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Paranormal Sightings after General Anaesthesia

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ABSTRACT

Hypnagogic hallucinations are visual, auditory, tactile, or other sensory events that are not actually present, experienced during hypnagogia, a period of transition from wakefulness to sleep. These hallucinations were reported to be brief and mostly visual in nature. We hereby report a rare incidence of this phenomenon occurring in a 61-year-old woman presented with impending Ludwig's angina at our centre. She began experiencing hypnogogic hallucinations when she started to doze off at night after an incision and drainage procedure was carried out under general anaesthesia earlier that day. Upon closing her eyes, she had a clear view of people moving around performing chores. The events were so vivid that she was convinced they were of paranormal origin, which subsequently led to sleep deprivation. These hallucinations immediately disappeared simply by opening her eyes. She eventually sought psychiatric treatment, and the symptoms gradually decreased with full remission on postoperative day 5. Her daily appetite and behaviour were normal throughout her hospital stay. Although postoperative sleep disturbances are often described, hypnagogic hallucinations post-general anaesthesia were documented in only three cases to date following cardiovascular and orthopaedic surgery. To date, the aetiopathophysiology of this type of visual hallucination remains to be unravelled.

1. INTRODUCTION

Hallucinations after general anaesthesia are frequently mistaken as paranormal events and are a rare occurrence in the field of oral and maxillofacial surgery. In the 1950s, following the synthesis of a new class of anaesthetic drugs, it was observed that these drugs could induce schizophrenia-like symptoms, with a combination of hallucinations, negative symptoms, and dissociative symptoms. These drugs were later known as "dissociative anaesthetics" (Moghaddam & Javitt, 2012).

The incidence of mental aberrations related to general anaesthesia was reported to be 11%, in which an increased risk of hallucinations, dreams, and awareness was seen in patients anaesthetised by the

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commonly practiced N_2O-O_2-relaxant technique, supplemented by a variety of adjuvants such as halothane, Innovar, ketamine, narcotics, and other drugs (Wilson et al., 1975). Studies have also reported hallucinations in patients exposed to propofol (Marchaisseau et al., 2008).

Hallucinations are defined as apparent visual, auditory, or tactile perceptions of non-existent objects or stimuli (Wilson et al., 1975). Hypnagogic hallucinations are hallucinations experienced during hypnagogia, a period of transition from wakefulness to sleep. These hallucinations were reported to be brief and mostly were visual in nature. Our aim is to share this memorable experience with other clinicians and to instill an idea for further research in the aetiology and management of post-general anaesthesia hallucinations.

2. CASE REPORT

We hereby report a case of a 61-year-old woman who experienced paranormal activity after undergoing incision and drainage under general anaesthesia for impending Ludwig's angina. She had no preceding neurological or psychological history. Medications given on the day of surgery were intravenous glycopyrrolate 200 mg, fentanyl 100 mcg, propofol 120 mg, suxamethonium 100 mg, atracurium 30 mg, morphine 2 mg, granisetron 1 mg, and paracetamol 1 g. She was orally intubated, and oxygen saturation was maintained at 100% during anaesthesia. The surgery was uneventful perioperatively.

Postoperatively, she was sent back to the ward, where she was monitored in a 4-bedded room. However, she was the only occupant and was surrounded by three empty beds. On the first night postoperatively, when she was just about to doze off, she saw unknown people moving around her bed, each of them doing random activities independently, such as writing on a table, eating, lying on a bed, and walking around. There were many well-dressed men and women who appeared without distortion in front of her. The vision was vivid, realistic, and in normal perspective at an appropriate distance in space. To her surprise, the images disappeared immediately on opening her eyes and reappeared as soon as she closed them. She was unable to sleep due to the event. She was referred to the psychiatric unit the next day and was prescribed fluvoxamine and clonazepam on postoperative day 3 as the visions persisted and caused her to experience severe fatigue due to sleep deprivation. She was able to sleep thereafter; however, the visions remained till postoperative day 5. Once she claimed she saw a man staring right in front of her face, which she subsequently tried to resist away, and sometimes she saw shadows of people. However, she was lucid and remained orientated to time and place without showing any neurological or psychological abnormality throughout her hospital stay.

3. DISCUSSION AND CONCLUSION

Hallucinations can be induced pharmacologically via 1) dopamine D2 receptors (D2Rs) activation with psychostimulants, 2) serotonin 5HT2A receptors (HT2ARs) activation with psychedelics, and 3) glutamate NMDA receptors (NMDARs) blockage with dissociative anaesthetics (Rolland et al., 2014). These complex experiences involve interactions between psychological, biological, and environmental factors and mechanisms. However, one's cultural beliefs can also affect what is identified as a hallucination and impact significantly the content, relevance, and social implications of the hallucinatory experiences (Larøi et al., 2014). Those who accept some degree of supernatural reality may not admit to having the hallucination, and they may even attribute their experience to contact with gods or haunting by spirits of the dead (Larøi et al., 2014).

Our patient experienced hypnagogic hallucinations, which are vivid perceptual experiences arising at sleep onset or intense dream-like imagery just before falling asleep. They are primarily visual but can be auditory or kinetic and are linked with sleep problems and narcolepsy (Ohayon et al., 1996).

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Wilson et al. reported a 2.4% incidence of hallucinations in 490 adult patients who underwent surgery under general anaesthesia. Others reported a 5.7%-12.5% incidence of postoperative hallucinations after cardiac surgery and major non-cardiac surgery (Brimacombe, 1993).

Postoperative hypnagogic hallucinations are rare. Two cases of visual hallucinations upon eye closure were reported after carotid endoarterectomy and coronary artery bypass grafting, respectively. A similar occurrence was reported after a right-sided total hip arthroplasty. Previous studies revealed hallucinations associated with general anaesthesia were unrelated to specific anaesthetic agents or techniques, to age or sex, or to the surgical procedure (Wilson et al., 1975).

Hypnagogic hallucination is a known component of sleep disorder. Changes in sleep pattern and overall quality of sleep after surgery are called postoperative sleep disturbances (POSD), and the incidence can be as high as 42%. Main factors affecting postoperative sleep include advanced age, major surgery, heavy bleeding, postoperative pain, anaesthetic, environmental, psychological, and mental factors. Anaesthesia was described to interfere with the melatonin secretion, hence affecting one's sleep structure. Additionally, opioids were also shown to interfere with the sleep structure of patients (Hou et al., 2022). In our case, the patient was elderly and was subjected to general anaesthesia and opioids on the day of surgery.

Our patient was prescribed fluvoxamine and clonazepam to improve her sleep. Although the use of melatonin to treat these hallucinations remains speculative, studies advocate that it minimises sleep onset latency, improves sleep efficiency, and increases total sleep duration in healthy adults (Lysenko & Bhat, 2018).

Although POSD are often described, hypnagogic hallucinations after general anaesthesia masked as paranormal sightings remain rare. Clinicians are urged to be aware of this phenomenon, as early detection and prompt management are key.

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CONFLICT OF INTEREST STATEMENT

The authors agree that this research was conducted in the absence of any self-benefits, commercial or financial conflicts.

AUTHORS' CONTRIBUTION

Nur Sabrina collected the information regarding the case and conceptualized the theoretical framework. **Farah Nur Tedin Ng** wrote and revised the article. **Sabrina Peter** supervised research progress and approved the article submission.

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4. APPENDIX

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