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CASE REPORT

An Episode of "Third Person" Phenomenon Involving Somesthetic and Visual Hallucinations in a World-Class Extreme Altitude Climber

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Psychotic symptoms can occur at high altitude. However, most reports are in the mountaineering literature and lack a clear medical assessment and interpretation. Here we report an episode of isolated high-altitude psychosis. It consisted of a "third person" phenomenon involving 2 sensory modalities: somesthetic (felt presence) and visual (the light of 2 flashlights) hallucinations. This episode occurred in a highly experienced climber when he was at an altitude of approximately 7500 m while descending at dusk from the summit of Gasherbrum I (8068 m). The symptoms lasted approximately 3 h and had fully resolved on reaching high camp (7150 m). No other physical or mental symptoms were reported. In addition to hypoxia, a number of other risk factors could have contributed to the occurrence of psychosis in this climber. These included sleep deprivation, exhaustion, dehydration, electrolyte disturbance, reduced visibility, feeling of isolation, and perceived danger. The climber has participated in many extreme altitude expeditions, and neither before nor since this episode has the climber experienced psychotic symptoms.

Keywords: high altitude, hypoxia, mountaineering, phantom presences, psychosis

Introduction

A wide range of psychotic symptoms have been reported at high altitude (HA).[1,2] Common symptoms of psychosis are hallucinations, delusions, and disorganized thoughts or speech.[3] Hallucinations are sensory perceptions occurring in the absence of the respective stimulus. The "third person" phenomenon is a specific form of hallucinations involving the sensed presence of one or more additional persons, a type of somesthetic misperception that can occasionally be accompanied by visual or acoustic hallucinations of the phantom presence.[1,4,5]

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Psychotic symptoms at HA have been described in the mountaineering literature for many decades[6]; however, these reports often lack medical assessment and interpretation, and it has, therefore, been difficult to identify the underlying triggers. A diagnosis of "isolated HA psychosis" can be made if a recent gain in altitude has occurred, there is no previous history of psychosis, symptoms resolve on descent, and there is no underlying medical trigger.[1]

Here, we provide a detailed report of an episode characterized by symptoms of isolated HA psychosis involving a "third person" phenomenon.

Case Report

A 44-y-old Caucasian male, a very experienced professional mountaineer, experienced an episode of psychotic symptoms while descending exhausted helping his climbing partner from the main summit of Gasherbrum I (8068 m). He saw in front of him 2 flashlights moving in

the dark, and he felt a powerful sensation of the presence of 2 people coming to rescue them. He assumed that the lights were downhill at a distance of approximately 300 to 500 m. The perception of 2 "third persons" assured him that they were already safe and encouraged him to continue down the mountain toward the lights. The whole episode lasted approximately 3 h: it started at sunset, approximately 4 h after leaving the summit, when both climbers were still at an altitude of just over 7500 m; continued during the night; and completely disappeared shortly before both reached Camp III (7150 m):

The faint glow of dusk was fading behind the endless ridges and peaks of the Karakoram. We were isolated and exhausted on that dangerous stretch of the mountain, trying to lose altitude while moving like automata, descending very slowly and haltingly through the deep snow. Down the hillside I glimpsed two distant lights, flashing at times, as if they were flashlight bulbs. Suddenly, I noticed an intense presence of two beings approaching us bringing food and drink. At that moment, despite my daze, a great sense of calm came over me. Those unexpected saviors, whose figure I did not perceive at any time, were companions of our same expedition. I was confident of closing the distance, but I felt strange and somewhat confused by the fact that both teams never caught up with each other, although those lights and presences were there, advancing towards us, and we towards them. We continued descending the steep slope of the mountain until I identified the location of our tent, which was sheltered behind a promontory on the slope. In that instant, those mysterious presences and lights, which accompanied me for several hours, vanished forever.

The climber did not experience symptoms suggestive of acute mountain sickness, high-altitude cerebral edema (HACE), migraine, HA pulmonary edema, or an infectious process at any time during the expedition. He had also not ingested stimulant drinks, legal or illegal drugs, or medications; specifically, no dexamethasone was used. However, he reported having slept only 2 to 3 h the night before the summit attempt, and furthermore, he reported that it was one of the most challenging ascents in his entire mountaineering career. He reached the summit very exhausted after 12 h since he had to make his own track through deep snow. Both climbers had barely ingested food and fluids since before beginning their summit attempt. Other than the extreme physical and mental exhaustion, the mountaineer did not report any unusual events during the days and hours before the occurrence of the psychotic symptoms. Mental fatigue could be a consequence of his lack of sleep and mental stress due to the feeling of danger and isolation while helping his exhausted partner to descend and also due to probable severe hypoxemia during his physical overexertion at extreme altitude.

The climber has a track record of outstanding climbing experience, participating in a total of 31 expeditions to the Himalayan and Karakoram ranges, successfully reaching all 14 summits over 8000 m (some of them twice), and completing 3 expeditions in the Arctic and Antarctic regions. He used supplemental oxygen only during his ascent of Mount Everest. The episode that we describe here occurred during his 11th successful summit above 8000 m. He has neither experienced symptoms of a mental disorder prior to or after the episode described nor has he reported suffering from chronic physical diseases or a family history of psychotic disorders. It is also important to point out that the examining physician (EG) had not noted any signs of a personality or other mental disorder during his repeated contacts with the climber.

Discussion

Exposure to hypobaric hypoxia can result in an inadequate oxygen supply to the brain, the most oxygen-dependent organ in the body.[7] While hypoxia alone is known to favor the onset of hallucinations,[8] a range of diseases and environmental factors may also trigger such symptoms. The latter may include infections or HACE; in these cases, psychotic symptoms often occur in the context of delirium.[1,9,10] A combination of environmental and intrinsic factors can also trigger psychotic symptoms during HA exposure in the mountains. This includes social isolation, monotonous activity, dangerous or life-threatening situations, physical or mental exhaustion, dehydration, electrolyte disturbance, sleeplessness, exposure to low temperatures or strong winds, and sensory deprivation, such as reduced visual input.[4,11-16] All these factors were present to some extent in the case we report.

A range of visual hallucinations experienced at HA have been reported, from seeing lights, objects, human figures, and animals to hearing multiple presences speaking. Some of the longest episodes reported in the scientific literature are a case of sustained visual hallucinations of up to 2 d,[9] and another of somesthetic illusions (ie, concerned with bodily sensations) lasting up to 12 h.[4] Among the most common somesthetic hallucinations at HA is the sensation of the presence of a single imaginary person located very close to oneself,[11,17] a duplication of one's own body.[18] A compilation of "third person" phenomena in the mountaineering literature reports that these presences are commonly identified as an

acquaintance or family member, and although the phenomenon seems to be triggered somewhat more frequently during mountain ascents, many cases have also been described during descents, particularly in dangerous situations.[6] Despite the known risk factors for psychosis, an analysis of psychotic episodes occurring at HA from the mountain literature found neither a difference in the occurrence of psychotic episodes during ascent or descent, when alone or in a group, nor an association with danger or snow-blindness.[1] However, starvation was significant in the reported study.

It is important to note that the climber we describe had not taken drugs or medications that could have had an effect on the central nervous system, including corticosteroids that are particularly known to trigger developing psychotic symptoms.[19] Furthermore, the episode described here is the only episode with psychotic symptoms experienced by him, despite having been exposed, before and after the episode, to many dangerous situations at extreme altitude throughout his extensive mountaineering career. This contrasts with a total of 46 hallucinatory events experienced by 7 of 8 world-class extreme altitude climbers.[4] The fact that the described climber experienced only 1 single episode is remarkable because it highlights that apart from hypoxia or genetic factors, which remained constant across the summit attempts above 8000 m, other contributing factors may need to be present.

In one of the largest studies on altitude sickness, hallucinations are present in 3% of subjects with HACE, but no details are given on the exact nature of the hallucinations.[20] In another study, HACE is reported in 32% of cases with psychosis, showing the perceptional disturbances as helpful in 23% and dangerous or frightening in 17%, while the remaining climbers perceived them as neutral.[1] Many of the mountaineers who have experienced the "third person" phenomenon at extreme HA agree that this intensely vivid perception has helped them survive in challenging situations or aided a successful climb,[6,17,21] but an association between psychosis and accidents or near accidents in high mountains has been suggested.[1]

Conclusions

Several stressors probably contributed to triggering the perceptual disturbances experienced by the climber we reported. The case is instructive since it was possible to identify some contributing factors to the psychotic symptoms in hypobaric hypoxia, such as mental and physical exhaustion, darkness, and isolation. The climber had climbed to the same altitude prior to and following the reported episode without any psychotic symptoms. This indicates that, depending on the individual vulnerability, several risk factors may have to accumulate to cause psychotic symptoms at HA.

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