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An Approach to the Management of Hydrocephalus - Indications for Surgery

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Abstract

We recommend surgery only if the patient shows increasing intracranial tension. Where marginal abnormalities are noted, serial examinations help us make a decision. In the interim we use acetazolamide tablets. We draw attention to the 'encysted fourth ventricle' where a separate drainage of this ventricle may be necessary. Extensive, irreparable damage to the brain or paraplegia with incontinence prompt us to discourage surgery.

Key words -
Hydrocephalus,
Shunt,
Encysted fourth Ventricle

Bruce Hendrick in his paper [1] started with a quotation defining philosophy as nothing but discretion. On the other hand, we have surgeons eager to operate at the slightest indication of ventricular dilatation.

In medicine there are a multitude of approaches to the goal of helping the patient. This is all to the good for only thus can we maintain open minds and develop more effective and less harmful forms of therapy. Our approach to the treatment of hydrocephalus is described here.

Sine qua non of Surgery

The indispensable condition for us to operate is increasing intracranial tension from progressive ventricular dilatation. Once this is confirmed, we strongly recommend surgery.

In most instances the presence of increased intracranial tension is easily recognised. Symptoms: excessive irritability, poor intake, vomiting, later rapid increase in the size of the head and signs wide fontanelle with a bulging overlying scalp whilst the child is at rest - are diagnostic. CT scan or ventriculography not only confirm the diagnosis but also show us the cause of ventricular dilatation. Surgery is directed at bringing down intracranial pressure to normalcy and, if possible, eliminating the cause.

There are, however, occasions when the issue is not as clearly defined. Marginal abnormality in the rate of expansion of the head, symptoms not in keeping with increasing intracranial pressure and a

fontanelle that is comme c i, comme c a can leave one astride a fence. Serial examinations usually solve the riddle. Plain x-rays may help by showing sutural widening not evident clinically. When doubt persists, the CT scan is of help. In all such patients, we prescribe acetazolamide whilst we are making up our minds. In rare instances, worsening neurological signs have prompted surgery even though we were not certain that the ventricles were growing larger.

In adults, the symptoms are better expressed by the patient and signs more varied. The optic fundus and skull x-rays are more informative.

The entity labelled 'normal pressure hydrocephalus' is not an exception to our rule for we know that the intracranial pressure is increased here, the high pressure waves being, in fact, responsible for the progressive worsening of the patient. The clinical picture is too well known to need elaboration.

Focal increased pressure: 'encysted 4th ventricle [2] : In patients with obstruction at the outlets of the fourth ventricle, it is at times necessary to carry out a second operation in the presence of a functioning shunt. Such patients continue to complain of headaches, vomit and are generally miserable. In some, these symptoms are intermittent. The computed scan shows persistent dilatation of the fourth ventricle despite diminution of the lateral ventricles. The valvular mechanism at the aqueduct in such patients has been shown radiologically.

These patients will need either a second shunt, leading CSF away from the fourth ventricle or, if the subarachnoid spaces are patent, excision of the membrane bounding the fourth ventricle with decompression of the herniated cerebellar tonsils.

Decision 'Not to operate despite increased pressure: We strongly discourage surgery when we have evidence of extensive, irreparable damage to the brain . The presence of a poorly treated meningomyelocele producing paraplegia and incontinence also prompt us to discourage surgery.

After a full discussion of the facts with the parents, the final decision is always left to them. In a small number of patients we have been instructed to insert shunts against our judgement. As yet, we have not seen any miracle in these patients justifying the decision made by the parents.

Conclusion

Age brings with it a decline in radicalism. This may be one reason why I have chosen to conclude by quoting Hendrick again:

"At the present time and in our present society, where clinical judgement appears to be overruled by a compulsion to treat or assist any medical problem, regardless of the eventual outcome, the treatment of hydrocephalus looms as an outstanding example of overkill.... The treatment of the hydrocephalic child should be as conservative as possible..." [1].

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