

## Ultrasound-Guided Supraorbital Nerve Block For Orbital Chronic Cancer Pain - A Case Report

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### ABSTRACT

**Background:** Many individuals with cancer suffer from pain symptom, typically ranging from moderate to severe levels. Multimodal approach has been used widely to manage the cancer pain. The ultrasound-guided peripheral nerve block has increasingly been used in the interventional pain management of chronic pain cases.

**Case:** A 54-year-old woman with metastatic breast cancer with osteolytic skull lesions complaining severe pain in periorbital area of left eye. Traditional systemic pain relief treatments were not successful in adequately reducing the pain. Ultrasound-guided supraorbital nerve block using ropivacaine 0.375% and methylprednisolone 125mg combination was successfully performed to reduce pain score of patient.

**Discussion:** Interventional methods aimed at managing cancer-related pain can function as successful treatment approaches for individuals who do not respond to or cannot tolerate systemic opioids. Peripheral nerve block is a technique which has been developed to help in relieving chronic case. When administered in conjunction with other therapies such as systemic analgesics, radiotherapy, and chemotherapy, the use of peripheral nerve blocks may provide valuable relief for a specific aspect of a patient's overall pain condition and improve quality of life.

**Conclusion:** Peripheral nerve blocks appear to be a safe option and may offer substantial pain relief, reducing the reliance on opioids in individuals with advanced cancer.

**Keywords:** cancer pain; chronic pain; ophthalmic block; peripheral nerve block; ultrasound-guided

## INTRODUCTION

Pain associated with cancer is among the most challenging types of pain to manage.<sup>1-3</sup> Moderate to severe pain was experienced by 31% of the patients while pain prevalence in advanced metastatic and terminal cancer was 55%.<sup>4</sup> Despite the presence of guidelines for managing cancer pain, inadequate treatment remains a prevalent issue. Opioids are still the gold standard for the treatment of cancer-related pain.<sup>5-7</sup> However, some patients are non-responders or poor responders to opioids.<sup>8</sup>

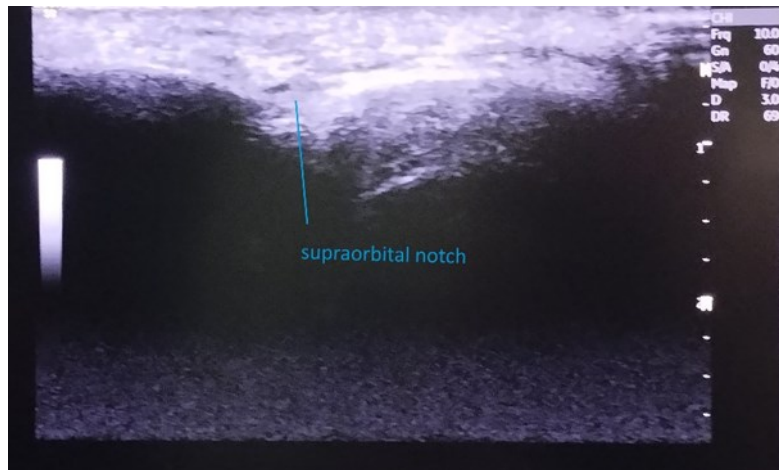
The supraorbital nerve block is a technique procedure that is usually carried out for anesthesia of extraorbital surgery.<sup>9</sup> The blockade of the nerve provide anesthesia for the skin of lateral forehead and upper eyelid, as well as its conjunctiva of upper eyelid. Reports of supraorbital nerve block for chronic cancer pain are limited. Here, we report a case of successful cancer pain management using an ultrasound guided supraorbital nerve block in a 54-year-old woman.

## CASE

The patient was a 54-year-old woman with metastatic breast cancer, that has spread to the skull bone, humerus, femur, and cervical spine. She had underwent modified radical mastectomy 1 year before presentation. The cancer was diagnosed as advance and palliative care was initiated. Patient complained chief pain in the periorbital area of left eye. The attending ophthalmologist tried to manage the pain initially with extra ketorolac 30mg and paracetamol 1gr iv.

Pain management team received immediately the referral as the symptoms was not relieved. Additional assessment was conducted after seeing the condition. Pain was felt as severe as Visual Analogue Scale (VAS) pain 8, pulsating, and radiated to the left lateral forehead. She also experienced sleep disturbances due to the pain. The result of MSCT of the head showed lytic lesions on the left and right frontal, parietal, occipital bone. Patient had allergic to morphine sulphate tablet. We diagnosed her pain as a mixed condition of somatic pain and neuropathic pain. Medication program was made with paracetamol 1gr/8hrs iv, codeine tablet 30mg/6hrs, and pregabalin tablet 75 mg once a day.

We considered peripheral nerve block technique to relieve the pain since pharmacological medication failed to improve the pain adequately. The procedure was scheduled at the operating room on the following day. On arrival in the procedure room, pulse oximetry, electrocardiography, and noninvasive blood pressure monitoring were established. Linear probe ultrasound guided was used, we identified supraorbital notch (Figure 1). Using 5 cc syringe 25 G needle, we performed supraorbital nerve block by injecting 1cc ropivacaine 0.375% and 1cc methylprednisolone 125mg combination in a medial and cephalad direction into the inferior edge of the supraorbital ridge approximately 0.5 cm below the supraorbital notch. The patient was monitored for 30 minutes in the recovery room. No complications were noted.



**Figure 1.** Ultrasound-guided injection technique for the supraorbital nerve

Over the following days, patient felt the pain was reduced significantly with VAS around 1-2. She was able to sleep at night. Her quality of life was improved. She still took oral paracetamol 500mg/6hrs and pregabalin 75mg/24 hrs. The patient was discharged 1 weeks after the procedure.

## DISCUSSION

We present a metastatic breast cancer to the skull bone patient whose cancer pain was successfully managed with peripheral nerve block. The patient experienced both neuropathic and somatic pain as part of her cancer-related pain. Conventional systemic analgesic treatments proved ineffective in sufficiently alleviating the pain. Nevertheless, the application of supraorbital nerve block with local anesthetic and steroid combined successfully reduce the pain. Following this procedure, the patient's overall quality of life improved.

This case report underscores the importance of clinicians approaching cancer pain assessment with careful consideration. Detailed discussions regarding potential treatment options were conducted with patient, the

caregiver, attending physician, and palliative care doctors.

Interventional techniques for addressing cancer-related pain can serve as effective treatment modalities for patients who are either unresponsive to or unable to tolerate systemic opioids. Several case reports has shown peripheral nerve block can be useful to reduce cancer related pain when pain occurs in the territory of one or more peripheral nerves.<sup>10-12</sup> Injected drugs can be varied from local anesthetic to steroid agents. Local anesthetic agents exert their inhibitory effect on action potentials in excitable tissues by blocking voltage-gated Na<sup>+</sup> channels. This action results in the inhibition of action potentials in nociceptive fibers, thereby preventing the transmission of pain impulses.<sup>13-15</sup> In this case, ropivacaine plain was chosen primarily because of its extended duration of action in comparison to lidocaine.

The strategy of adding an extra agent, known as an adjuvant, has developed to extend the duration of analgesic effects. Numerous adjuvants are currently employed in clinical practice for this purpose, contributing significantly to the effectiveness and safety of the anesthesia

process. While these adjuvants are widely utilized in clinical settings, none of these molecules have received approval from the FDA, and they are employed as off-label drugs. For the last ten years, steroids has been widely utilized as a supplementary agent alongside local anesthetics in peripheral and neuraxial nerve blocks.<sup>16</sup> The suggested mechanism of steroids in interventional pain management include anti-inflammatory effects, modulation of peripheral and spinal cord neurons, and direct stabilization of the neural membranes<sup>17,18</sup> A study of 252 subjective has been conducted to determine the effectiveness of methylprednisolone in neuropatic pain.<sup>19</sup> The result showed significantly improvement of pain scale. We considered that it was difficult to treat mixed pain so we added adjuvant methylprednisolone as well in our case.

## CONCLUSION

In summary, supraorbital nerve block effectively alleviated the periorbital eye cancer pain experienced by the patient. Following the block, there was a noticeable enhancement in the patient's quality of life. Peripheral nerve blocks appear to be a safe option and can offer significant pain relief, potentially reducing the reliance on opioids in patients facing advanced cancer.

## CONFLICT OF INTEREST

The author declare that there is no conflict of interests regarding the publication of this paper.

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