COMPOUND SKULL BASE FRACTURE: THE CASE FOR SURGICAL REPAIR

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Skull base fractures are potentially compounded, and induce a high risk of meningitis, regardless of the presence of CSF fistula. We present our experience with patients, on whom we performed cranial floor repair, following severe head injury. All patients had skull base fracture with either significant bone displacement involving the air sinuses, or were complicated by meningitis, CSF fistula, or aerocoele. Coronal CT scan with thin cuts demonstrate adequately the extent of the damage, and it shows significant disruption of the continuity of the skull base, or bone fragments protruding inwards, we conclude that an associated dural tear should exist, the cranial base be explored, the dural defect repaired, and the risk of meningitis eliminated. Radiographic demonstration of an active CSF fistula with positive contrast cisternography, is not part of our investigations. The operative microscope has improved our ability to perform this operation with minimal brain retraction, dissect brain parts that have herniated through the basal dural defect, visualize and seal the defect with a pedicled pericranial graft and lyophilized thrombin, and preserve the olfactory nerve. Post-operative morbidity and mortality were nil. There has been no recurrence of meningitis, or CSF leak.

Conclusion. The hesitation to perform compound skull base fracture repair following severe head injury, because of the risk of inducing further brain damage, increasing the likelihood of post traumatic epilepsy, or causing anosmia, is no longer justified. Recent advances in non-invasive imaging and microsurgical techniques allow us to perform this procedure safely. The surgical risk in our hands, we believe, is much smaller than the risk of meningitis from an untreated compound skull base fracture.

ANTIBiotic PROPHYLAXIS AND CSF LEAKAGE: IS IT A FACT OR FICTION?

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The use of prophylactic antibiotic treatment in patients with CSF leakage is still a controversial topic among clinicians. The aim of this study was to determine the possible value of antibiotic prophylaxis on the survival free from meningitis in these patients. The study population comprised of 215 patients, of whom 106 received prophylactic antibiotic treatment and 109 did not receive any antibiotics. All patients had definite CSF leakage. The antibiotic regimen consisted of 500 mgs of penicillin and 500 mgs of sulphonamide, both were given 6 hourly within 3 days of the onset of CSF leak and were continued for at least 7 days after the CSF leak had stopped. The two groups of patients were closely matched for age, sex, type and duration of CSF leakage and the presence or absence of skull fractures. However, there were more patients with pneumocephalus and facial fractures among those who received antibiotics. Univariate analysis of these two particular factors showed that they were not significant adverse prognostic factors. The Kaplan-Meyer product limit technique was used to estimate the probability of survival free from meningitis in the two groups. The survival data was analysed using the Logrank test. The survival free from meningitis in the two groups was not significantly different in the two groups. Furthermore, the survival curves of survival free from meningitis in the two groups were almost identical in the first four weeks during which antibiotics were given. The number of gram negative meningitis and partially treated cases (negative cultures) was significantly higher among those who received antibiotics.

Therefore, there is no scientific evidence to support the routine use of antibiotic prophylaxis in CSF leaks and it is ethically justifiable to with-hold such treatment and institute a vigilant and constant observation of these patients to detect early signs of meningitis, instituting appropriate therapy should meningitis occur.

CHANGING TRENDS IN THE MANAGEMENT OF PINEAL TUMOURS - A 3 DECADE EXPERIENCE.

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Historically, direct surgical excision of pineal tumours has been associated with significantly high morbidity and mortality. As a result standard treatment consisted shunting of secondary hydrocephalus and irradiation of the primary tumour. Twenty to twenty-five percent of primary pineal tumours are either benign, encapsulated or radioresistant, making this approach suboptimal. Refinement in diagnostic imaging, cytopathology, clinical chemistry, stereotactic and microsurgery should allow us to make a definitive histological diagnosis, and design a more accurate treatment regimen.

We report our experience of primary pineal tumours in 14 patients from 1959-1992. The series included 12 males and 2 females, ranging in age from 6-54 years (mean 24 years) with duration of symptoms prior to diagnosis of 7 days to 1 year (mean 10 weeks). Eight of fourteen patients had pretreatment CT scans - Histological subtype was correctly predicted in 33% of cases. Ten of fourteen has CSF cytology performed - this yielded a diagnosis in 20% of patients. Eight patients had tumour marker status recorded. All patients had a slant procedure performed and seven underwent cranotomy and excision biopsy. There were no perioperative deaths and minimal morbidity. Ten of fourteen had adjuvant radiotherapy, two also had chemotherapy. All in all only nine of fourteen patients had a definitive histological diagnosis.

Whilst tumour marker status, CSF cytology and CT scan may be helpful collectively we feel that an accurate tissue diagnosis, obtained directly or stereotaxically is vital in rationalising the approach to management of these rare neoplasms.

DURAL ARTERIOVENOUS MALFORMATIONS.

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Dural arteriovenous malformations usually involve the venous sinuses along the base of the skull, and especially the transverse and sigmoid sinuses. It is estimated that they make up 10% of all intracranial AVM's. They are now being diagnosed more commonly, as selective angiography has become more sophisticated. The pathophysiology of this condition is still not clearly understood.
but there are strong suggestions that it may be an acquired lesion, whereas cerebral arterial malformations are congenital in origin. We have reviewed the clinical presentation and the radiological findings of four cases seen during the last four years. The presenting features were varied but included transient and headache, with an audible bruit in three instances and massive intracerebral haemorrhage in the fourth. A constant radiological finding was partial or complete occlusion of the involved dural sinus. Two of the cases which involved the transverse sinus were treated by isolation and excision of the sinus, one case resolved spontaneously, and the other was treated conservatively. The results to date have been excellent.

THE VALUE OF REPEAT ANGIOGRAPHY IN SUBARACHNOID HAEMORRHAGE.

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It is generally agreed that cerebral angiography should be repeated in patients with acute subarachnoid haemorrhage (SAH) if the first study shows spasm or is incomplete. If the first study is normal or equivocal the role of a repeat angiogram is less clear. The aim of this study was to assess the usefulness of repeat angiography in SAH.

Of 216 consecutive cases of SAH, 30 had repeat angiography. Seven aneurysms were found in 15 cases where the first study was equivocal or showed only spasm. Three aneurysms were found in 15 cases where the first study had been considered normal. No patient suffered a rebleed between the first and second studies. In 14 further cases initial angiography was normal and no further study was planned: one patient died from a rebleed several weeks after hospitalisation. Finally in one case initial angiography showed an aneurysm: surgery was delayed and two repeat studies were normal.

Conclusion:
Repeat angiography is justified in the presence of spasm or where the initial findings are equivocal. It should also be carried out, possibly limited to a specific vessel, even if the first study is considered normal.

EPILEPSY AND EMPLOYMENT, MARTIAL, EDUCATION AND SOCIAL STATUS.

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Patients with epilepsy have difficulty achieving certain goals during life, due to emotional and economic disadvantages, which may be associated with the disease. The study was carried out to determine employment, marital, education and social status of epileptic patients attending a Seizure Clinic. This involved the overall assessment of 343 patients. Employment, educational, marital and social status were evaluated.

The social group, employment and marital status did not compare favourably with the overall population. Forty percent in social group 5 and 6 compared with 14% of the population. Thirty three per cent of male patients aged 20 years or more were married compared with 65% in the community. The corresponding statistics for females were 46% and 73% respectively. The male unemployment rate of 34% compared poorly with the unemployment rate of 13% for the period during which the study data was collected. A significant number of the study group had not progressed to secondary or third level education. The relationships between social variables and characteristics of the patients' illness were investigated and it was found that patients with lower educational achievements were significantly more likely to have poor seizure control (P<0.001) and to require treatment with polypharmacy (P<0.001). The results were similar in relation to employment status. Seizure control achieved by patients decreased with social grouping. The percentages with excellent control for social groups 1 to 6 were as follows: 50%, 37%, 42%, 27%, 19% and 10% respectively (P<0.001). Low marital rates may be related to social and psychological factors, together with the effects of anti-epileptic medication on hormones supporting sexual behaviour.

TEMPORAL LOBE EPILEPSY AND MENTAL CHANGE

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Fifteen patients with temporal lobe epilepsy since childhood who had achieved normal intelligence and secondary education, underwent mental decline in youth, sufficient to require admission to a Centre for Epilepsy. Recurrent head trauma and status epilepsy had not occurred at the time of their decline. The patients now aged 17-48 were investigated to determine the nature of their mental decline. Neurological evaluation assessed historical and physical evidence of recurrent head trauma. SPET scanning determined functional/structural cerebral change. Neuropsychology defined the characteristics of mental decline. Assessments were blind to each other.

Two major syndromes emerged. Five patients exhibited a sub-cortical dementia with neurological signs of white matter disorder and bilateral anterior cerebral changes on SPET. There was a history and signs of current head trauma. Six patients exhibited a temporal lobe syndrome or circumscription, concrete thinking and paranoia. Neurological signs and other evidence of head trauma were absent and SPET was normal.

Four patients presented features of both syndromes and one adolescent without head trauma and SPET showed bilateral anterior abnormality. Thus the mental decline in temporal lobe epilepsy that occurs in early adulthood may be a result of functional/structural changes inexplicable by recurrent trauma.

CORPUS CALLOSOTOMY: LONG-TERM SURGICAL AND PSYCHOLOGICAL OUTCOME IN 16 PATIENTS.

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Since the 1980's there has been a revival of interest in corpus callosotomy as a treatment modality for severe intractable epilepsy. In this study results are presented of long-term outcome (1-8 years) in 16 patients who have undergone partial or complete corpus callosotomy section at the Richmond Institute. Our results indicate improvement in tonic/clonic and akinetic seizures in a significant proportion of patients (greater than 75%), with no significant improvement in partial or focal seizure. Three patients with generalised seizures and no history of akinetic seizures were seizure free at long-term follow up. All five patients with akinetic seizures were significantly improved following surgery, with one patient experiencing complete cessation of all seizure types.

Detailed neuropsychological evaluation revealed evidence of