

Airplane headache: An atypical case with autonomic symptoms and long duration

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Abstract

Airplane Headache (AH) which is classified under headache attributed to disorder of homeostasis in International Classification of Headache Disorders (ICHD) -3 is a severe, unilateral, orbitofrontal headache that occurs during and caused by airplane travel. It remits after landing. AH cases with autonomic symptoms had rarely been reported. We present a 35-year-old male complained of five attacks of right-sided, unilateral, orbitofrontal headache accompanied with lacrimation, conjunctival injection and eye redness ipsilaterally, starting 20-30 minutes prior to landing. The headache duration varied between 30-90 minutes. AH diagnosis was made in the light of anamnesis and neurological examination. The secondary causes and primary headaches with autonomic symptoms were ruled out. As far as we know this is the first reported longer duration AH case with autonomic symptoms in the literature. AH is an underdiagnosed headache. We report this atypical AH case to call attention to this rare but treatable headache.

Keywords: Airplane, Headache, autonomic symptoms, long duration, rare case

INTRODUCTION

Headache attributed to airplane travel airplane headache (AH) is described as a severe orbitofrontal headache that develops during airplane flight and that worsens in temporal relation to ascent following take-off and/or before the landing of the airplane. It may spontaneously improve within 30 minutes after the ascent and descent of the airplane is completed. It is classified under headache attributed to disorder of homeostasis in International Classification of Headache Disorders (ICHD)-3 in 2018.¹

Although it is defined as a unilateral short-lasting headache without autonomic symptoms, atypical cases with autonomic symptoms have also been reported.²

In one study the incidence of AH was reported being as high as 8.3%.³ So it can be hypothesized that AH is under-diagnosed. We report an atypical AH case presenting with autonomic symptoms and a longer duration than usual to call attention to an under-diagnosed and potentially treatable headache. Consent has been obtained from the patient for publication of this report.

CASE REPORT

A 35-years old male complained of a severe (pain intensity of 6 initially but increasing to 9 on a scale of 1-10), pulsating and stabbing pain in the right orbitofrontal region associated with lacrimation, conjunctival injection and eye redness ipsilaterally. There was no nausea, vomiting, photophobia, phonophobia, osmophobia, nasal congestion, rhinorrhea, forehead or fasial sweating, miosis, ptosis, eyelid oedema or sense of agitation and restlessness.

He had traveled 8 times in 3 months and had suffered headache on 5 of the 8 flights. The duration of the flights was 75-90 minutes. Time zones were not crossed during the flights. The duration of the headaches varied between 30-90 minutes. His first two headache attacks lasted 90 minutes. They started 30 minutes before landing and lasted 60 minutes thereafter. The other three attacks lasted 30 minutes. They started 20 minutes before landing and resolved 10 minutes after landing. The severity of the headaches worsened while the airplane was descending. The headaches occurred in the morning and were not nocturnal.

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The patient did not use alcohol on board. He did not have headaches between flights.

The flights did not cause significant anxiety and fear of flying, but he was especially exhausted after the flights where headaches occurred. All attacks were strictly right-sided and had the same clinical characteristics. He was admitted to the emergency service in his first attack and was given parenteral diclofenac sodium.

He had experienced infrequent episodic tension-type headaches before. He did not have allergic rhinitis. His family did not have a history of headaches or other diseases. Neurological, ophthalmological [intraocular pressure: 13mmHg (12-22 mm Hg)] and ear-nose-throat examinations were normal. Routine blood analysis was within normal limits. Neuroradiological investigations [cranial magnetic resonance imaging (MRI), MR angiography, paranasal sinus tomography] were done the day after his first attack. These did not show any abnormalities.

Naproxen sodium and increased fluid intake was recommended before flights and he was advised to take nasal decongestants if he had nasal stuffiness. He did not need the latter. Naproxen sodium successfully prevented further attacks. Acetazolamide was not thought to be indicated because the headache did not have features of a high altitude headache.

DISCUSSION

The headache was diagnosed as AH in the light of anamnesis and neurological examination. Secondary causes were excluded by neuroradiological investigations. Our case is remarkable for the associated autonomic symptoms and a longer duration than usual.

Head pain related to flight has been reported since the beginning of aviation. In 1783 a passenger was reported to have severe unilateral pain while flying in a hydrogen-filled balloon.⁴ Centuries later, in 2004, AH was used for the first time to describe a 28-year-old man who presented with severe unilateral headache associated with take-off and landing of an aircraft.⁵ Following the publication of 75 AH cases by Mainardi *et al.*⁶, it was coded as '10.1.2 Headache attributed to aeroplane travel' in the 2013 ICHD-3 beta classification.⁷

Rare instances of AH patients with associated autonomic symptoms have been reported in the literature. The reported associated symptoms were ipsilateral nasal congestion and tearing², conjunctival injection and ptosis⁸, rhinorrhea and tearing⁹ as well as ipsilateral tearing.¹⁰

Our patient complained of a severe (pain intensity of 9 on a scale of 1-10), pulsating and stabbing pain in the right orbitofrontal region associated with ipsilateral lacrimation and conjunctival injection.

Our patient was male and he had a severe, unilateral, orbitofrontal headache accompanied with autonomic features which resembled cluster headache. But his headache severity increased gradually while the plane was descending, the headaches did not occur in bouts, were not nocturnal and only occurred during flights. The patient did not use alcohol on board. The flights were short domestic flights and time zones were not crossed. The patient did not have a cluster headache anamnesis before for that reason he was not diagnosed as having cluster headache.

A literature review finds no reported case with a 90 minute-duration like ours. AH usually develops during landing and lasts for 30 minutes.¹¹ Potasman *et al.* reported 52 cases with an average headache duration of 4.0 ± 10.2 hours after takeoff and continuing for 5.7 ± 14.2 hours after landing. The headache characteristics of this study population was not homogenous; 54.5% of the cases had a bilateral headache and 19.2% of the patients with flight-associated headaches were diagnosed to have migraine.¹² Our case had previous instances of infrequent episodic tension-type headache and did not have migraine. His headaches best fitted the diagnosis of AH. As far as we know this is the longest-lasting AH case reported to date.

The exact pathophysiology of AH is not known. AH cases have been treated successfully by triptans. The efficacy of this class of drug was hypothesized to be related to the inhibition of the trigeminovascular system.¹³ The other proposed mechanisms are changes of cabin pressure and its effects on sinuses, vasodilation and anxiety. According to the pressure hypothesis, the imbalance between the atmosphere and sinuses can cause barotrauma which leads to paranasal sinus inflammation, giving rise to frontoorbital pain.^{6,11} Another hypothesis is vasodilation. Prostaglandin (PG)E₂ has been found to be higher in AH patients as compared normal subjects during flights.¹¹ It has been proposed that PGE₂ may cause vasodilation in AH giving rise to headache. Finally, anxiety and flight fear can cause an increase in cortisol levels (especially at the first flights) and this may lead to headaches.¹⁴ Our case denied having flight-related anxiety at his flights.

There is no specific treatment for AH. Paracetamol, ibuprofen, naproxen¹¹, and triptans^{11,13,15} have been used before the flight.

Some cases had a complete response whereas others had moderate or no relief with pre-treatment. If the patient has rhinosinusitis nasal decongestants are also recommended.

In conclusion, AH is an under-diagnosed headache. AH cases with autonomic symptoms are very rare. We reported this case to call attention to atypical AH cases in order to diagnose and treat more patients.

DISCLOSURE

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