further.

2. The pain during injection would be lesser with TLA. We admit the fact that hyaluronidase was added in our case. Nevertheless, the patient did not experience any pain during infiltration.

It is well established that lidocaine (with adrenaline) is safe in doses between 35 and 55 mg/Kg in liposuction procedures.⁸ It is safe up to 28 mg/kg in other procedures according to the same recent review article although it is not well established.⁸ Nevertheless, it is better to restrict the dose of local anesthetic as much as possible in all procedures, more particularly in highly vascular area and ensure adequate time gap between two doses in long procedures.

To conclude, we suggest that it is better to use TLA rather than simple local infiltration in highly vascular area such as face particularly if the size of the swelling (more so in case of inflammation) is big and/or the incision is wide.

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