

CASE NOTES

QUININE AMAUROSIS

BY

S. M. DRANCE

Edinburgh

ALTHOUGH amaurosis due to quinine poisoning is now relatively rare, occasional cases still occur. When quinine is used as an abortifacient, the initial history may be misleading, as in the present case, but the presence of characteristic changes in the fundi usually enables one to be reasonably certain in arriving at a diagnosis.

The present case is considered worthy of special record in view of the fact that the fundi remained normal for a period of 11 days after the ingestion of 0.5 oz. quinine by mouth.

Case Report

A woman, aged 20, was admitted to hospital on June 2, 1953, with a history of vomiting for 12 hours, loss of consciousness for about an hour after the vomiting started and drowsiness for about 10 hours. Shortly after the onset of the emesis she developed some tinnitus and partial deafness, and this was followed, about 30 minutes later, by the sudden onset of blindness. She did not complain of any pain and there had been no diarrhoea.

There was no history of ingestion of any noxious substance and the last menses was alleged to have taken place 28 days before admission to hospital.

Examination revealed a drowsy patient who could be roused to answer questions. She gave the impression that her hearing was still slightly impaired. The temperature was 100° F., the pulse rate 80 per minute, and the blood-pressure 120/80.

Both pupils were widely dilated and failed to react to light. The patient had no perception of light in either eye. The media were clear.

Both fundi appeared perfectly normal.

Examination of the cardiovascular, respiratory, and central nervous systems did not reveal any abnormal signs.

A palpable swelling was found in the supra-pubic region, which appeared to arise in the pelvis and extended some two fingers breadth above the symphysis pubis; some vaginal bleeding was also noted. Catheterization showed a normal urine and made no difference to the abdominal swelling which was suspected to be an enlarged uterus. The patient and her mother at first insisted that there had been no amenorrhoea and that the vaginal bleeding was a perfectly normal menstrual period. On further questioning, however, and on confronting the patient with the true facts and suspicions as to the origin of the amaurosis, she admitted to having taken 0.5 oz. quinine by mouth 3 hours before the onset of symptoms, in an attempt to induce an abortion.

Progress

June 4, 1953.—Evacuation of uterus.

June 6, 1953.—Able to count fingers at half a metre. Fundi still perfectly normal. Pupils react sluggishly to light.

June 8, 1953.—Visual acuity 6/9 in each eye. Examination of the visual fields shows changes consistent with a diagnosis of quinine amblyopia (Fig. 1).

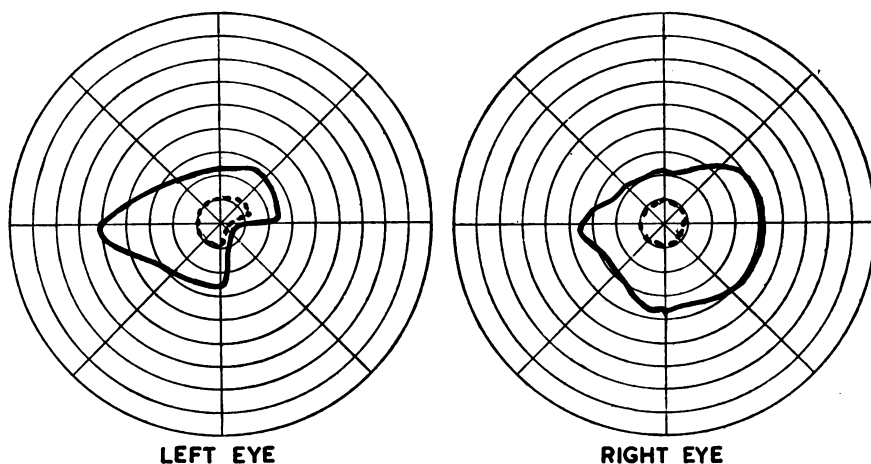


FIG. 1.—Visual fields one week after onset of amaurosis. Right eye: 6/9 and J1; left eye: 6/9 and J1. Targets: $\frac{3}{3} \frac{0}{0}$ and $\frac{1}{1} \frac{0}{0}$ white.

June 12, 1953.—Fundus normal.

June 13, 1953.—Both optic discs show pallor for the first time since admission to hospital, and the retinal arteries exhibit marked constriction especially on the nasal side of the fundus.

July 9, 1953.—Visual acuity 6/5 in each eye. The fields of vision show some improvement (Fig. 2).

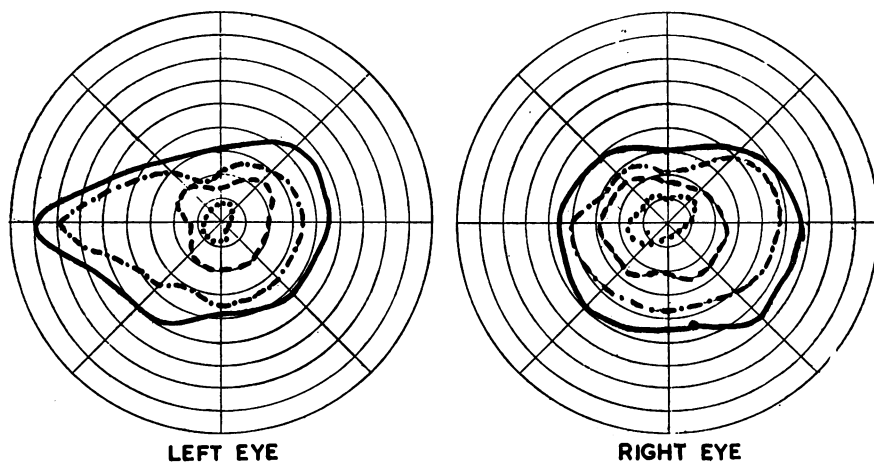


FIG. 2.—Visual fields 5 weeks after onset of amaurosis showing a good degree of recovery. Right eye: 6/5 and J1; left eye: 6/5 and J1. Targets: $\frac{3}{3} \frac{0}{0}$, $\frac{3}{3} \frac{0}{0}$, $\frac{1}{1} \frac{0}{0}$, and $\frac{2}{2} \frac{0}{0}$ white.

July 17, 1953.—Patient complains mainly of difficulty in seeing in the dark and of difficulty in moving amongst traffic.

August 21, 1953.—Patient returns to work as a sorter in a chocolate factory. Her only complaint is of difficulty with night vision, and of bumping into objects or people in the dark.

Discussion

Although amaurosis as a result of quinine poisoning is, as has already been said, relatively rare, most cases which do occur probably follow the taking of a large dose of quinine as an abortifacient (Scott, 1953).

In most cases the fundi exhibit characteristic appearances. The retina, in the earliest stages, is normally pale and often oedematous, the discs are pale, and the arteries are either markedly constricted when the patient is first examined or develop such signs within a few days (Braveman and others, 1946; Guha, 1946; Bishay, 1946; Pelter and Saskin, 1942).

Duggan (1940) however, reports a case with normal discs and normal vessels during the acute stage of the poisoning, although the retina was grey and oedematous.

McGregor and Loewenstein (1944) also reported a case with normal retinal vessels, but again the retina was milky in appearance and there was a cherry-red spot at the macula.

Smith (1919) described, in patients recovering from quinine amaurosis, the paradox that the retinal vessels may become increasingly narrow and the optic discs increasingly pale as vision improves.

The present case is of particular interest in that during the initial stage of blindness the fundi appeared perfectly normal, and abnormal changes did not appear until 11 days after the ingestion of quinine.

There appear to be two schools of thought (Duke-Elder, 1940) regarding the mechanism concerned in the production of quinine amblyopia:

- (i) that the drug has a toxic effect upon the nerve elements in the ganglion cell layer of the retina, or alternatively
- (ii) that the blindness is secondary to the vasoconstriction of the retinal vessels.

The findings recorded above seem to support the view that quinine has a direct toxic effect upon the cells of the retina, a conclusion formerly reached by Traquair (1949), who considered that “the poison acts directly upon the ganglion cells and nerve fibres, particularly the peripheral elements”.

There would seem to be no doubt that the vascular change in the fundi is a secondary one, and not the initial cause of the amaurosis.

Conclusions

(1) The history in cases of quinine poisoning, when the drug has been used as an abortifacient, cannot be relied upon in establishing a diagnosis, and may even be deliberately misleading.

(2) Amaurosis due to quinine may occur in the presence of perfectly normal fundi, and the latter may remain normal for as long as 10 or 11 days.

(3) It would seem that the quinine amblyopia, or amaurosis, is due to direct action of the poison upon the cells of the retina, and that the vasoconstriction of the retinal vessels is a secondary effect.

Summary

- (1) A case of quinine amaurosis is reported.
- (2) The fundi were perfectly normal at the onset of the blindness and remained so for 11 days.
- (3) The quinine had been taken as an abortifacient, the history given by the patient being deliberately misleading.

I wish to thank Mr. J. A. Magnus for permission to report this case which came under observation at the County Hospital, York, and Dr. G. I. Scott for his advice in the presentation of this report.

REFERENCES

- BISHAY, A. (1946). *British Journal of Ophthalmology*, **30**, 281.
BRAVEMAN, B. L., KORANSKY, D. S., and KULVIN, M. M. (1946) *Amer. J. Ophthal.*, **31**, 731.
DUGGAN, J. N. (1940). *Acta ophthal. orient.*, **2**, 56.
DUKE-ELDER, S. (1940). "Text-book of Ophthalmology", vol. 3, Kimpton, London.
GUHA, G. S. (1946). *Indian med. Gaz.*, **81**, 238.
MCGREGOR, I. S., and LOEWENSTEIN, A. (1944). *Lancet*, **2**, 566.
PELNER, L., and SASKIN, E. (1942). *J. Amer. med. Ass.*, **119**, 1175.
SCOTT, G. I. (1953). *Practitioner*, **170**, 480.
SMITH, H. E. (1919). *Trans. ophthal. Soc. U.K.*, **39**, 310.
TRAQUAIR, H. M. (1949). "An Introduction to Clinical Perimetry", 6th ed. Kimpton, London.