and the neuropathological findings which Binswanger considered essential to a disease which he called "Binswanger's disease". These "reliable criteria" were introduced to differentiate "encephalitis subcorticalis" from "arteriosclerotic brain degeneration" (which also affects the cortex) and "general paralysis of the insane" and from senile dementia, which he knew could also be accompanied by white matter changes.

The similarities between Bennett's and Binswanger's criteria are obvious. Nevertheless, several striking discrepancies appear noteworthy. The white matter atrophy in Binswanger's patients was most pronounced in the occipital and temporal lobes, whereas radiological changes are more commonly found in the frontal lobes. According to Binswanger, "encephalitis subcorticalis" slowly and relentlessly progressed to a state of decerebration, whereas Bennett et al excluded patients with severe dementia. Binswanger assumed that arteriosclerosis was the cause of disease and mentioned the invariable presence of cerebral arteriosclerosis (which was not always the case in the studies he described extensively). He did not describe hypertension or other evidence of systemic vascular disease.

It has already been pointed out that the relationship between Binswanger's findings and the modern "Binswanger's disease" remains open to question. Binswanger did not present a full account of the histopathological findings. This was left to Alzheimer, who first used the term "Binswanger's disease", and to Nissl. Inconsistencies in Binswanger's original description may support the speculation that he eventually regarded the differentiation of such vascular encephalitides as too difficult or too unwarranted.

HANS FORSTL
ROBERT HOWARD
RAYMOND LEVY

Section of Old Age Institutes of Psychiatry, London S.E. 8, A.P.U.


Pseudotumour cerebri and chronic benign hexachloride (lindane) exposure

Pseudotumour cerebri, the syndrome of idiopathic intracranial hypertension and papilloedema and the absence of tumour and obstructive hydrocephalus, may be associated with exposure to drugs or toxins.1,2 We report a patient, repeatedly exposed to the pesticide benzene hexachloride (lindane), who developed this syndrome.

A 45 year old man (weighing 80 kg) who kept hounds noted fleeting episodes of blurred vision in his right eye usually related to changes in posture. The blurring became persistent after three months and then he developed a small tumour in his left eye. Shortly after he noticed early morning occipital headaches and tinnitus. He had used benzene hexachloride at least twice a month for about 30 years to rid his beagle hounds of fleas and ticks. He had used a 20% cream to concentrate to make dip and spray applications but wore a mask and appropriate protective clothing. He was well built but not obese. His neurological examination yielded normal results except for two findings: his best corrected visual acuity was 6/36 OD and 6/9 OS. He had a right relative afferent pupillary defect. Ocular motility and slit lamp examinations were normal. Intraocular pressures were 21 mm Hg in each eye. Ophthalmoscopic examination showed distinct swollen optic discs with small cups, loss of the nerve fibre layer in the right eye, and a small pseudodrusen in the left eye, typical of chronic papilloedema. Goldmann perimetry showed visual field loss characteristic of chronic papilloedema.

MRI of the head was normal except for a few small scattered white matter lesions; venous sinus thrombosis was not seen. A spinal tap showed an opening pressure of 400 mm CSF with one monocyte per cu mm, protein 0-34 Gm/l, glucose 2 mmol/l, and no pleocytosis. Other laboratory values were notable only for elevated cholesterol and triglyceride concentrations and mildly abnormal results of liver function tests. Thyroid function tests were normal; renal and urine analysis were negative. Screening for TB was negative. Other medical assessment revealed normal findings. Further investigations to identify the cause of the symptoms were not forthcoming.

Our patient stopped using lindane when the association of pseudotumour cerebri and lindane was brought to his attention; this was coincidentally reinforced when a neighbour's puppies convulsed and died after exposure to a 20% solution. Despite discontinuation of the pesticide the patient's intracranial pressure remained elevated and his headaches continued 11 months later when a lumbo-peritoneal shunt was inserted. Removal of the toxin should result in alleviation of increased intracranial pressure. Persistent incontinence, however, may be caused by prolonged retention of the arachnoid villi. Alternatively, lindane may be present in fat cells for an extended period and have a lasting effect on CSF absorption. Whether the patient's liver damage was caused by previous chronic alcohol consumption or exposure to lindane is unclear. The relation with lindane exposure may not be coincidental because other patients have been linked to pseudotumour cerebri in the past.3 The use of lindane should be discontinued when patients have unexplained raised intracranial pressure.

LISA VERDERBER
PATRICK LAVIN
RALPH WESLEY

Departments of Neurology and Ophthalmology, Vanderbilt University Medical Center, Nashville, TN 37232, USA.

Correspondence to: Dr Lavin, M.D., 2100 Pierce Ave., Nashville, TN 37212, USA.

References
9 St Omer V. Investigation into mechanisms responsible for seizures induced by chlorinated hydrocarbon pesticides. J Neurol 1971;18:365-74.

Motor neuron syndrome in the arms after radiation treatment

Radiation myelopathy is a rare but well established complication of radiotherapy leading to diagnostic difficulties with neurological complications of the primary neoplasm, like epiduritis or spinal metas- tasises. We report a rare case of radiation myelopathy presenting as a cervical motor neuron syndrome that developed three years after local radiotherapy in which spinal cord magnetic resonance imaging (MRI) showed a cervical spinal cystic lesion.

A 44 year old man without relevant history presented with dysphonia and a rapidly growing cervical anterior mass. We found a mal-
Pseudotumour cerebri and chronic benzene hexachloride (lindane) exposure.

L Verderber, P Lavin and R Wesley

*J Neurol Neurosurg Psychiatry* 1991 54: 1123
doi: 10.1136/jnnp.54.12.1123

---

Updated information and services can be found at:
http://jnnp.bmj.com/content/54/12/1123.1.citation

---

**Email alerting service**

Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

---

**Notes**

---

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/