Benign Exertional Headaches Induced by Swimming

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Summary: A 57 year-old woman with benign exertional headaches induced by swimming is described. The headaches were bilateral, throbbing and occurred while swimming. She had a history of occasional similar headaches while straining during bowel movements. The neurological examination and computed tomographic (CT) scanning were normal. The electroencephalogram (EEG) had diffuse alpha activity, and no symptoms or significant changes of the EEG were triggered by the Valsalva maneuver, which causes a transient increase in cranial blood pressure and alters the normal vascular balance. She has stopped swimming and since then has never had a headache. No medications were needed. This case demonstrates that not all headaches are triggered by intracranial lesions. Benign exertional headaches should also be considered in the differential diagnosis of this type of headache in the elderly.

Key words: headache — benignity — exertion — swimming — intracranial lesions

Introduction

An exertional headache can be defined as a headache that transiently interrupts complete comfort in response to exertional activities such as running, bending, coughing, sneezing, heavy lifting or straining during bowel movements. This paper describes the case of a woman who suffered from sudden attacks of throbbing headache in the bilateral parieto-temporal region during swimming. This type of headache occurs with intracranial lesions, such as posterior fossa tumors, foramen magnum syndromes and other intracranial disorders, or without any apparent cause. It is important to recognize the existence of benign exertional headaches because patients who have this type of headache can avoid treatment with expensive and potentially harmful investigative procedures and be managed, conservatively.

Case Report

A 57 year-old woman experienced a sudden onset of throbbing headaches in the bilateral parieto-temporal region after swimming for the first time in October, 1989. She had a history of occasional headaches when straining during bowel movements. There was no family history of these symptoms. On examination, the blood pressure was 100/70 mmHg, and the
pulse rate was 72. The chest and abdomen were normal. Neurological focal signs were not demonstrated. The urine was normal. The hematocrit was 37.3%, and the white-cell count was 6900. The platelet count was 210,000, and the erythrocyte sedimentation rate was 13 per hour. Liver and renal functions were normal. Lumbar puncture was not performed. The EKG and chest X-ray disclosed no abnormalities. The CT scan showed no significant abnormality. The EEG had a diffuse alpha activity, indicating cerebral arteriosclerosis. No symptoms and no changes in the EEG were triggered by the Valsalva maneuver, which causes a transient increase in cranial blood pressure and upsets the normal vascular balance.

Clinical course: This case was diagnosed as a benign exertional headache induced by swimming on the basis of a characteristic history and the absence of cranial lesions in the CT scan. It was recommended that she stopped swimming. Since then, she has been free of the headaches; even though she has not been taking any medications.

Discussion

This case was diagnosed as a benign exertional headache for the following reasons. First, the headache was induced by swimming which is a physical exertion. Second, the neurological examination and CT scanning revealed no detectable abnormality. Third, the prognosis was good without taking medications. Indo and Takahashi (1989) reported three cases of throbbing headaches induced by swimming. Also, similar headaches occurred, even when not swimming, in one of the three cases. The occurrence of the headaches was prevented by avoiding swimming in all three cases. They attributed the headaches to the changes in intracranial pressure. Lambert and Burnet (1985) described a competitive swimmer who developed migraine headaches after exercising. A prescribed warm-up regimen prevented further headaches and omission of the warm-up led to recurrences. They speculated that the headaches were triggered by exertion, such as weight lifting, bowling, digging, coughing, shouting and swimming, which could involve the Valsalva maneuver and a transient increase in cranial blood pressure. In this case, the occurrence of the headache was also prevented by not swimming. The headache was not triggered by the Valsalva maneuver. The clinical features of the cases of benign exertional headache induced by swimming are described in Table 1. Appenzeller (1978) reported that this type of headache is very

<table>
<thead>
<tr>
<th>Reporter</th>
<th>Age</th>
<th>Sex</th>
<th>Other factors that induces headache</th>
<th>prognosis</th>
<th>Characteristic of headache</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lambert et al</td>
<td>26</td>
<td>female</td>
<td>strenuous exercise</td>
<td>good</td>
<td>throbbing</td>
</tr>
<tr>
<td>Indo et al</td>
<td>51</td>
<td>female</td>
<td>squat down with alacrity</td>
<td>good</td>
<td>throbbing</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>male</td>
<td>None</td>
<td>good</td>
<td>throbbing</td>
</tr>
<tr>
<td></td>
<td>32</td>
<td>male</td>
<td>None</td>
<td>good</td>
<td>throbbing</td>
</tr>
<tr>
<td>This case</td>
<td>57</td>
<td>female</td>
<td>strain at stool</td>
<td>good</td>
<td>throbbing</td>
</tr>
</tbody>
</table>
rare in well-conditioned athletes. Diamond (1982) reported that exertional headaches could be completely or almost completely controlled by indocin. They attributed the successful treatment with indocin to a decreased synthesis of prostaglandins which are increased during exertion, to the vasoconstrictor action of indocin and to the decreased cerebro-spinal pressure due to indocin. Rooke (1968) observed 103 patients with exertional headaches, of whom 10 had organic intracranial lesions and 93 had no significant intracranial lesions. The course of the exertional headache was generally favorable, since 30 of the patients had complete relief of the headaches within 5 years and 73 were either improved or were free of headaches after 10 years. The headaches were four times more frequent in males than in females, and twice as frequent in patients over the age of 40.

As described above, this type of headache can also be triggered by intracranial lesions. It is important to recognize the existence of benign exertional headaches because patients with this type of headache do not require expensive and potentially harmful investigative procedures and can be managed, conservatively.

References


