FIFTEENTH SIR PETER FREYER MEMORIAL LECTURE AND SURGICAL SYMPOSIUM

Proceedings of meeting held 14th & 15th September, 1990 at University College, Galway.

HIGH FREQUENCY EYE TREMOR IN BRAIN STEM INJURY
Mercer's Institute for Research on Ageing, St. James's Hospital.
*Beaumont Hospital, Dublin 9.

Ocular microtremor (O.M.T.) is a constant, physiological high frequency tremor of the eye. Since eye movement is generated at brainstem level, it has been postulated that O.M.T. could be a useful indicator of brainstem dysfunction (Coakley, D. 1983. Minute Eye Movement and Brain Stem Function. CRC Press, Florida).

We have developed a highly portable and accurate method of recording O.M.T., which unlike previous systems has a flat frequency response between 20 and 200 Hz (Coakley). Using this method we are comparing the frequency of O.M.T. firstly from normal vs comatose and secondly from brain dead subjects. Non medical comatose subjects are selected from serial admissions to the Neurological I.C.U. Controls are age-matched. All records are analysed blindly. To date we have investigated 33 subjects giving 35 records (11 comatose, 13 brain dead and 11 normals). The frequency of O.M.T. in the normal group (analysed using our present system) is 83±6.5, while that of the comatose group is 45±15.7 (t=7.4, p<0.001). 10 patients with a diagnosis of brain death had no O.M.T. activity. However, in 1 subject, O.M.T. activity persisted for 72 hours following the diagnosis. 2 patients initially in the coma group deteriorated to a state of brain death. In both cases O.M.T. activity, though present on admission, was not present at the time of diagnosis of brain death.

Serial recordings on 7 patients indicate that for any individual, improvements in clinical state is reflected in a parallel change in O.M.T. activity.

Non neurosurgical operative intervention may be lifesaving in patients with TTH. A burrhole enlarged to a craniectomy is the procedure of choice. Following surgery all patients should be rapidly transferred to a neurosurgical unit. Mannitol may not adequately relieve brainstem compression in patients with unreactive pupils.

MALIGNANCES INVOLVING THE TEMPORAL BONE – ABLATIVE AND RECONSTRUCTIVE OPTIONS
T. P. O'Dwyer, P. J. Gallane.
The Department of Otolaryngology/Head and Neck Surgery, the University of Toronto, Ontario, Canada.

Malignancies involving the temporal bone present a major challenge to the Head and Neck Surgeon. Despite advances in imaging, radiation and chemotherapy as well as surgical technique mortality rates remain high. Reports in the literature of these tumours are infrequent.

We report a series of 22 patients with malignancies involving the temporal bone who underwent resection at our institution between 1981 and 1989. Twelve of these patients had tumours originating from the skin of the face or external ear canal and five had parotid primaries. (Nineteen patients had one or more procedures performed elsewhere). A partial temporal bone resection was performed in 13 patients, 8 had a subtotal resection and one patient had a total resection. The facial nerve had to be sacrificed in 9 cases and was repaired with either a cable nerve graft or cranial nerve twelve to seven transfer. The primary surgical deficit was reconstructed using either pedicled myocutaneous flaps or free tissue transfers. Our period of follow-up ranges from one to eighty-six months. Three of our patients died of recurrent disease and of the remaining 19, twelve are disease free, an average of 39 months postoperatively.

EMERGENCY NON NEUROSURGICAL OPERATIVE INTERVENTION IN EXTRADURAL HAEMATOMA
W. P. Gray, M. O'Sullivan, T. F. Buckley.
Department of Neurological Surgery, Cork Regional Hospital.

Guidelines relating to non neurosurgical operative intervention for an acutely deteriorating patient with an extradural haematoma (EDH) are not available for the British Isles. The aim of this paper is to report our experience and address this aspect of head injury management.

We present 7 cases of EDH transferred to our unit after undergoing emergency surgery in the referring hospital and compare them with 7 similar cases referred without surgery.

4 patients underwent burrholes only, 2 patients had a craniotomy and 1 underwent craniectomy. All patients had transtentorial herniation (TTH) prior to surgery. Craniectomy/craniotomy was effective in relieving TTH in all cases. In no case could relief of TTH be attributed to burrhole evacuation alone and the addition of burrholes to mannitol and ventilation conferred no extra benefit. Contrary to popular belief, intravenous mannitol and ventilation were largely ineffectual, relieving TTH in only 2/8 cases. All patients who underwent adequate surgery had a good outcome. Of those who had no surgery in the referring hospital 2 were vegetative and 1 died. All 7 cases explored elsewhere required definitive surgery in our unit to remove a large residual haematoma.

PRE-OPERATIVE PREPARATION OF PATIENTS WITH GRAVES DISEASE
University Department of Surgery, Regional Hospital and University College, Cork.

Sixty-two consecutive patients undergoing subtotal thyroidectomy for Graves Disease were studied to determine the influence of a standard preoperative preparation on blood loss and operative complications. Sixty-two patients (51 females and 12 males) aged (14 to 48, mean 29.9 years) were studied. Patients were selected for surgery because of failed medical treatment, large goitres, allergy to medication or because they requested surgery. Patients were divided into two groups. Group A (N=22) received thyroid hormones prior to surgery while Group B (N=40) did not. All antithyroid medication was stopped 10 days prior to surgery and patients were commenced on Lugols iodine 1 ml daily. Patients were admitted to hospital two days prior to surgery and those with signs of sympathetic overactivity were commenced on Propranol 40 mggs t.i.d. There was no operative mortality and mean hospital stay was 7.1 days. Blood loss...
(mean ± ATD Dev) per procedure was 120±40 mls. (Group A 115±42 mls, Group B 122±35 mls). Patients were followed for periods ranging from 6 months to 7 years (mean 39.2 months). No patient had a recurrent laryngeal nerve injury. Three patients (4%) had transient hypocalcaemia post-operatively. No patient developed recurrent hyperthyroidism but six patients (9%) became hypothyroid. This pre-operative preparation ensures a blood-less surgical field, allowing accurate estimation of gland remnant size and averting the risk of injury to parathyroid glands and recurrent laryngeal nerves.

FLOW VOLUME LOOPS IN GOITRES
Department of Surgery, St. Vincent's Hospital, Dublin 4.

Plain radiology is the standard method of assessing tracheal compression with goitres. However, this test does not provide information on airflow changes present in the upper respiratory tract. Flow volume loops are a simple, quantitative assessment of the degree of upper airway obstruction in both the inspiratory and expiratory phases of the respiratory cycle. This study investigates the effects of thyroidectomy on flow volume loop curves in 51 patients. Flow volume loops were performed preoperatively and at a mean of 18 weeks postoperatively. The histology and weight of gland excised was recorded. The vocal cords of all patients were normal postoperatively.

There was a significant increase in postoperative variables in the flow volume loops (Table). The improvement in respiratory function was maximal in the inspiratory phase of flow volume loop.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre-op</th>
<th>Post-op</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. inspiratory flow rate (L/s)</td>
<td>3.9±0.2</td>
<td>4.9±0.2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Inspiratory Vmax. 50 (L)</td>
<td>3.7±0.2</td>
<td>4.7±0.2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Max. expiratory flow rate (L/s)</td>
<td>5.4±0.3</td>
<td>6.3±0.3</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Expiratory Vmax. 50 (L)</td>
<td>3.8±0.2</td>
<td>4.1±0.2</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

(values are mean ± SEM: paired t-test)

There was no significant correlation however, between any of these variables and the weight of the gland removed.

In conclusion, this study demonstrates a significant increase in airflow in patients post thyroidectomy, especially on inspiration, but the degree of improvement is not related to the weight of the gland removed.

INTERLOCKING INTRAMEDULLARY NAILING FOR THE TREATMENT OF TIBIAL FRACTURES
Meath Hospital, Heytesbury Street, Dublin 8.

37 tibial shaft fractures in 34 patients were treated with the Grosse-Kempf interlocking intramedullary nail over a two-year period. 32 tibiae were consolidated at a median of 17 weeks; 4 were currently ununiting at a mean of 14 weeks and one had re-fractured following nail removal but was now uniting in cast. Excluding the patient still in cast, the clinical results were excellent in 18, good in 9, fair in 6 and poor in 3.

The most troublesome complication was haematoma formation at the fracture site, leading to persistent discharge in four patients. These all healed up but one may have gone on to bony infection. Extra comminution occurred during nail insertion in five tibia, but these all healed up satisfactorily.

Overall we found tibial nailing to be a satisfactory procedure facilitating rehabilitation with early weight-bearing, and resulting in predictable fracture healing in good alignment.

Fifteenth Sir Peter Freyer Memorial Lecture and Surgical Symposium

TECHNICAL PROBLEMS IN INTRAMEDULLARY SEMORAL NAILING
J. P. McCabe, B. Waldron, J. Byrne.
Orthopaedic Department, Beaumont Hospital, Dublin.

In the past, fractures of the femoral shaft required relatively long periods of bed rest for traditional traction treatment. However, immobilization is implicated in complications ranging from constipation and atelectasis to osteoporosis and in the patient with multiple injuries is associated with significantly increased morbidity and mortality. The need for early mobilization has stimulated newer approaches to management including operative treatment with intramedullary nails or plates and the non-operative approach of cast bracing. Intramedullary nails with cross locking devices, such as screws to control rotation and shortening have gained in popularity over the past five years.

We review our experience with the Universal AO interlocking femoral nailing system after a six month period. In all, twenty-seven intramedullary nails were used in a total of twenty-one patients ranging in age from sixteen to eighty years with a mean of thirty-two years. Twenty-five of the twenty-seven nails were inserted using a closed technique and distal locking was performed in most cases. Despite the obvious advantages of this form of treatment we have encountered noteworthy technical problems in insertion of nails. We demonstrated how most of the difficulties may be overcome by regular use of the technique and close attention to the steps in nailing.

Intramedullary femoral nailing remains the key to rigid fixation and early mobilization of the traumatized patient.

OBJECTIVE ASSESSMENT OF SWEATING PATTERN POST COLLES FRACTURE
Beaumont Hospital, Dublin.

We report the result of a prospective study, using the dermatron skin resistance meter to assess the sweating pattern in the hands of twenty-three patients who sustained a unilateral fracture Distal Radius. There were 19 female patients and 4 male patients, ages range from 23 to 78 years. Eleven patients had Displaced Fractures requiring closed reduction under general anaesthesia. Skin resistance recordings were taken 7 weeks post fracture, one week post cast removal.

In 18 patients (75%) resistance was higher, indicating a decreased sweating pattern, in the injured compared to the uninjured hand. However, in seven of these patients the recordings remained within normal ranges (upper limit). In 11 patients with abnormal recordings the pattern did not fit in with any dermatron or peripheral nerve pattern.

We conclude that a significant change in the sweating pattern was noted in 55% of patients seven weeks post Colles fracture, however a longer clinical follow-up is necessary to correlate these findings with the incidence of Reflex Sympathetic Dystrophy.

PERCUTANEOUS ENDOSCOPIC GASTROSTOMY: TECHNIQUE, INDICATIONS AND INITIAL RESULTS
Department of Surgery, Salisbury General Infirmary.

The many variations in surgical gastrostomy all have a significant morbidity and mortality. Percutaneous endoscopic gastrostomy (PEG) under local anaesthetic was described in 1980 (Gauderer, M. W. I., Pronsky, J. L., Izant, R. J. J. Ped. Surg. 1980: 15, 872-875). The