

PROCEDURAL TREATMENTS FOR HEADACHE

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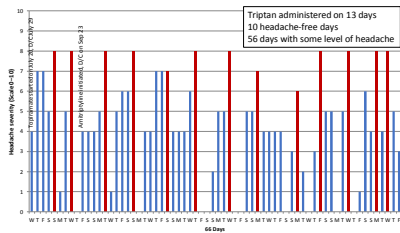
Case study: Emily

Patient History

- 43-year-old woman is seen for a main complaint of headache
- Has had headaches since her teens
- Reports near daily headaches
- Has migraine features: nausea, photophobia, and phonophobia
- Has tried multiple preventive medications

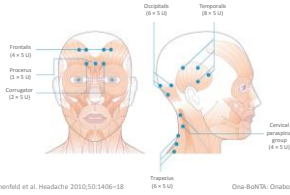


Diary



The PREEMPT fixed-site fixed-dose injection paradigm

A total of 31 injections across seven specific head and neck muscles, with a dose of 155 U of Ona-BoNTA (botulinum toxin type A) injected per patient



Adapted from Blumenfeld et al. Headache 2010;50:1406-18. Ona-BoNTA, OnabotulinumtoxinA.

Types of ptosis

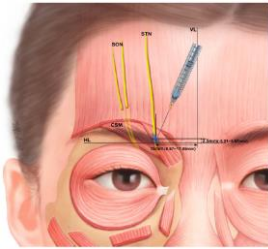


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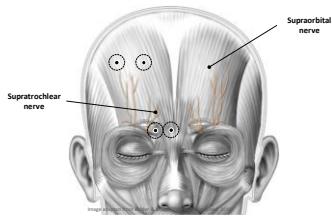
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Supraorbital and supratrochlear nerves



CSM, corrugator supercilii muscle; HL, horizontal orbital plane; SOA, supraorbital artery; STN, supratrochlear nerve; VI, vertical midline of the face.

Anatomical injection sites follow distributions and areas innervated by the trigeminal sensory system



1. Binder & Blitzer. Facial Plast Surg Clin N Am 2003;11:465-75.
 2. Blumenfeld et al. Neurotoxicology 2003;24:349-54.

Corrugator injections



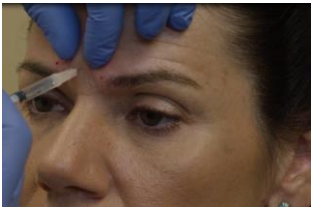
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Procerus injections





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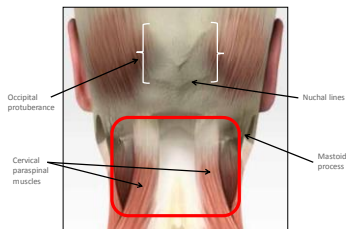
Frontalis injections



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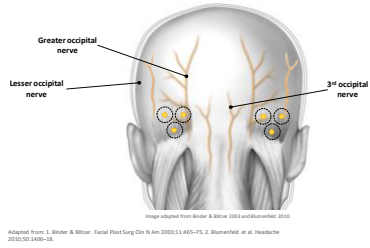


Occipitalis and cervical paraspinal muscles



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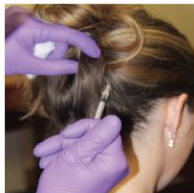
Greater and third occipital nerve

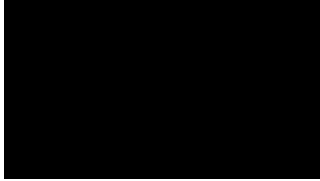


Occipitalis injection sites



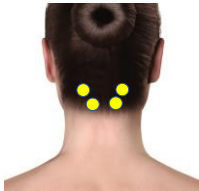
Occipitalis injection sites





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Cervical paraspinal injection sites

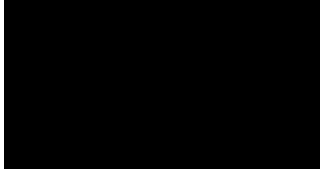


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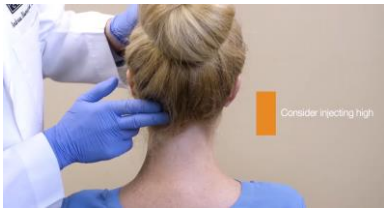
Cervical paraspinal muscles



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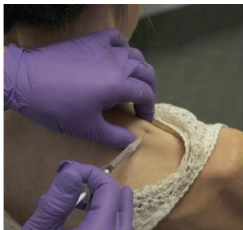


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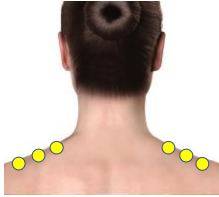
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Trapezius injections



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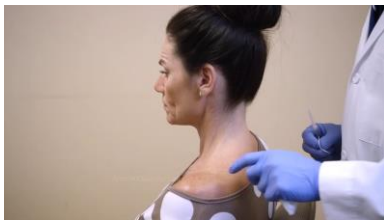
Trapezius injection sites



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Temporalis injection sites



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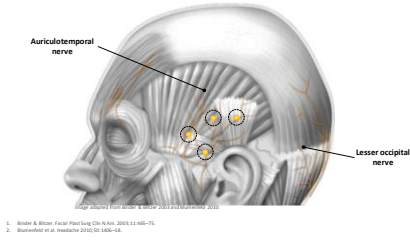


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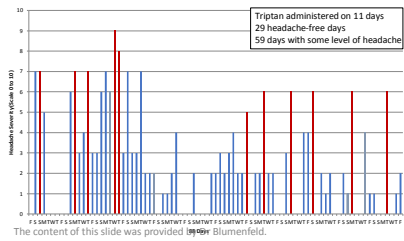


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The auriculo-temporal nerve



First Ona-BoNTA injection cycle



The PREEMPT modified follow-the-pain paradigm^{1,2}

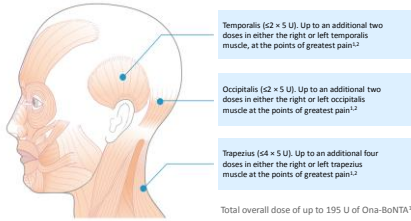


Figure adapted from Blumenfeld et al¹
1. Blumenfeld et al. Headache. 2013;53:1406-18. 2. Botulinum Toxin A, Summary of Product Characteristics

Targets

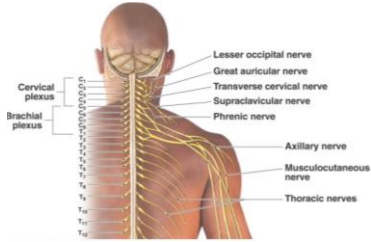


Image provided by Dr Blumenfeld

Sites to avoid, for safety

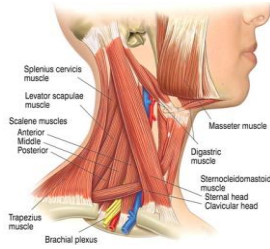


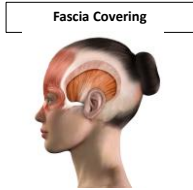
Image provided by Dr Blumenfeld

Clenching the jaw



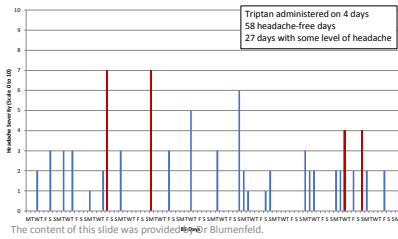
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Temporalis

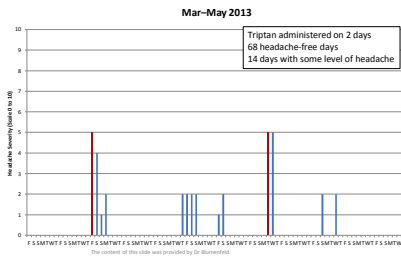


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Second Ona-BoNTA injection cycle



Seventh Ona-BoNTA injection cycle

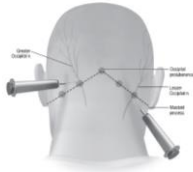


Case study: Emily

- She has reduced her Botox treatment cycle to every 5-6 months.
- She has to take an examination and gets a breakthrough migraine unresponsive to home treatment.
- She comes in for nerve blocks and trigger point injections



Greater and lesser occipital nerve blocks



From Ashkenazi A, Levin M, Dodick DW. Peripheral procedures for headaches. In: Silberstein SD, Lipton RB, Dodick DW, eds. Wolff's Headache and Other Head Pain. Oxford University Press, 8th ed. 2007

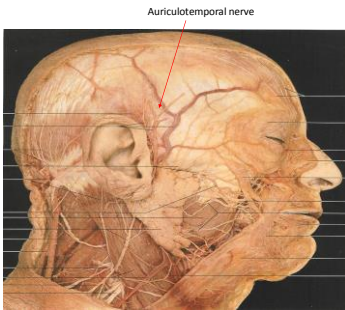
Occipital Nerve Blocks



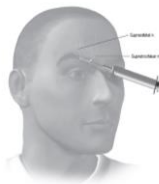
Auriculotemporal nerve block



From Ashkenaf A, Levin M, Dodick DW. Peripheral procedures for headaches. In: Silberstein SD, Lipton RB, Dodick DW, eds. Wolff's Headache and Other Head Pain. Oxford University Press, 8th ed. 2007



Supraorbital and supratrochlear nerve blocks



From Ashkenaf A, Levin M, Dodick DW. Peripheral procedures for headaches. In: Silberstein SD, Lipton RB, Dodick DW, eds. Wolff's Headache and Other Head Pain. Oxford University Press, 8th ed. 2007

Supraorbital and supratrochlear nerve blocks



From Ashkenaf, A, Levin M, Daddick DW. Peripheral procedures for headaches. In Silberstein SD, Lipton RB, Daddick DW, eds. *Walt's Headache and Other Head Pain*. Oxford University Press, 8th ed. 2007

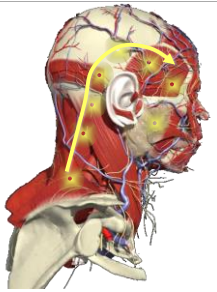
Infraorbital nerve block



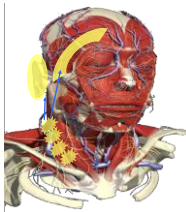
Fixed Forward Head Posture

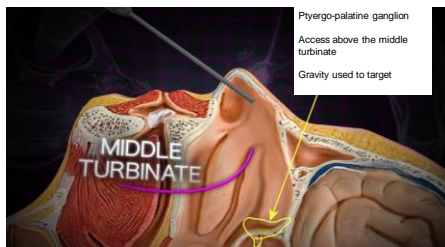


Trapezius Trigger Point Referral Pattern



Sternocleidomastoid Trigger Point Referral Patterns





While the patient is laying supine, gravity will facilitate infused medication to collect and saturate the targeted area... IF, the medication is dispersed over the top of the middle turbinate.

Proper SphenoCath Placement

