Occipital Nerve Blocks for Relief of Headaches in Patients with Ventriculoperitoneal Shunts

Eugene Kim MD, Bjorn Jensen MD, Giovanni Cucchiaro MD
Department of Anesthesiology and Critical Care Medicine

Introduction:

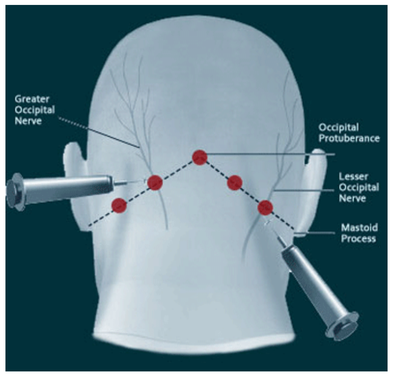
More than 3300 pediatric VP shunts are placed in the US annually.[3] The most common reason for surgical revision is malfunction, with one study quoting 41% of all shunting procedures and an additional 7% due to infection.[4] Shunt malfunction commonly manifests as acute or chronic headache.[2] Patients with VP shunts who present to the emergency room with headaches may undergo evaluation for shunt revision.

Methods:

- Medical records of patients with a VP shunt who were seen by a pain specialist for occipital headaches were reviewed.
- In addition to demographic data, primary diagnosis, VP shunt insertion and revision dates were recorded.
- Medications, placement of occipital nerve blocks and follow-up including emergency room visits for headaches were also noted.

Results:

- Six patients with VPS received occipital nerve blocks for occipital headaches from 2011 to 2017.
- Primary diagnosis included Arnold Chiari Malformation, Pilocytic Astrocytoma, Myelomeningocele.
- All patients received occipital nerve blocks containing Bupivacaine 0.25% using landmarks and careful avoidance of VP shunt tubing.
- All patients were noted to have improved headaches following the block.
- Repeat occipital nerve blocks were performed on four patients with good relief.



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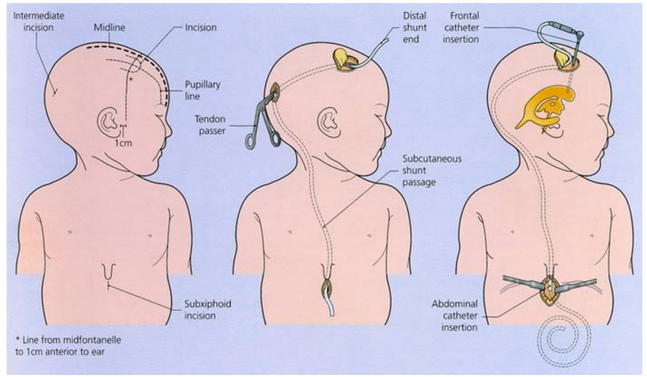

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Figure 1. Patients with VP Shunts that Received Occipital Nerve Blocks (OCNB)

Patient	Primary pathology	Number of shunt revisions pre-OCNB	Other interventions	Number of shunt revisions post-OCNB	Total Number of OCNB
1	Arnold Chiari I Malformation	12	Ibuprofen, Acetaminophen, Amitriptyline, Acupuncture	0	2
2	Pilocytic Astrocytoma	0	Diphenhydramine, Ibuprofen, Acetaminophen	0	1
3	Myelomeningocele	2	Ibuprofen, Gabapentin	0	2
4	Arnold Chiari I Malformation	11	Sumatriptan, Oxycodone, Acupuncture, Acetaminophen, Biofeedback	2	4
5	Pilocytic Astrocytoma	8	Ibuprofen	0	1
6	Arnold Chiari II Malformation	1	Ibuprofen, Acetaminophen, Acupuncture, EMLA cream, Neurontin, Epidural Blood patch x 1	0	3

OCNB- Occipital Nerve Blocks

Discussion:

- The distal portion of the shunt is usually placed in the abdominal cavity while the proximal portion is placed in the lateral ventricle using an occipital or frontal approach.[1]
- The tubing or the valve itself may cross over the path of the greater or lesser occipital nerve resulting in headaches due to mechanical irritation of the occipital nerve.[1]
- Headaches in the setting of VP shunts can be difficult to diagnose and manage. Although shunt malfunction must be ruled out, a detailed physical examination is necessary and can help prevent unnecessary tests and operations. Persistent occipital headaches with tenderness and radiation in the path of the greater and lesser occipital nerves can be indicative of occipital neuralgia. Occipital nerve blocks can help as both diagnostic and therapeutic interventions in these patients.

References

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