

HYSTERICAL BLINDNESS: A CASE REPORT AND STUDY USING A MODERN PSYCHOPHYSICAL TECHNIQUE¹

L. H. THEODOR²

*York University, Downsview,
Ontario, Canada*

M. S. MANDELCORN³

*Department of Ophthalmology,
University of Toronto, Toronto,
Ontario, Canada*

A patient with constricted tubular visual fields and a presumptive diagnosis of hysterical blindness was investigated to determine if she could see in the claimed blind field. Using a modified Goldmann perimeter and a two-alternative forced-choice procedure, we obtained evidence strongly suggesting sight where the patient claimed she was blind.

Hysterical blindness has long been a puzzling and fascinating problem in psychology and ophthalmology. In particular, the question of whether or not the hysterical blind patient can or cannot "see" is still unresolved. In psychological terms the question might be phrased, does the hysterically blind patient actually process visual information which he then either consciously or unconsciously denies, or is he truly incapable of processing visual information?

One reason for the failure to resolve this question lies in an inherent shortcoming in using classical psychophysical methodology to investigate vision. Classical psychophysical methods depend on the patient's ability to discriminate implicitly between two subjective states—namely, whether he does or does not perceive the presence of a visual signal when, in fact, that signal is always present. The shortcoming of these methods lies in the fact that the examiner is completely dependent on the patient's subjective report that he does or does not perceive the signal. If the patient chooses to deny that he sees the signal when he really does see it, the examiner cannot distinguish this from actual blindness.

In recent years newer psychophysical methods requiring the subject to make an explicit discrimination between the presence or absence of a signal have been used to circumvent this disadvantage (cf. Green & Swets, 1966). Among the explicit discrimina-

tion techniques, the "two-alternative, forced-choice" procedure is the simplest to use. In this procedure the patient is presented with two well-defined temporal intervals. On each trial a light signal is presented during only one of the two intervals, randomly determined, so that over a series of trials the signal appears equally often during each temporal interval. The subject or patient must indicate during which interval he thinks the signal occurred. The dependent measure with this method is the percentage of trials on which the patient correctly identifies the temporal interval containing the signal. Chance performance in the two-alternative forced-choice task is 50% correct plus or minus 1.96 standard errors (provided that at least 30 trials are used). If the patient chooses to deny the presence of the visual signal which he does perceive, significantly poorer than chance performance will result.

We report the results of testing the visual field of an hysterically blind patient using this two-alternative forced-choice procedure.

CASE

A 16-year-old girl was admitted to the Hospital for Sick Children, Toronto, Canada, for investigation of sudden loss of vision which began 10 hours before admission. One year previously, after a laryngeal biopsy for "whispering speech," she developed aphonia lasting several weeks. The aphonia was thought to be a conversion reaction. The patient's parents both died when she was very young. Her relationship with her foster parents and sister-in-law was not happy.

On the night of admission, the patient could count fingers at a distance of one foot with each eye. Her visual field in each eye was tubular

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² Requests for reprints should be sent to L. H. Theodor, Department of Psychology, York University, 4700 Keele Street, Downsview, Ontario, Canada.

³ Now at Department of Ophthalmology, University of Miami.

and constricted, and measured less than 5° centrally. She had an apparent left lateral rectus weakness, although versions induced by optokinetic-nystagmus were normal. The rest of the examination was normal. On several later examinations full excursions of the left lateral rectus muscle were demonstrated easily.

All investigations, including skull films, electroencephalogram, brain scan, and lumbar puncture were normal. The consulting neurologist, psychiatrist, and ophthalmologist agreed that underlying these visual symptoms was a conversion reaction.

METHOD

The Goldmann perimeter (Haag Streit, Switzerland), our basic apparatus, provided a simple and precise method of monitoring fixation and setting the location of the target relative to fixation. Inside the perimeter housing, we mounted two solenoids, one to operate the shutter vane, the other to produce an identical sound during the interval not containing the visual signal in order to eliminate nonvisual cues. An electronic timing circuit connected to the solenoids produced 100-millisecond observation intervals separated by a 500-millisecond interobservation interval. A tone was coincident with each observation interval.

The target was III-4-e (four millimeters squared oval, highest intensity white light available). At 2° temporal to fixation on the horizontal meridian we ran 10 trials. This was well within the area in which kinetic perimetry had demonstrated vision. During a further 100 trials the same target was projected on the horizontal meridian 45° temporal to fixation, in the area where kinetic perimetry had demonstrated no vision and where the patient claimed she was blind. The left eye was tested throughout using the two-alternative forced-choice procedure.

RESULTS

At 2° from fixation the patient made 10 of a possible 10 correct responses (100% correct). The probability of observing this by chance alone is less than .001.

At 45° from fixation the patient made 30 correct responses of a possible 100 (30% correct). The probability of observing this by chance alone is less than .0001.

CONCLUSIONS

Our hypothesis was that if the patient saw the signal and chose to report it, she would achieve better than chance performance. The results at 2° from fixation clearly demonstrated that there was vision at this locus and support the findings of kinetic perimetry.

Our second hypothesis was that if the patient saw the signal but, consciously or unconsciously, chose to deny it, she would achieve significantly poorer than chance performance. That she did perform significantly below chance 45° from fixation strongly suggests that the patient was processing the visual information and then denying it. This occurred in an area of her visual field where kinetic perimetry had failed to demonstrate any vision.

To our knowledge this is the first demonstration that an hysterically blind patient can process visual information presented to the area where the patient claims blindness. This experiment illustrates the applicability of an explicit discrimination technique to the diagnosis of hysterical blindness.⁴

⁴ Since this paper was accepted for publication, the patient described by Brady and Lind (1961) and the subsequent study of that case by Grosz and Zimmerman (1965) have come to our attention. Grosz and Zimmerman reported significantly below chance performance by the patient in a three-alternative, forced choice, visual discrimination procedure. There are, however, a number of important differences between the patient we describe and the patient described by Brady and Lind and by Grosz and Zimmerman: (a) Our patient displayed tubular visual fields, that is, partial "blindness" as opposed to the total "blindness" claimed by the patient of Brady and Lind. (b) Our patient had a history of hysterical dysfunction in another organ system. (c) There was no apparent economic advantage for our patient's claim of partial loss of vision, which was not the case for the patient described by Brady and Lind and by Grosz and Zimmerman.

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