E. C. ZORAB

SOLAR ECLIPSE—BURN OF Macula*

BY

E. C. ZORAB, Major, R.A.M.C.

The following case is of interest in view of its association with the recent partial eclipse of the sun.

2695379, Guardsman W.S.S., 1st Btn. Scots Guards, aged 27 years, came to see me on July 12, 1945, complaining of obscured vision in the left eye.

History.—No family history. Five years ago he was in Mersa Matruh for a year. During this time he was working in an outdoor cookhouse.

Towards the end of the year, he noticed that he was not seeing so well with his right eye. He was seen by an oculist at a British Military Hospital and told that he did not need glasses, that the vision in the right eye was rather worse than the left, and that perhaps it was due to the sun. It has remained the same since, and

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he has thought no more about it. Four days ago there was a partial eclipse of the sun. He was told about it by a friend and had a look at it through an ordinary cheap pair of smoked glasses. He says that although the sun seemed very bright he was determined to see it and had a good look lasting some seconds, probably about five. He did in fact manage to see what he was supposed to see, but ever since then, he has seen a black shadow in the centre of his vision in the left eye.

The partial eclipse was well seen in Northern Italy, and I myself saw it in various stages (though with better precautions than his).

At its maximum, which was about the time he looked at it, it appeared, to my inexperienced eye, to be about 33 per cent.

*On Examination.*—R.V. = 6/24 rapidly, but can struggle down to some letters of 6/9 by moving his eye from side to side.

L.V. = 6/9 with one mistake and some letters of 6/6 but always with a black shadow in the centre. The shadow is the exact shape of the uneclipsed portion of the sun which he describes accurately, putting the moon shadow in the right place.

Both maculae show an identical appearance. There is no light reflex. The macula has a dark red spot in the centre about 0.25 mm. with a very pale area surrounding it of about 0.75 mm. diameter.

There is no appreciable error of refraction and no lens improves his visual defect.

*July 20, i.e., 12 days after the eclipse.*—Right eye: unchanged.

Left eye: Vision = 6/9 and 6/6 partly, i.e., unchanged. He still sees the same shadow, but it is less distinct and is very slightly to one side of the centre of vision.

*On examination.*—Left macula now has central light reflex. Pale area has become less marked and appearance is almost normal.

**Comment**

It is difficult to decide whether this man has a true macular burn in each eye; the right as a result of prolonged exposure in the desert and the left as a result of a few seconds’ exposure to the sun rays partially filtered by smoked glasses, or whether he is a case of primary macular degeneration aggravated by sunlight.

I have seen three cases of macular damage which I attributed to sunlight. All were in men who had served more than three years in the Western Desert. Their maculae were not like these, but rather gave the appearance of a hole.

Lt.-Col. Rycroft has seen a larger number which he attributes to Western Desert service, but they also had “holes,” either true or false, at the macula.

Holes at the macula after eclipse blindness have been reported by Harman and Macdonald, 1922; Rauh, 1927; Würdemann, 1936.

The appearances in this case are not those of holes. There is
no parallax, and the vision is far better than would be the case with holes. It is possible that a hole will develop later in the right eye but the left appears to be recovering.

The fact that he is emmetropic is consistent with a macular burn for the sunlight would be focused exactly on the macula.

A CASE OF ECLIPSE BLINDNESS*

BY

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PRIVATE J. H., aged 25 years. This patient has always had good sight and at one time was the best shot in his battalion. So far as is known there was no deterioration in vision until the onset of the present condition. There was no previous ophthalmic history.

On July 9, 1945, he looked at the partial eclipse of the sun, on the first occasion through a photographic negative for about one minute and during the succeeding hour on three separate occasions, each of about twenty seconds, without any protecting screen and mainly with his right eye.

He first noticed symptoms on the following morning. On waking he had a slight ache in the inner corner of the right eye and immediately found that vision was blurred in this eye. Three days later he was referred to the Ophthalmic Department of a General Hospital in Italy.

On examination, V.R. was 6/18 (two letters). V.L. was 6/5. Both eyes were emmetropic. He volunteered the statement that when he looked directly at a letter on the test card he could only see each side of it. There was no evidence of inflammation in either eye. The pupil reactions were normal and the media clear. The only abnormal finding was at the right macula where there was a circular hole, about \( \frac{1}{3} \) disc diameter across, with a flat base and steeply sloping sides. Around it, a faint ring reflex, due to oedema, could be seen. Examination with a Bjerrum screen showed the presence of a circular central scotoma of 1° to a 2 mm. white object and of about 2.5° to red.

On the following day he became aware of a circular black spot in front of the right eye and was conscious of this for three days.

One week later the macular oedema had subsided but apart from this there was no change. One month after the eclipse, some irregular patches of fine pigmentation had appeared around the hole. The visual acuity in the right eye was still 6/18 (partly) and the central scotoma could be demonstrated as before.

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