

THE EARLY RECOGNITION OF CURABLE NEUROSURGICAL CONDITIONS

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Neurosurgery is a relatively new speciality in Turkey. In view of this fact there is a tendency for the general practitioner, or anyone not closely allied to neurosurgery, to think of those conditions which involve the brain as incurable, until too late in their handling of a patient. If and when the diagnosis of a lesion involving the central nervous system is made, it is often too late, to give the patient the relief which is possible.

A great many neurosurgical cases are curable, but since the majority of these patients do not consult a neurosurgeon on their own, it is obligatory for the general practitioner, the pediatrician, or the neurologist to have a high index of suspicion and to refer the patient to a neurosurgeon for consultation before irreversible central nervous system damage converts a potentially operable case to an incurable one. I would like to mention some of the signs and symptoms which are easily recognizable and should make any physician seek neurosurgical help.

Infants

One of the most important things for the physician to do on examining a young child, is to measure the maximum *head circumference* with a good tape measure. This may be more important and more rewarding than taking the blood pressure. The following chart (Figure 1) shows the normal head growth for boys and girls up to two years of age with the size for the tenth and ninetieth percentile, and the median of the population. Any deviation from these measurements should be viewed with a high degree of suspicion and a consultation with a neurosurgeon should be sought at once. Enlargement of the head of a baby (hydrocephalus) has long been considered a hopeless, inoperable, incurable condition. Fortunately within the last fifteen years the advent of non-irritative plastics has allowed the insertion of permanent implanted shunts in the

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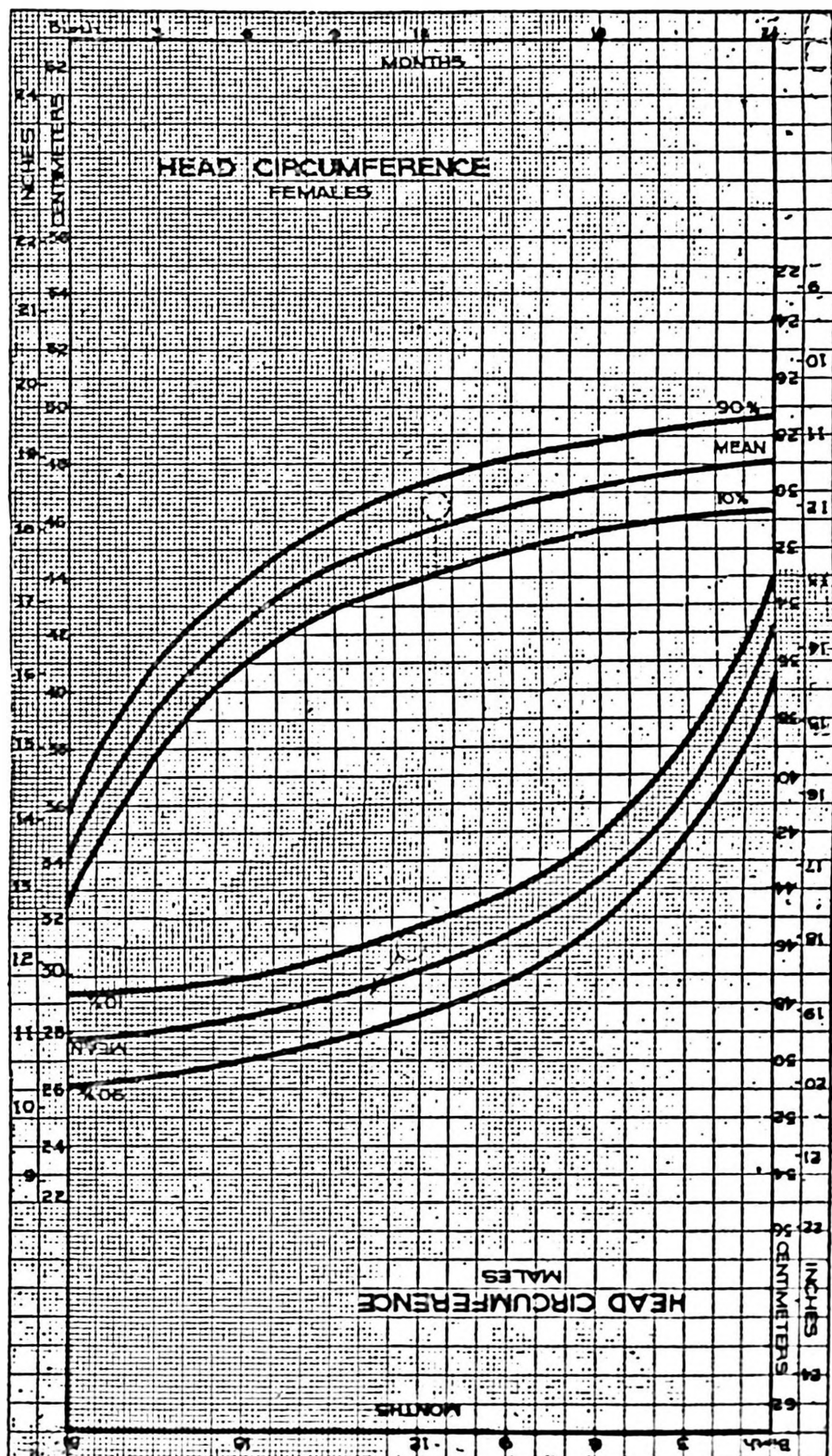


Figure 1.

body to carry spinal fluid from the ventricles back into the circulation. Numerous devices and operations have been described which are of technical interest only to neurosurgeons. The point is that a high proportion of these infants are salvageable, with a relatively low mortality. This is true whether the hydrocephalus is idiopathic, post-meningitic, or follows the removal of a myelomeningocele.

Chronic subdural hematomas in infants typically cause enlargement of the head. This is another curable neurosurgical condition which should be recognized early. It frequently is associated with no history of trauma.

Convulsions, particularly if they involve only one side of the body, should indicate a neurological consultation, since many forms of infection which are curable, as well as subdural hematomas may present themselves in this fashion.

Difficulties of gait, balance, or ataxia, should be looked for whenever examining an infant, since this may be the first sign of a midline cerebellar tumor. Formerly it was thought that these tumors were all incurable medulloblastomas. However it has been shown that fully 50 per cent of the tumors in children in this locality are benign. These children may have no other symptom than a broad based gait for a long time before other signs of pressure develop.

Children, two to fourteen

As the child gets a little older and the fontanelle closes, enlargement of the head ceases to be the first indication of increased intracranial pressure. *Headache*, *vomiting* and *convulsions*, associated with elevation of the optic disc are more likely to reveal the first signs of intracranial disease.

Spinal cord pathology which is surgically removable is more likely at this age than in infants under age two, at which time tumors are exceedingly unusual. Therefore the onset of *difficulty of gait*, after a child has once learned to walk, should make one think immediately about a spinal cord lesion, which may be completely excised if operated on before irreversible cord damage occurs.

Convulsions, particularly those involving predominantly one side of the body, whether associated with fever or not, should make one think first of a neurosurgically remedial lesion, and not idiopathic epilepsy.

Increasing *difficulty with vision or double vision*, may be a manifestation of increased intracranial pressure, or it may be an indication of optic atrophy by direct pressure on the optic nerves or chiasm. Here, above all, early treatment must be begun to save vision.

Unusual drowsiness should very early cause the physician to refer the patient to the neurosurgeon, as it may indicate increased pressure in the head which must be relieved at once.

Adults

Convulsions, starting over the age of twenty-one, mean a brain tumor until proved otherwise. Since the benign meningioma frequently starts with a convulsion, these patients should be referred for a neurosurgical consultation at once, before the tumor involves the bone, dural sinuses or cranial nerves and cannot be removed completely.

Diplopia due to a lesion of the sixth or third cranial nerves in their long course along the base of the skull can be caused by increased *intracranial pressure alone*. This is *not* a localizing sign. Therefore these patients should have a neurological or neurosurgical consultation as soon as possible.

Visual failure, in the adult as in the child, may be due to direct pressure on the optic nerves or chiasm by a pituitary adenoma or a meningioma on the inner third of the sphenoid ridge. Plain or direct x-rays of the skull may or may not suggest the presence of such a lesion, but even if they do not, neurosurgical consultation should be sought before the visual failure is irreversible.

Unilateral loss of hearing is frequently neglected by the patient, his family and his doctor, but is very important as it may represent the benign acoustic neurofibroma which can be best removed in its earliest stages.

The classical symptoms of *headache* and *vomiting* in association with *papilledema* are of course almost diagnostic of brain tumor. At least they represent increased intracranial pressure. But, these are late signs and symptoms, and it is always preferable to see patients earlier than this if possible.

One of the newest developments in neurosurgery concerns a group of conditions which were formerly thought to be incurable. These are the vascular diseases, in particular shown in patients with ruptured intracranial aneurysms. Frequently they are diagnosed

merely as a «stroke» and the patients are allowed to lie at home without investigation of the cause of the sudden catastrophe. Certainly the sudden onset of *severe headache, unconsciousness, stiff neck*, and a *major neurological defect* should bring the patient to the attention of the neurosurgeon at once. A great many of the ruptured intracranial aneurysms are curable if seen early enough. This makes it imperative for the patient to go to the hospital *on the day* of the sudden episode, and not many days or weeks later, when the danger of recurrent hemorrhage with higher mortality is present. Modern neuroradiology has been developed to such an extent that these tiny congenital aneurysms can be found and are amenable to direct neurosurgical attack.

The mortality of surgical intervention on these lesions is less than medical therapy, and all such patients should have the benefit of neurosurgical investigation. The finding of a bloody spinal fluid should *hasten* the referral of these patients to a neurosurgeon *rather* than suggesting that the physician made a traumatic spinal tap, or a tentative diagnosis of «non-specific cerebral hemorrhage», about which «nothing can be done».

Conclusion

Modern neurosurgery has much to offer for a great many central nervous system diseases if some very simple observations of the patients' signs and symptoms are made in time for them to be operated on.