Supraorbital and supratrochlear neuralgia caused by dermoid cyst

Farid Yudoyono1,2*, Dewi Pratiwi1, Hendra3

ABSTRACT

Background: Patients with supraorbital neuralgia (SON) and supratrochlear neuralgia (STN) complain disabling pain including headaches and numbness. Previous study reported from trauma and following surgery, but our case cause by chronic suppression by frontal mass. Treatment for headaches and pain include analgesic and anticonvulsants and excision.

Objective: To present a case of SON and STN neuralgia cause by suppression of dermoid cyst.

Methods: A Case report.

Results: A 17-year-old female patient complained of a swelling on the left forehead with an increasingly severe pain followed by numbness. CT scan revealed a 4 cm cyst like mass in the left frontal. Mass excision was performed on this patient. Histopathological result indicated dermoid cysts. 3 months after surgery, headache and numbness were significantly reduced.

Conclusions: SON and STN may result from a chronic suppression by dermid cyst. With mass excision, patient complaints can be minimized without complication.

Keywords: Dermoid Cyst, Headache, Numbness, Supraorbital neuralgia, Supratrochlear neuralgia


INTRODUCTION

SON is a terminal branch of the sensory nerve from frontal nerve which is major branch of the trigeminal nerve of the ophthalmic division, exiting through the supraorbital foramen, supplying the front scalp eyelids, conjunctiva and frontal sinus, alongside STN. SON and STN is very vulnerable to trauma and compression for its superficial location.1-4

Dermoid cysts occurs from failure of the surface of ectoderm to separate from the developing neuroectoderm or when surface of ectoderm undergoes infolding, invagination, and fusion as the ears, eyes, and face begin to form.5-6 Pryor et al previously reported paediatric incidence of dermoid cysts, 16% occur in anterior to the frontozygomatic suture line, 61% occur in the periorbital region and midline nasal and forehead.7,8 Common location of dermoid cyst are the periorbital region, the frontotemporal region and the nasoglabellar region.5

Based on International classification of headache disorder (ICHD), SON may indicate the following symptoms: continuous chronic pain and paroxysmal. Complaints usually include tenderness in the supraorbital foramen. Since SON and STN are closely associated with each other, the classification often experiences difficulties.1,2,9-13

CASE PRESENTATION

A 17-year-old female patient complained of mass on the left forehead with an increasingly severe pain followed by numbness and headache (Figure 2 A). Tinel’s sign (+). Neurological examination indicated numbness in the left frontal area. Non contrast CT scan of the brain was consistent with a 4-cm cyst-like mass with low attenuation cavity at left frontal (Figure 1). Mass excision was performed on this patient (Figure 3 A,B). Histopathological result indicated dermoid cysts (Figure 3B). 3 months after surgery, headache and numbness were significantly reduced, the patient did not visit outpatient departement after 3 months.

DISCUSSION

SON can be found in a superficial area that is prone to trauma. Previous studies have determined the causes of SON and STN, including viral infections, demyelination and trauma, while previous study reported that tumor suppression is very rare. (Table 1) The entrapment mechanism is used to analyze the cause of this case.2,14

Deeper lesions, increasing diameter and pressure of the cyst are present with bony surface thinning or notching of adjacent bone or reactive sclerotic margin or shell of dense bone.5,6

On CT image the majority had a well-demarcated
Figure 1. A Computed tomography (CT) show low attenuation similar to fat and well-demarcated left frontal mass (red arrow)

Table 1. Supraorbital and Supratrochlear mass in literature

<table>
<thead>
<tr>
<th>Case</th>
<th>Age (yr)</th>
<th>Sex</th>
<th>Symptoms</th>
<th>Duration (Mos)</th>
<th>Size (mm)</th>
<th>Localization</th>
<th>Post operative Histopathology</th>
<th>Journal</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>52</td>
<td>Female</td>
<td>Painless palpable mass</td>
<td>8</td>
<td>20x9x7</td>
<td>SO</td>
<td>Schwanoma Antoni A+B</td>
<td>Kim KS et al. 2015</td>
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<tr>
<td>2</td>
<td>46</td>
<td>Female</td>
<td>Painless palpable mass</td>
<td>2</td>
<td>8x7x6</td>
<td>ST</td>
<td>Schwanoma Antoni A+B</td>
<td>Kim KS et al. 2015</td>
</tr>
<tr>
<td>3</td>
<td>42</td>
<td>Male</td>
<td>Pain numbness</td>
<td>3-wks</td>
<td>10x5</td>
<td>ST</td>
<td>Benign Fibrous Histioctoma</td>
<td>Ito T et al. 2013</td>
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<tr>
<td>4</td>
<td>47</td>
<td>Male</td>
<td>Proptosis diplopia</td>
<td>3</td>
<td>2.5</td>
<td>SO and ST</td>
<td>Cystic Schwanoma</td>
<td>Feijo ED et al. 2016</td>
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<tr>
<td>5</td>
<td>41</td>
<td>Female</td>
<td>Painless palpable mass</td>
<td>15</td>
<td>2.4x2</td>
<td>ST</td>
<td>Osteoma</td>
<td>Sim HS et al. 2019</td>
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<tr>
<td>6</td>
<td>14</td>
<td>Male</td>
<td>Solid lesion</td>
<td>no</td>
<td>no</td>
<td>SO</td>
<td>Schwanoma Antoni A+B</td>
<td>Maciel VS et al. 2001</td>
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<tr>
<td>7</td>
<td>62</td>
<td>Male</td>
<td>Swelling over the lid</td>
<td>2</td>
<td>35x25</td>
<td>SO and ST</td>
<td>Schwanoma Antoni A</td>
<td>Dilani et al. 2012</td>
</tr>
</tbody>
</table>

Mos = Months; yr = years old; mm = millimeter; SO = Supraorbital Nerve; STN = Supratrochlear Nerve

cyst wall with a central low-density region similar to fat. Calcifications and heterogeneity within the cyst can also be seen in race occasion. When dermoids cyst occur in the periorbital region, they present as swelling of soft tissue in the eyelid near the frontozygomatic suture line anterior lesions are diagnosed early childhood. Deeper orbital dermoids cyst are presenting in the teenage years and beyond. Management, in some cases, may include avoiding the cause before treating it with analgesic medication, NSAIDs and anticonvulsants. Nerve
blocks and stimulation of nerves can be beneficial in some cases. Supraorbital neurolysis endoscopy and radiofrequency ablation can be used as the alternatives to reduce persistent pain.²

In this case since CT scan imaging of intracranial causes were ruled out. Etiology of the supraorbital and supratrochlear neuralgia is almost unknown, tumor suppression at its outlet may be a causative factor. The rarerity of reports to date indicates that SON and STN secondary to mass suppression is either a rare disorder or an under-recognized condition in clinical practice.¹

CONCLUSION

SON and STN due to suppression of dermoid cyst are very rare. Patient complaints can be minimized within longterm follow up through mass excision.

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CONFlict OF INTEREST

No conflicts of interest.

AUTHOR CONTRIBUTIONS

Conceptualization: Farid Yudoyono.
Data curation: Farid Yudoyono.
Methodology: Farid Yudoyono,
Project administration: Dewi Pratiwi
Software: Hendra
Writing – original draft: Farid Yudoyono.
Writing – review & editing: Farid Yudoyono, Dewi Pratiwi

REFERENCES