Bilateral retrobulbar neuritis due to insecticides*

H. R. JINDAL†
F.R.C.S.
Chester Royal Infirmary, Chester

INSECTICIDES are very important in national economies, especially those of the developing countries. Their uses are too well-known to enumerate here. The object of this paper is to record a toxic effect which has received insufficient attention. This is the case of a patient who had been spraying a certain proprietary prepara-

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†Present address: Birkenhead General Hospital, Birkenhead.

paration to kill woodworm and developed retrobulbar neuritis. The preparation contained dieldrin and pentachlorophenol in petroleum distillate.

In 1952, Campbell described three cases of monocular retrobulbar neuritis that occurred in a man and two women who had been using an insecticide preparation for treating woodworm. In each patient the left eye was affected and in all of them the eyesight recovered in 1\(\frac{1}{2}\)--3 months. In the present case both the eyes are affected and recovery has not taken place.
Case report

A man, aged 29 years, attended the eye clinic at the Chester Royal Infirmary on 18 June 1965, with a history that his eyesight had been deteriorating for the previous fortnight, more so during the last 4 or 5 days. He was a non-smoker and drank 1 pint of beer a day. His visual acuity was found to be right 2/60, left 1½/60. The optic discs showed slight congestion but no obvious swelling, and the visual field of each eye had a dense central scotoma with a diameter of about 20°. These findings suggested a diagnosis of retrobulbar neuritis with the lesion close behind the nerve head. Oral prednisone therapy was started and continued for 10 days (10 mg t.d.s. for 7 days and 5 mg t.d.s. for a further 3 days).

Examination revealed no abnormality in the chest, abdomen or central nervous system. His blood pressure was 178/80 mmHg and X-ray of the skull, including the pituitary region, was normal.

Investigations: urine analysis showed no abnormal constituents; Hb 15 g/100 ml, ESR 1 mm/hr, film normal, blood WR negative. Blood sugar level was normal and glucose tolerance test showed simple renal glycosuria, while paper electrophoresis did not indicate any abnormal haemoglobin.

Six weeks later, as there was no visual improvement and the optic discs showed temporal pallor, it was decided to refer him for a neurological opinion, to ensure that a curable intracranial pathology had not been missed. Clinically, the central nervous system was normal apart from the ocular findings. Cerebral angiography gave a suspicion of a shift of the left peri-callosal artery. Consequently pneumo-encephalography was arranged and this examination revealed no evidence of intracranial pathology.

At this stage it was suspected that an extraneous toxic substance might be to blame for the condition. When asked about the nature of his work, he detailed that he had sprayed a proprietary insecticide preparation against woodworm for 12 years, at intervals of 6 months. On the last occasion he sprayed it for 4 days continually, working on average 8 hr a day. He did not use a face-mask and sometimes had to crawl under furniture while spraying. He thought the liquid was stronger this time and different in smell and colour. It made his face red and 'went on his chest'. A week later he noticed his eyesight deteriorate and it became quite bad in the 2 weeks prior to his coming to the eye clinic. This history was corroborated by his works manager. There seemed no doubt now that the insecticide spray was the cause of the retrobulbar neuritis.

Discussion

In this patient all the usual causes of retrobulbar neuritis have been excluded. The only positive finding is a history of exposure to the insecticide spray, which was followed by the visual symptoms and is, therefore, considered to be the cause of the condition. The exact chemical ingredients of the proprietary insecticide preparations are unknown but it does contain dieldrin and pentachlorophenol in petroleum distillate. The specific constituent responsible is not identified.

Experimental feeding of dieldrin to rabbits has caused apparent blindness (Bundren, Howell & Heller, 1952). the nature of which has not been determined (Grant, 1962). Pentachlorophenol is also known to be toxic to the visual apparatus (Grant 1962) and was a constituent of the insecticide preparation used by the patients described by Campbell (1952). The insecticide under question here contains both these chemicals.

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References


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