



Strategic Medical and Surgical care of benign Intracranial Hypertension

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Abstract

A cross section study was done for 20 patients with pseudotumour cerebri who were treated at the neurosurgical unit in Ajumhurey Teaching Hospital and Hawler private Hospital. All underwent the classical medical treatment by diuretics, corticosteroids, carbonic anhydrase inhibitors and repeated lumbar punctures. Eleven patients underwent surgical treatment by inserting a lumbo-peritoneal shunt in order to stop the progressive deterioration of vision. The aim of this study is to evaluate such methods of treatment and their prognostic value.

Keywords: Pseudotumour cerebri, benign intracranial hypertension, Lumbo-peritoneal shunt.

Introduction

Patients with pseudotumour cerebri (PTC) have intracranial hypertension unrelated to tumor, hydrocephalus or frank brain edema¹. It occurs in both children and adults. There is likely an infantile presentation as well. Headache, nausea and vomiting, dizziness and visual dysfunction are common presenting symptoms. Transient visual obscuration, blurred vision or sensations of looking through a gray film occur with frequency in adults². Aside from papilloedema the general and neurological examinations may be unremarkable. Transient facial or abducent nerve paralysis occasionally takes place with the onset of raised intracranial pressure (ICP)³. Unlike other conditions characterized by raised ICP, the absence of severe brain dysfunction is the rule in PTC. There is no alteration in the level of consciousness despite the presence of significant ICP elevations.

The diagnosis of PTC is one of exclusion. Computerized tomography (CT) scan is usually normal or it may show slit ventricles⁴. Cerebrospinal fluid (CSF) measurement through lumbar puncture usually shows high CSF pressure. There is no single positive test that would lead the clinician to a diagnosis of PTC. Instead, a series of diagnostic negatives is required to make this diagnosis. Although PTC is self-limited disease, in most patients medical treatment remains the cornerstone in relieving its symptoms. Occasionally more active measures are required in patients with visual impairment to prevent permanent visual handicap. The latter approach encompasses the insertion of a lumboperitoneal shunt (LPS). Sub temporal decompression and optic nerve sheath decompression are other alternative².

Material and Methods

This is a cross sectional study of twenty patients who presented to the department of neurosurgery in Ajumhurey Teaching Hospital and Hawler private Hospital during the period between

September 2005 to December 2014 as typical cases of PTC with headache, visual disturbances and few papilloedema. Visual acuity and visual field were used for proper assessment and follow up. The radiological investigations including skull x_ ray and CT scan. Both had failed to demonstrate any intracranial lesion. CSF pressure measurement by lumbar puncture was performed in all patients and it was above normal. All patients underwent medical treatment using diuretic (furosemide) 120 mg/day with potassium supplement, dexamethasone 16 mg/day and carbonic anhydrase inhibitor (acetazolamide) 250mg/day. Ten patients (50%) had repeated therapeutic lumbar punctures in order to drain CSF and reduce the intracranial pressure. The length of follow up ranged between 2-4 years. Eleven patients (55%) were treated surgically by inserting a lumbo – peritoneal shunt according to the severity of the visual symptoms, failure of medical treatment and will of the patients to undergo a surgical procedure.

Results and Discussion

Twenty patients with PTC were included in our study. Five patients (25%) were males and fifteen patients (75%) were females, i.e M: F ratios 1:3. Their age distribution is shown in (figure-1). The peak age incidence shown in (figure-1).

The second and third decades of life, which constitute 17 patients (85%). Obesity, which is one of the associated factors in PTC, was seen in 13 patients (65%). Menstrual irregularities were noticed in five patients (25%). Three patients were receiving contraceptive pills. History of drug ingestion as cotrimoxazol, tetracycline and furadantin was present in three patients. Headache was the most common presenting symptom in all patients. Visual disturbances were present in 14 patients (70%), repeated vomiting in 4 patients (20%) and dizziness in 3 patients (15%) as shown in (figure-2).

All patients had raised ICP on examination by lumbar puncture

and it ranges between (270-450 mm water) with normal CSF examination biochemically and bacteriologically. Nine patients (45%) were treated medically and the results of medical treatment are shown in (table-1).

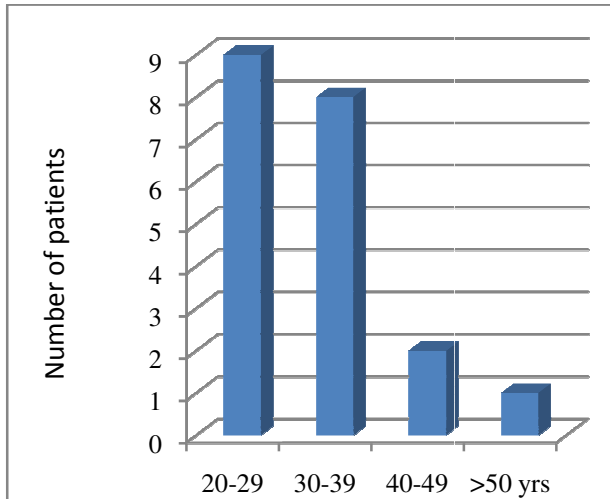


Figure-1
Age distribution of patients

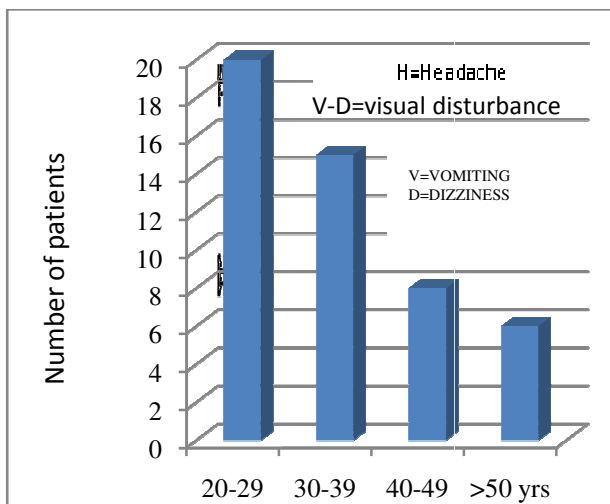


Figure-2
The presenting features

Table-1
Results of medical treatment

| Outcome | No. of cases | % |
|----------------------|--------------|-----|
| Asymptomatic | 1 | 11 |
| Same complaints | 2 | 23 |
| Visual complications | 3 | 33 |
| Poor follow up | 3 | 33 |
| Total | 9 | 100 |

Eleven patients (55%) were treated surgically by inserting a Lumbo-peritoneal shunt. The results are shown in table-2.

Table-2
Results of surgical treatment

| Outcome | No. of cases | % |
|------------|--------------|-----|
| Improved | 9 | 82 |
| Same | 2 | 18 |
| Complaints | -- | -- |
| Total | 11 | 100 |

Few complications were encountered in the surgically treated group as listed in table-3.

Table-3
Complications of surgical treatment

| Complications | No. of cases | % |
|-------------------|--------------|----|
| Revision | 1 | 9 |
| Infection | 1 | 9 |
| Subdural hematoma | 1 | 9 |
| Total | 3 | 27 |

None of the patients required removal of the shunt. There were two deaths in the surgically treated group, one had fulminating meningitis and the other had subdural empyema six months post operatively.

Discussion: PTC is a self-limited disease^{3,4}. It is characterized by elevated ICP with no obvious intracranial lesion to account for it⁵. It usually occurs in obese females with menstrual irregularity⁶, this finding is compatible with our study as 75% of our patients are females and 65% are obese and another 25% have menstrual irregularity. There are many associated factors with PTC including drug ingestion, hematological, endocrine and dietary consideration⁷. It is associated with using contraceptive pills as 3 of our patients were using oral contraceptive pills. Headache has been the sole presenting symptom in all patients. Visual deterioration is rather rare and it usually occurs with the active disease as enlargement of the blind spot⁸. In our study, the number of patients with Visual symptoms were rather high, 14 patients (70%) which may indicate that most of the patients were having active disease process at the time of presentation. The diagnosis of PTC is usually by exclusion as all patients have normal skull radiology and normal CT scan. Slit ventricles (small size ventricles) has been described as a feature of PTC⁹, this has been noticed literally in most of our patients. All patients had lumbar puncture after CT scan examination and measurement of CSF pressure, which was above normal. CSF was virtually normal biochemically (sugar and protein) and bacteriologically. Repeated visual acuity and visual field testing during the Course of treatment was of prime importance as therapy should be geared toward visual prognosis^{10,11}, this was the drive behind electing to offer surgical treatment to nearly 50% of our patients.

The treatment of active disease process of PTC is directed toward treatment of any associated factors like discontinuation of drugs that are likely to cause PTC as three of our patients were receiving drugs. All patients were treated medically using high doses of furosemide (lasix) 120mg/day with potassium supplement, dexamethasone 16 mg/day and carbonic anhydrase inhibitor (diamox) 250 mg/day. Fifty percent of patients were treated by repeated lumbar punctures, which were aimed toward halting the visual deterioration and reducing the ICP. Eleven patients (55%) were treated surgically by inserting a lumbo – peritoneal shunt due to continuation of headache despite medical treatment and deterioration of vision. Shunting of these patients is rather difficult, as most of them are obese.

Conclusion

PTC is a self- limiting disease, although sometimes the visual disturbance is devastating to the patient. The diagnosis is easy clinically, radiologically and by measurement of CSF pressure; CT scan is essential to exclude any mass lesion and showed slit ventricles. The medical treatment with or without repeated lumbar punctures are the classical and most effective treatment. The visual symptoms can be of permanent sequale as severe visual deterioration or blindness may occur. We found that the surgical management of PTC by inserting lumboperitoneal shunt is of great value to minimize the effect of the visual sequale and to treat chronically suffering patients of repeated episodes of PTC headache. The occurrence of subdural hematoma, empyema and low – pressure headache are complications to be looked for and treated accordingly.

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