



Ultrasound-guided Trigeminal Nerve Block for Teenage Trigeminal Neuralgia

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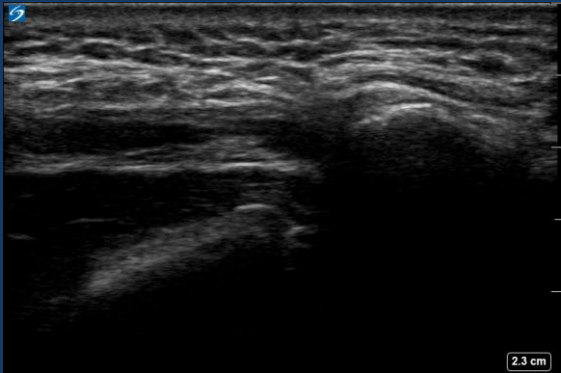
INTRODUCTION

Trigeminal neuralgia (TN) is a form of neuropathic facial pain of the trigeminal nerve that is rare in children. It is defined by episodes of sporadic, sudden burning or shocking facial pain that last less than two minutes. Incidence is 4.3 per 100,000 persons per year, with a preponderance for females and mean age of 63 years. Less than 1.5% of cases occur in children, who are likely to have poorer pain outcomes compared with affected adults.¹ Comorbidities such as headaches or migraines may point to this condition being underdiagnosed. Trigeminal neuralgia may be a complication of multiple sclerosis, or there may be a vessel, tumor, or cyst compressing against the trigeminal nerve. Many cases are idiopathic. This case follows a teenager with debilitating atypical TN responsive to ultrasound-guided trigeminal nerve block.

CASE DESCRIPTION

A 38 kg, 16-year-old girl with a family history of migraines presents with a 5-year history of increasing left ear canal and maxillary pain. Her pain began in the left ear canal as brief shock episodes that grew in frequency and migrated to her left cheek and jaw before evolving to a recurrent gnawing ache spreading to the contralateral side. As her pain is worsened by contact, relatively cold temperatures, wind, yawning, and chewing food, she endured a poor quality of life. Because chewing aggravates her pain, she adhered to a soft diet and lost significant weight while becoming reclusive. She became severely underweight as her BMI declined to 14.5 at less than the 2nd age-corrected percentile. She feels that any movement of air into ear, even from turning her head or from her classroom air-conditioning, exacerbated her ear pain, prompting her to wear year-round earmuffs. Previously an A/B student, she stopped attending school as she deteriorated. Dental consult was negative for temporomandibular joint dysfunction, and brain MRI/MRA was normal.

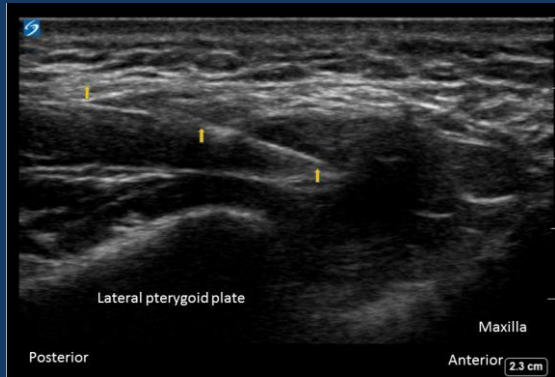
Oxcarbazepine and gabapentin trials were stopped due to ineffectiveness and intolerance to sedating side effects, respectively. Needlephobic and undergoing cognitive behavioral therapy, she settled for a year of partial relief with pregabalin until her pain grew intolerable. She then opted for what she reasoned was less invasive: sphenopalatine ganglion (SPG) block before undergoing ultrasound-guided trigeminal nerve block/steroid injection with mild sedation 6 months later. Using a 22ga 50mm needle in an in-plane posterior-to-anterior trajectory, 4.5mls of 0.2% ropivacaine w 1:200k epinephrine + 2mg decadron were injected. She recalls 75% relief for 7 days from her SPG block compared with 100% relief for six months and counting from her trigeminal nerve injection. She regained some weight and decreased her pregabalin dosage, planning a return to school.



Sagittal view sonoanatomy



Infrazygomatic ultrasound probe positioning



Needle passage via infratemporal fossa

DISCUSSION

Trigeminal neuralgia treatment includes anticonvulsants, muscle relaxants, and neuroleptic agents, before considering gamma knife surgery, rhizotomy via radiofrequency thermocoagulation, balloon compression, glycerol injection, and/or microvascular decompression.¹ Options for children are less defined. Some report success with benzodiazepines and anticonvulsants or microvascular decompression.² Afflicted children are likely to have fewer pain-free episodes and a tendency towards dysfunction from their symptoms, possibly due to decreased diagnostic suspicion for a condition more prevalent in older adults.³ An ultrasound-guided technique for trigeminal nerve block was introduced for adults via the pterygopalatine fossa.⁴ This offers a less-invasive option than microvascular decompression via craniotomy that may prove valuable in families apprehensive to surgery.

CONCLUSIONS

Trigeminal neuralgia and its atypical variants may be overlooked in children who already have headaches that can lead to chronic dysfunction. Early recognition is critical to prevent central sensitization of pain and to avoid the physical, psychological, and financial implications that come with prolonged investigation. In adolescents with trigeminal neuralgia, ultrasound-guided trigeminal nerve block may prove to be a viable option for long-term pain control.

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