HYDATID DISEASE OF THE CENTRAL NERVOUS SYSTEM

Pages with reference to book, From 186 To 189

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Abstract

A neurosurgeon working in a developed Western Country rarely encounters hydatid disease in his field of practice. Eight such cases were operated at Lahore-Neurosurgical Centre between December 1976 and December 1978. The need for establishing precise pre-operative etiological diagnosis is emphasized to avoid rupture and seeding at the time of operation.

Introduction

As with all parasitic diseases, public health and educational measures have markedly reduced the incidence of human infestation to rare cases in well developed Western Countries; but it remains endemic and prevalent in some cattle breeding areas of the world namely Argentina, Australia, Asia and parts of Africa.
The most frequent sites are the liver and the lung. In only about 2 to 3 percent of the reported cases was the hydatid located in the brain or spinal cord (Youmans, 1973).

Summary of The Cases

Of the eight cases reported here the hydatid was located in the brain in five patients and in the spinal cord in 3. Location of hydatid cysts in the brain was intraparenchymal i.e. within the substance of the brain-two in the frontal lobe, one in parietal, one in occipital lobe and one in the cerebellar hemisphere. Of the three spinal forms two were locatd intradurally and one within the substance of the spinal cord, uniformly expanding the cord in a fusiform fashion. Of the two intradural ones-one was solitary while the second patient had scores of small rounded cysts which extruded on incision of the duramater. All the cerebral hydatids presented with symptoms and signs of slowly growing tumours. Cerebral angiography carried out in all the cases revealed spherical, avascular mass lesion. Spinal forms presented with increasing signs of root or cord compression-with increasing paraparesis and incontinence. Plane x-rays of spine were non-contributory but myelograms showed a complete block in all the three cases. Only one patient had evidence of hydatid elsewhere, being operated for the hydatid disease of liver 2 months before she presented with paraplegia. It has been our policy to carry out Eosinophil Count, Casoni's test and complement fixation test in the blood or the spinal fluid whenever hydatid of brain or spinal cord is suspected.
Marked Eosinophilia was present in only two out of the eight cases. Immunological tests were extremely useful and were positive in all the eight cases reported here. However, a false-positive casoni's reaction was obtained in one patient who turned out to have a spinal tumour. When intracerebral hydatid cyst was suspected by the presence of spherical, avascular mass lesion on angiography and positive immunologic tests, a brain needle was introduced into the mass through a convenient burr hole pre-operatively. Aspiration of pale clear cyst fluid was followed by injection of small quantity of air and x-ray of skull in the operating room. On finding the almost pathognomonic appearance of thin walled hydatid cyst and its size and extent on this film the cyst fluid was replaced by 10 percent formaline. These x-rays with air in the cyst were most helpful in 3 ways:
(a). Typical appearance (Fig. 1) confirmed the diagnosis of hydatid without doubt.
(b). They showed the exact size and extent of the cyst and helped in accuiate placing of the subsequent

craniotomy flap.
(c). Enabled sterilization of the contents of the cysts with 10 percent formalin before excision. The danger of seeding from rupture was thereby eliminated.
Figure 1:

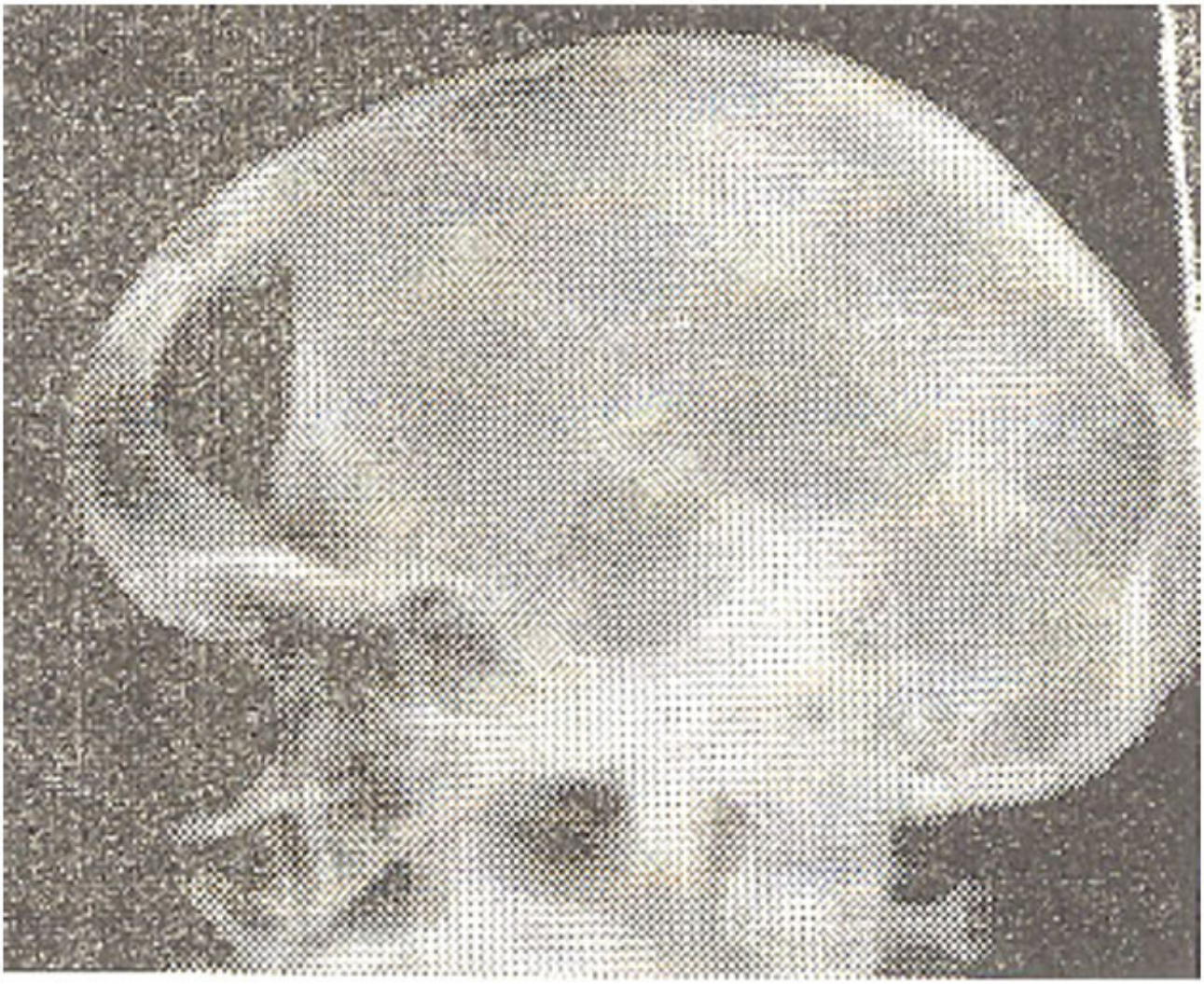

Fig. 1(a)

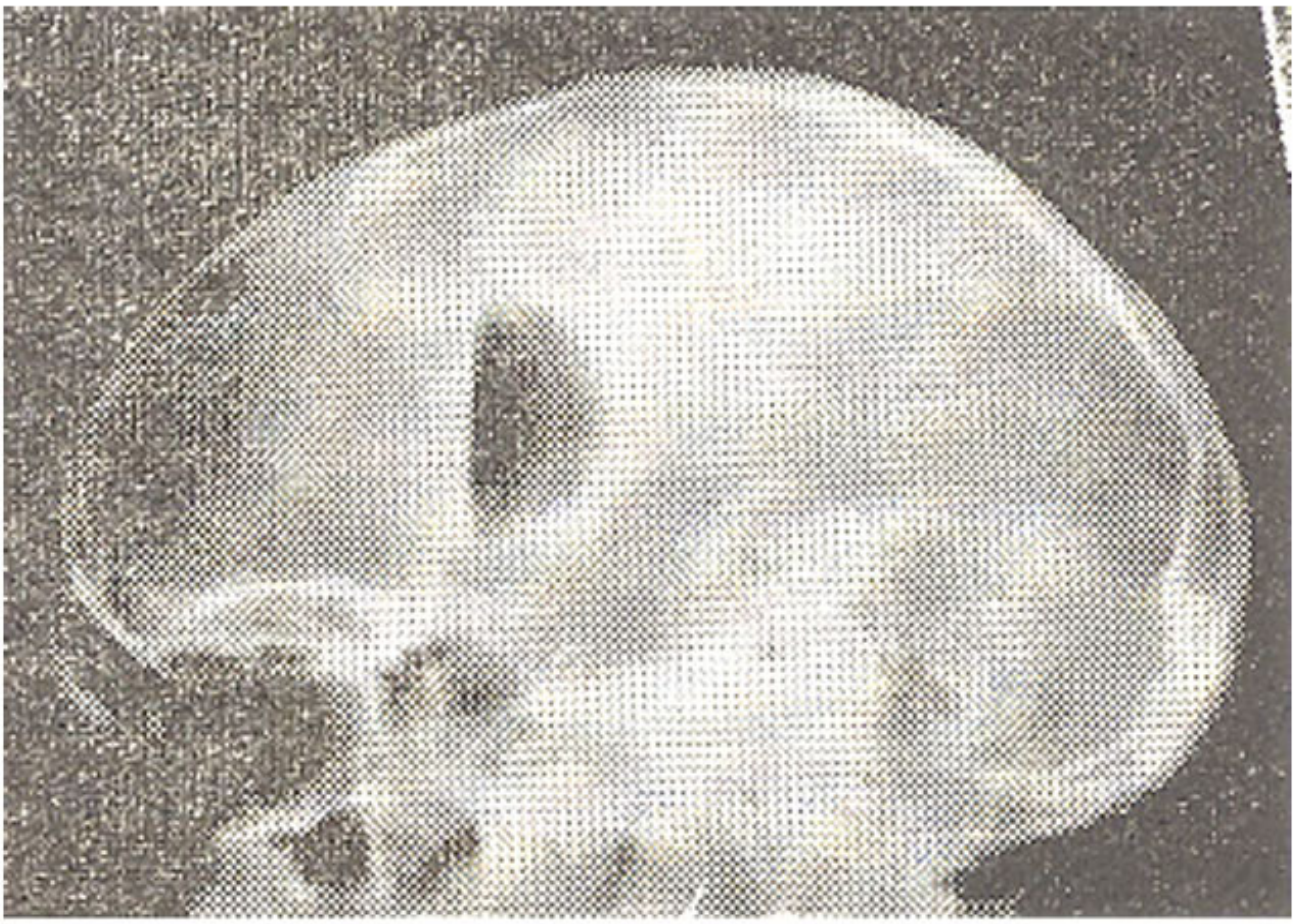

Fig. 1(b)

A and B show brow up and brow down views of the skull following injection of the air into the cyst. Characteristic thin wall of the cyst as well as its extent are clearly shown.

This procedure was followed in three patients and they are free of recurrence more than a year after the operation. Of the remaining two patients in which this procedure was not followed and the surgeon was taken with surprise-the preoperative diagnosis being tumour, one showed recurrence twice with production of multiple cysts in the vicinity of the original.

Illustrative Case Reports Case 1

This 20 years old man presented with 1 year history of increasing headache and vomiting. On examination there was bilateral papillo-edema and mild left hemiparesis. Right carotidangiography showed a spherical avascular mass-in the frontal lobe. Both casoni's test and complement fixation test in the blood were strongly positive. Through a frontal burr hole brain needle was introduced into the mass-pale clear cyst fluid aspirated via this needle was replaced with small quantity of air and x-rays taken. Fig. 1 shows x-rays in brow up and brow down positions showing the typical thin walled cyst and its anterior and posterior extent respectively. Through the same needle more cyst fluid was aspirated and replaced with 10 percent solution of formaline. An oesteoplastic flap was fashioned over the cyst. Only gentle traction was necessary to deliver the partially collapsed cyst.

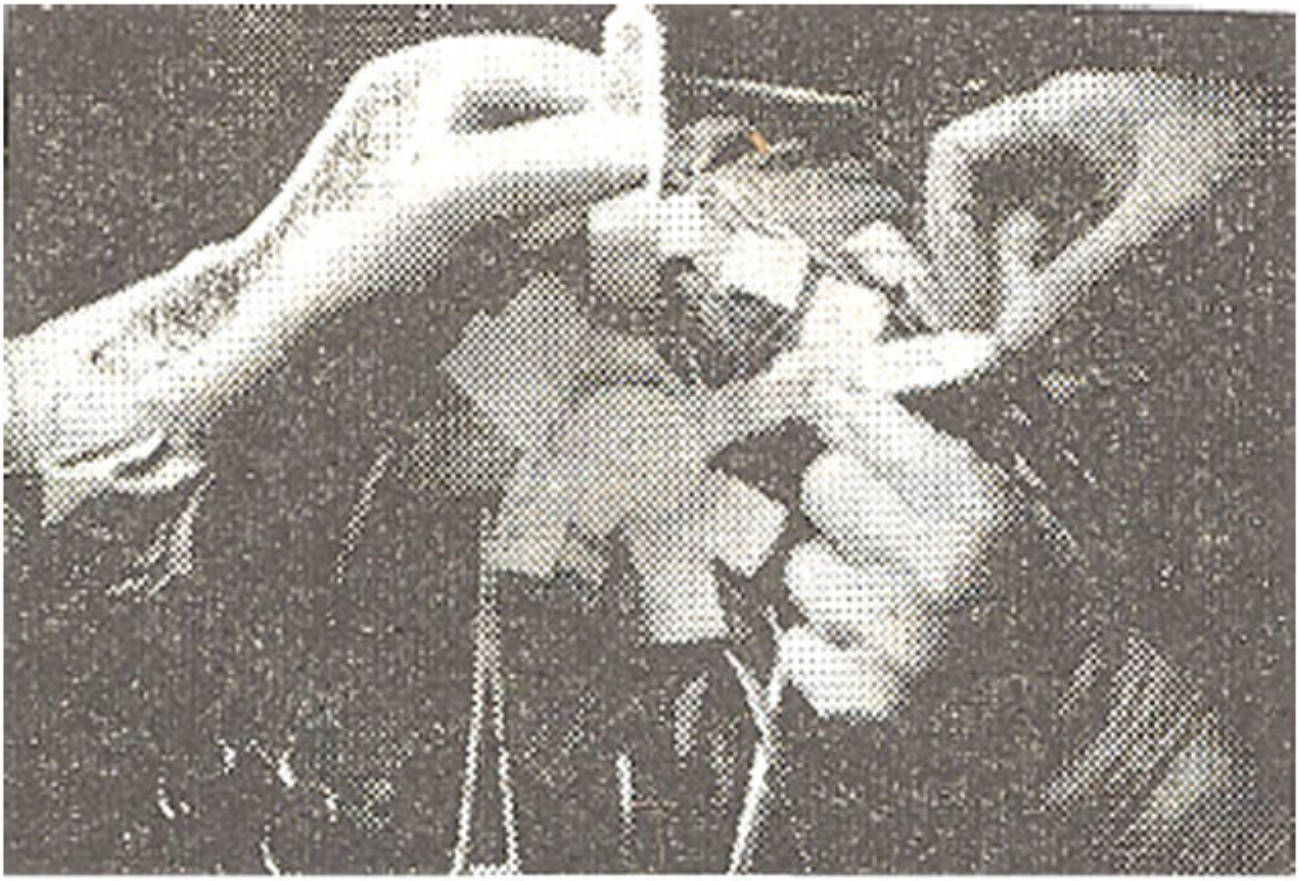

Fig. 2

Fig. 2 shows the operative field with the cyst just delivered from its intracerebral location. Post-operative course was uneventful and the patient has not shown any sign of recurrence 1-1/2 years after the operation.

Cafe 2

This 27 year old woman presented with paraplegia and urinary incontinence that had developed fairly rapidly over previous six weeks. A hydatid cyst had been removed from her liver one year prior to this. Plain x-rays of her spine were unhelpful but a myelogram revealed a complete block at D12-L1 with a cresentic upper margin suggesting an intradural lesion (Fig. 3).

Fig. 3

Casoni's test as well as complement fixation test in the blood were positive for hydatid. Standard laminectomy was carried out at that level. Scores of small rounded cysts extruded as soon as the dura was incised. All accessible cysts were evacuated. Post-operatively she continued to improve for 3 months, but thereafter her paraparesis became dense again and tendon jerks in legs became

exaggerated. A repeat myelogram showed a second block in the mid-dorsal region from incurrence or cysts that, might have been missed at first operation. A second laminectomy in mid-dorsal region revealed multiple intradural cysts. She never improved sufficiently after second operation.

Discussion

Etiological diagnosis of the hydatid disease of the central nervous system before operation is not always easy and yet an accurate preoperative etiological diagnosis is essential in order to avoid rupture of the cyst and to sterilize its contents before its manipulation or excision. Replacement of the cyst fluid with 10 percent formalin is still the procedure of choice before any manipulation of the cyst is attempted. Although a number of loboratory tests are available for the diagnosis of hydatid disease, in a situation like this preoperative aspiration of the cyst fluid and its replacement by air followed by x-rays of skull was found to be a most useful diagnostic aid in cases of intracerebral cysts. By following the strategy of pre-operative investigations mentioned here it is possible to establish diagnosis in most of the cases whenever cerebral angiography shows a spherical, avascular mass lesion hydatid should be suspected. Although eosinophilia was present in only two out of the eight cases; the intradermal test of casoni and complement fixation test in the blood or the spinal fluid were found to be extremely useful and almost specific. These tests aided by the air-cystogram (Fig. 1) just before operation, as described already, help to establish precise etiological diagnosis in almost all the cases of intracerebral hydatid cysts.

In our cases gentle traction of a partially collapsed cyst was always successful in delivering the cyst out of its intracerebral location (Fig. 2) and the method proposed by Arana-Iniguez et al (1952, 1955) which consists of increasing the pressure behind the cyst by injecting fluid into the ventricles thus delivering the cysts was never found necessary.

References

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