

Visual Hallucinations Due to Indomethacin: A Case Report

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Visual hallucinations may be caused by organic cerebral lesions and by drugs including indomethacin. We report here a case of indomethacin-induced visual hallucinations in which a clear description of the phenomenology shows how a complex hallucinatory experience may arise from the relatively non-specific effects of cerebral irritation.

Introduction

Complex visual hallucinations in the absence of psychosis are thought to arise from the visual association area of the cerebral cortex. The more stereotyped kind of hallucination, generally of people or animals, is thought to be caused by stimulation of the association cortex by irritative lesions; a more varied type of hallucination is said to occur in blindness or sensory deprivation, as a result of release of the association cortex from the suppressant effect of visual input (Kolmel, 1985). L'Hermitte (1922) and Nakajima (1983) described typical stereotyped hallucinations in patients with pontine haemorrhage; a concomitant ischaemia elsewhere in the vertebrobasilar territory notably in the region supplied by the posterior cerebral artery may provide a cortical origin for these hallucinations (Lance, 1976).

The hallucinations described by these authors are all of people or animals, sometimes with identical replication. Bizarre detail may be present, images can be coloured or monochrome and are frequently smaller than life-size; auditory accompaniment is not reported.

Drug-induced visual hallucinations may also be due to cerebral irritation. Alcohol (Morgan, 1968) and bromide (Curran, 1938) intoxication can be accompanied by hallucinations of animals and people, often replicated into troops; in these cases there may be an auditory accompaniment such as laughing or singing. L-dopa treatment in Parkinson's disease can lead to a similar visual hallucinosis (Schwab, 1970); here the mechanism may be through a more specific effect on subcortical dopamine or serotonin systems which project to the cerebral cortex.

Indomethacin and related anti-inflammatory drugs are not infrequently associated with headache and with nausea and vomiting attributed to cerebral irritation. Visual hallucinations have only twice been reported with this drug and may represent another such manifestation. We report a case of indomethacin-induced

visual hallucinations with auditory hallucinations, accompanied on some occasions by headache.

Case History

The patient was a 22-year-old single man who following an influenza-like illness developed brachial neuritis. In the two months before presenting in the neurology clinic, he had received for pain ibuprofen, then buprenorphine (Temgesic) which gave him nausea, giddiness and tinnitus, and lastly indomethacin 75 mg which gave him headache and nausea. In admission he was a thin man with extensive vitiligo, who had marked asymmetrical wasting and weakness of the shoulder girdle muscles on both sides. Tendon reflexes were diminished in the upper limbs and there was some sensory impairment. There were no other findings and all investigations were negative. His vitiligo had been present since the age of 5. He had had a minor head injury without loss of consciousness two years before; medical history was otherwise negative. There was no family history of illness or of epilepsy.

He was discharged on slow-release indomethacin 75 mg daily. Four days later at 2.30 p.m. he developed a sharp splitting headache in the back of his head with an occasional "loud bang" inside his head, and a continuous ringing in the ears. A few minutes later he started to see clowns in the room; these were motionless at first, but after about 15 minutes they began to move. They were life-sized, 3-dimensional (but he only saw them face on) and were solid, not transparent. They were black and white, and recognizable as clowns through having pointed hats, long arms and a harlequin pattern; when asked at interview to draw them he realized they had no legs (see Fig. 1). The clowns started laughing in an unfriendly way and he felt as if they were hitting him on the back of the head; this was related to the thumping headache. He tried to hit back but his hand went straight through them. They went away when he shut his eyes, and also when his GP came at 6 p.m. They finally went at 7 p.m. together with the headache. He noticed during this time that he could not read a newspaper as the print was "going all over the place". Next morning the headache recurred and he saw two black dogs with long shaggy ears with a long curly pile, which were barking (see Fig. 1). These did not disturb him and after half an hour just disappeared. He then saw the floor start to move "like the sea", the surface of the floor thrown into a regular wave-like pattern. Trying to walk made him giddy and was easier with his eyes shut. This again persisted for some hours and he was later re-admitted to the neurological ward. Next morning he saw a black cat sitting on his bed but when he told it to get off, it went away. He later described having some weeks ago seen a pair of hands, dark, shiny green and moving, come out of the wall; this occurred while he was awake, in a well-lit room, and lasted a minute or two. It occurred after he had started to take analgesics for his brachial neuritis.

Neurological examination produced no new findings and psychiatric assessment was normal; he firmly denied use of any illegal drugs. A diagnosis was made of indomethacin-induced hallucinations and the drug was stopped. The patient was discharged without recurrence of the hallucinations.

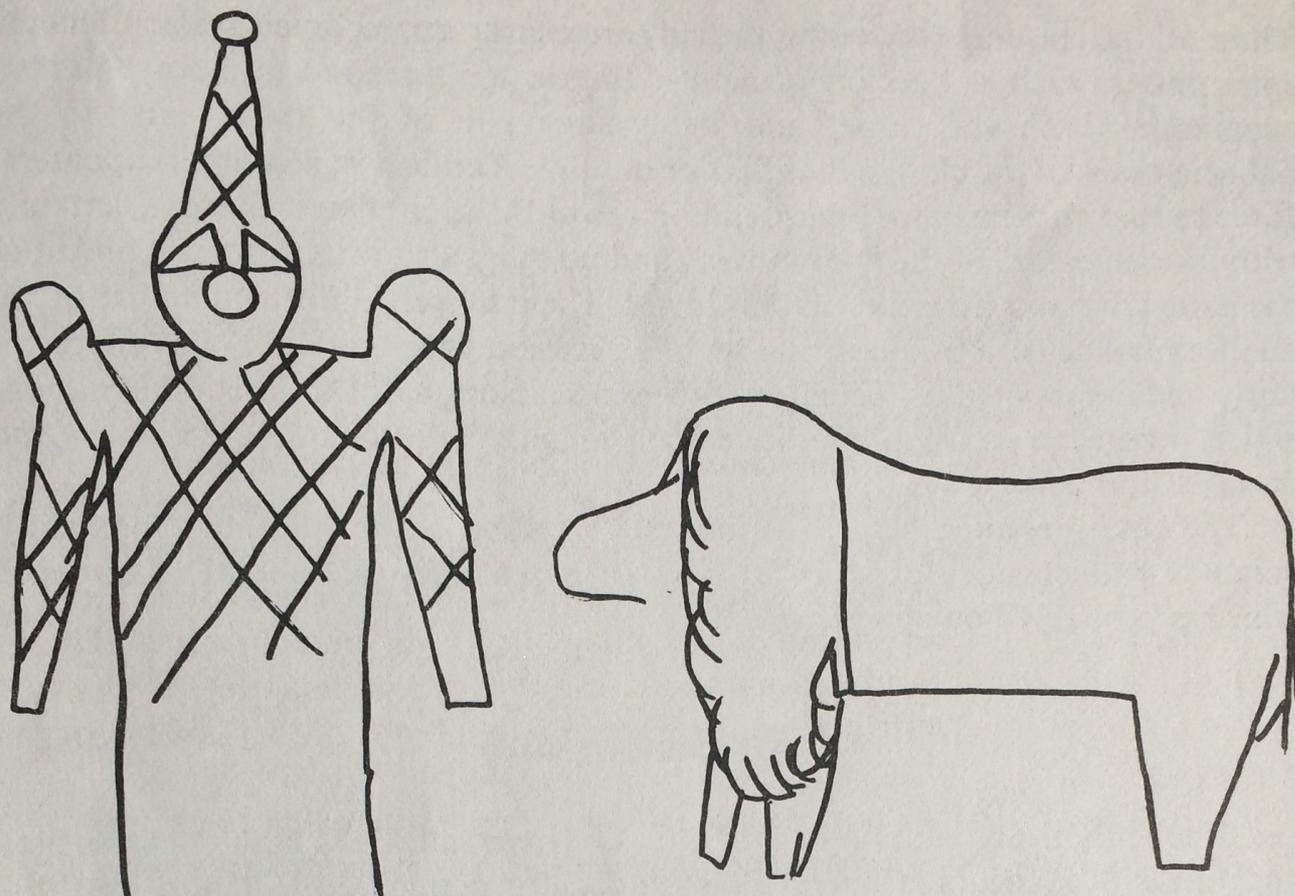


Fig. 1

Discussion

Indomethacin has been reported to cause visual hallucinations. Thomas and Percy (1966) described a 72-year-old woman who "saw and conversed with" several friendly ghosts till the indomethacin capsules were stopped. There were no signs of cerebral irritation such as headache, vertigo, nausea or vomiting, although a number of their patients did show this. Carney (1977) reported a 65-year-old woman who developed a paranoid psychosis while taking indomethacin for rheumatoid disease. She had olfactory hallucinations, saw mist on the windows in the mornings and believed the television was being made to produce bright colours; it is not clear whether these latter two experiences were actually visual hallucinations, however. Borgkvist and Samuelsson (1976) reported visual hallucinations, in this case with auditory accompaniment, in 7 patients given indomethacin; 6 were elderly and 1 was a young woman. These authors considered cerebral vasoconstriction to be a possible cause.

The detailed description given by our patient allows the distinction of two components in his hallucinations. There is first a relatively non-specific perceptual disturbance resulting from cerebral irritation, and then the imposition of meaning on the experience. The stereotyped nature of the visual hallucinations suggests that they are due to cerebral irritation; they all have a repetitive pattern-like basis, often monochrome, on the basis of which an interpretation as a particular object occurs.

Thus, all the episodes (excluding the cat) are characterized by a regular monochrome pattern such as the clowns' hats and harlequin diamonds, the wave pattern superimposed on the carpet and the shaggy pile of the dogs' ears. In the hallucinations of the clowns the effect of multiple identical replication is apparent. It seems that an element of interpretation towards the familiar is present, certainly with the perception of the floor moving and possibly also with the development of the harlequins and diamonds in the clowns. The relatively unformed nature of the auditory hallucinations, occurring on one occasion with headache, also suggest a fairly undifferentiated hallucinatory experience associated with cerebral irritation, which is on each occasion interpreted consonantly with the interpretation of the visual disturbance.

The case presented here is of interest therefore in showing how apparently complex hallucinatory experiences may be based upon a cerebral disturbance which is probably non-specific in nature.

Acknowledgements

The authors are grateful to Dr R. C. D. Greenhall, Consultant Neurologist, and to Dr S. Hancock, General Practitioner, for permission to report on their patient. Thanks are also due to Dr J. Aronson for advice on clinical pharmacology.

References

- Borgkvist, K. and Samuelsson, S-M. (1976). Psykiska bivärningar av indometacin hos äldre patienter. *Opusc. Med (Stockh)*, **21**, 121. (Abstract in ed. Dukes, M. N. G. *Side effects of drugs*. Ann. 2. 1978; 47: 9.4).
- Carney, M. W. P. (1977). Paranoid psychosis with indometacin. *British Medical Journal* **2**, 994-995.
- Curran, F. J. (1938). A study of fifty cases of bromide psychosis. *Journal of Nervous and Mental Disease*, **88**, 163-192.
- Kolmel, H. W. (1985). Complex visual hallucinations in the hemianopic field. *Journal of Neurology, Neurosurgery and Psychiatry*, **48**, 29-38.
- Lance, J. W. (1976). Simple formed hallucinations confined to the area of a specific visual field defect. *Brain*, **99**, 719-734.
- L'Hermitte, M. J. (1922). Syndrome de la calotte du pédoncule cérébral. Les troubles psycho-sensoriels dans les lésions du mésocephale. *Revue Neurologique*, **38**, 1359-1365.
- Morgan, H. G. (1968). Acute neuropsychiatric complications of chronic alcoholism. *British Journal of Psychiatry*, **114**, 85-92.
- Nakajima, K. (1983). Clinicopathological study of pontine haemorrhage. *Stroke*, **14**, 485-493.
- Schwab, R. S. (1970). Psychiatric aspects of L-dopa treatment in Parkinson's disease. In: "L-dopa and Parkinsonism". (Eds. A. Barbeau and F. H. McDowell). F. A. Davis Company, Philadelphia.
- Thomson, M. and Percy, J. S. (1966). Further experience with indometacin in the treatment of rheumatic disorders. *British Medical Journal*, **1**, 80-83.