Occipital nerve radiofrequency ablation for occipital neuralgia and headaches: Use in special patient populations

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Abstract

Two patients who presented to the pain clinic complaining of recurrent and incapacitating pain consistent with occipital neuralgia and associated headaches and their treatment with occipital nerve radiofrequency ablation (RFA) are presented.

Patient 1 is a 43-year-old female with a 2-year history of occipital pain and associated headaches primarily on the left side after craniotomy. The patient responded positively to left greater and lesser occipital local anesthetic diagnostic/therapeutic injections. The patient did not wish to take neuromodulators and controlled substances due to lack of pain relief and persistent side effects. She was offered the option of RFA versus occipital nerve stimulation with an implantable system. The patient selected and underwent left greater and lesser occipital nerve RFA with positive results.

Patient 2 is a 35 year old in her 10th week of pregnancy with severe cervicalgia, cervical radiculopathy and associated occipital headaches secondary to cervical disc disease and abnormal antalgic neck positioning. She was taking large amounts of oxycodone without any significant relief and considered termination of pregnancy. The patient responded to RFA with complete relief on the left side and considered termination of pregnancy. The patient did not wish to take neuromodulators and controlled substances due to lack of pain relief and severe headaches. She was offered the option of RFA versus occipital nerve stimulation with an implantable system. Patient chose RFA.

Patient 1

- 43-year-old female
- 2-year history of occipital pain and associated headaches primarily on the left side after craniotomy.
- Cervical MRI was normal.
- Patient did not wish to take neuromodulators and controlled substances, which gave incomplete relief and provided undesirable side effects.
- Offered the option of radiofrequency ablation versus occipital nerve stimulation with an implantable system. Patient chose RFA.

Patient 2

- 35 year old female
- 10th week of gestation
- Severe cervicalgia, cervical radiculopathy and associated occipital headaches secondary to cervical disc disease.
- 20mg oxycodone daily with no relief
- Contemplating termination of pregnancy due to severity of headaches.
- Oxycodone was increased to 30 mg
- Placed in a soft neck collar
- Neurosurgeon consulted.
- Patient chose radiofrequency ablation instead of recommended C4-5, 5-6, 6-7 anterior cervical discectomy and fusion in the second trimester.

<table>
<thead>
<tr>
<th>Patient 1</th>
<th>Patient 2</th>
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<tbody>
<tr>
<td><strong>Special circumstances</strong></td>
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</tr>
<tr>
<td>43 y/o female</td>
<td>35 y/o Female</td>
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<tr>
<td>Prior craniotomy</td>
<td>10 weeks pregnant</td>
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<tr>
<td>Patient refused neuromodulators and opioids due to side effects</td>
<td>10mg of oxycodone TID</td>
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<td>The patient responded in a positive fashion to local anesthetic injection of 3mls 0.75% bupivacaine containing 40mg suspension of methylprednisolone</td>
<td>- 2 greater and lesser occipital nerve blocks with 10mls of 0.75% bupivacaine containing 40mg suspension of methylprednisolone 2.5mls at each nerve 4 hours of relief after each block</td>
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<td>Patient chose RFA and the greater and lesser occipital nerves were lesioned with RFA applying 80°C for 90 seconds on 10 months later</td>
<td>Pulsed radiofrequency using 80°C for 240 seconds at the greater occipital nerves and traditional radiofrequency utilizing 80°C for 90 seconds at the lesser occipital nerves</td>
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<td>10 months of relief after initial RFA</td>
<td>Complete elimination of headaches and left sided cervicalgia</td>
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<td>Second RFA- patient stated 90% improvement with no recurrence to date</td>
<td>- Able to remain off pain medications and neuromodulators</td>
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Discussion

Occipital neuralgia, including related headaches, is often confused with cervical spine disease, tension and migraine headaches. It is a stand-alone syndrome, which can respond to multimodal medical management, commonly supplemented by periodic office based occipital nerve local anesthetic steroid blocks. However, if the patient does respond to local anesthetic blocks and medication intolerance or special medical conditions exist, consideration should be given to RFA of the lesser and greater occipital nerves ipsilaterally or bilaterally, as clinically indicated.

Conclusion

Occipital nerve radiofrequency ablation should be considered in special patient populations with refractory occipital neuralgia and occipital nerve associated headaches.