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DNA PLOIDY STUDIES IN CHOROIDAL MELANOMAS

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The Callendar classification of ocular melanomas, despite recent revision, has major limitations. A need for standardised reproducible histological and pathological criteria has led to a search for a computerised method. In this study, we evaluate the role of DNA quantitation in the classification of these tumours. Ploidy refers to the DNA content of the nucleus. Normal nuclei contain two sets of chromosomes and are therefore "Diploid". Nuclei in the cell cycle may have up to four sets of chromosomes and are "Tetraploid". Any variance from the normal amount of genetic material is termed "Aneuploidy". Several studies have demonstrated a significant correlation between Aneuploidy and malignant potential, particularly in solid tumours, such as breast, ovary and cutaneous carcinomas. We are comparing two methods of DNA quantitation, Flow Cytometry and Image Analysis. To date, we have confronted technical problems with image analysis to this study (pigment excess, absence of normal control population) and developed an appropriate technique.

A survey of choroidal melanomas referred to the Royal Victoria Eye and Ear Hospital between 1961 and 1986, together with clinical follow-up data, is correlated with our findings. A pilot study of 22 cases has been completed. Of interest is the fact that all Spindle A cells were Diploid with no evidence of cell cycling but it is too early to draw any major conclusions.

HEALON vs VISCOAT IN CATARACT SURGERY


A prospective study was performed in which fifty-two patients, undergoing routine extracapsular cataract extraction and intraocular lens implantation, were randomly divided into two groups, depending on the viscoelastic material used. Viscoat was used in twenty-six cases and Healon in 26 cases. None of the patients in this trial had underlying ocular disease or had previous ocular surgery.

Twenty patients undergoing corneal transplant surgery, six with Healon and fourteen with Viscoat, were also studied.

The intraocular pressures of all patients undergoing cataract surgery were recorded at a mean of fourteen hours post-operatively, using a Goldmann Applanation Tonometer. There was a slight post-operative intraocular pressure rise in the order of 6 mmHg in both groups with a mean pressure of 26.7 mmHg (± SD of 9.2 mmHg) in the Viscoat group; and a mean pressure of 19.7 (± SD of 8.8 mmHg) in the Healon group. There was no significant difference between the post-operative pressure in the two groups (P=0.5, student t-test).

We also concluded that Viscoat was more efficient in maintaining the anterior chamber, and this was especially advantageous when performing corneal transplant surgery. It was, however, more difficult to aspirate than Healon.

A SURVEY FOR RHODOPSIN GENE MUTATIONS IN 21 UNRELATED IRISH AUTOSOMAL DOMINANT RETINITIS PIGMENTOSA PATIENTS

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Following linkage of a causative gene for autosomal dominant retinitis pigmentosa (ADRP) to the long arm chromosome 3 in a large Irish kindred by the Trinity College team and the implication of the Rhodopsin gene as a prime candidate, other investigators have documented point mutations at codons 23, 58 and 347 and a tri-nucleotide deletion at codon 256.

DNAs from 21 unrelated Irish ADRP patients were examined for these known mutations. Appropriate primer combinations were used to amplify, a millionfold, segments of DNA in the regions of the mutation sites by means of the polymerase chain reaction.

These amplimers were examined by restriction enzyme digestion analysis in the case of the codons 58 and 347 mutations. These created (codon 58) or destroyed (codon 347) restriction sites and thus generated altered fragments which were detected by 2% agarose gel electrophoresis and Ethidium Bromide staining. The codons 23 and 256 mutations were analysed by synthesising 20 base oligonucleotide sequences specific for the normal and the mutated sequences (Allele Specific Oligonucleotides or ASOS) which were radio-labelled with 32P and used to probe nylon membranes impregnated with denatured DNA from each of the 21 patients. If either mutation were present, hybridization with both the mutation ASO and the normal ASO would be apparent after washing under appropriate conditions and exposure to X-ray film.

None of the 21 patients showed any of the 5 known mutations. This contrasts with an incidence of 18% for Rhodopsin mutations in an American ADRP population. The search continues for possible novel mutations in Irish ADRP patients.

SOME UNUSUAL USES FOR LASER

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Laser is most commonly used for diabetic retinopathy, retinal tears, trabecuoplasty, macular degeneration and capsulotomy. It may however, occasionally prove useful in a variety of other conditions. A peripheral retinal granuloma due to toxocara was successfully treated by first surrounding the lesion with laser burns and then treating the centre of the lesion in two sessions. Laser cyclo-ablation was possible in a patient with uncontrolled secondary glaucoma whose only eye was missing the lens and iris after severe trauma. The ciliary processes could be visualised in the gonioscopic mirror. Three of four ciliary processes at a time were treated by laser until pressure was reduced to normal. A white pupil due to cataractous tears, trabecuoplasty, macular degeneration and capsulotomy. It may however, occasionally prove useful in a variety of other conditions. A peripheral retinal granuloma due to toxocara was successfully treated by first surrounding the lesion with laser burns and then treating the centre of the lesion in two sessions. Laser cyclo-ablation was possible in a patient with uncontrolled secondary glaucoma whose only eye was missing the lens and iris after severe trauma. The ciliary processes could be visualised in the gonioscopic mirror. Three of four ciliary processes at a time were treated by laser until pressure was reduced to normal. A white pupil due to cataractous
OCULAR HYPOTONY WITH CHOROIDAL EFFUSION
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This is the study of 10 patients with long standing ocular hypotony, six of which had choroidal effusion. Any patient with intra-ocular pressure of 6 or less persisting for more than 3 months was selected and followed for a period of 9 to 12 months.

One patient with myasthenia gravis had sympathetic ophthalmitis post Argon Laser Iridotomy, 2 patients, one with Sturge-Weber syndrome and the other with Irido Corneal Endothelial syndrome, had trabeculectomy, and 3 others had complicated cataract operations and developed hypotony which all ended in choroidal effusion.

Out of 10 patients with hypotony the above mentioned 6 had choroidal detachment. Just 2 patients had flat anterior chamber, 6 recurrent uveitis, 2 cystoid macular oedema, 2 optic nerve head swelling, 1 choroidal folds, 1 phthisis bulbi, and 2 no signs after 12 months.

Choroidal effusion was a common association of hypotony, flat anterior chamber was not. Those with early surgical intervention showed a better visual outcome. Hypotony with choroidal detachment due to non mechanical cause showed less favourable response to treatment.

LOCALISING NYSTAGMUS
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Presented are three uncommon types of nystagmus, namely down-beating, convergence retraction and see-saw nystagmus. Each type is illustrated by a case report with accompanying video to demonstrate the clinical features. The first patient, a nine year old boy, with isolated down-beating nystagmus due to an Arnold Chiari malformation. Down-beating nystagmus, while most frequently caused by lesions of the cranio cervical junction, may also be found in association with multiple sclerosis, brain stem encephalitis, cerebellar degeneration and deficiency states.

Patient two is a forty-five year old female with convergence retraction nystagmus following a mid-brain vascular event. Convergence retraction nystagmus is described in extrinsic and intrinsic brain stem lesions.

The final patient is a seventy-three year old female with see-saw nystagmus due to a large pituitary tumour with a suprasellar extension. See-saw nystagmus is usually a feature of parasellar and chiasmal mass lesions and less frequently follows head trauma and brain stem infarction.

Down-beating, see-saw and convergence retraction nystagmus are valuable clinical signs when localising lesions of the central nervous system. In addition they provide guidance as to the most appropriate investigations. Lesions of the cranio cervical junction and brain stem are best imaged by MRI scanning while lesions of the parasellar region are best imaged by CT or MRI scan.

A COMPARISON OF PRE-OPERATIVE REGIMES WITH AND WITHOUT MYDRIACINE ON THE ACHIEVEMENT AND MAINTENANCE OF MYDRIASIS DURING CATARACT SURGERY.
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A prospective study was performed on forty-one patients having elective extracapsular cataract extraction to evaluate the necessity of including Mydricine in drug regimens. All the patients were given a standard dilating regimen which included Ocufen drops. Nineteen were also given a subconjunctival Mydricaine injection. Measurements of pupil diameter and blood pressure were taken pre-operatively and at stages throughout the operations. Both the pre-operative achievement and per-operative reduction of mydriasis was essentially the same in the group receiving Mydricaine compared with the control group. Blood pressures were recorded as an indicator of any adverse cardiac effects of Mydricaine. An increase in average blood pressures, in the early stages of surgery, was noted in the Mydricaine group only when patients who received local anaesthesia were compared.

RETNAL ANGIOMAS
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A ten year retrospective study of patients with retinal angiomas was performed. There were nine patients (those with peripapillary angiomas were excluded). Fourteen eyes were treated (5 patients had bilateral involvement). The average age at presentation was twenty-two years; male patients predominated. All patients had Von Hippel-Lindau disease. All were screened for non-ocular manifestations. Two patients had cerebellar haemangioblastomas.

The commonest presenting symptom was decreasing visual acuity. Two patients were detected on routine screening.

A grading system was established for each eye at presentation:-
Grade I angioma: Simple angioma with no vessel dilatation (5 eyes).
Grade II angioma: I + feeder vessel dilatation ± intraretinal exudates (7 eyes).
Grade III angioma: II + serous retinal detachment (2 eyes).

All fourteen eyes were treated with cryotherapy; four eyes with cryotherapy alone; nine eyes with laser photocoagulation and cryotherapy; one eye with cryotherapy, laser photocoagulation and vitrectomy.

Laser photocoagulation was used for posterior pole lesions. The number of sessions ranged from 1-9 (average 3). Cryotherapy was used for peripheral angiomas. The number of sessions ranged from 1-13 (average 6).

The retina was flat at presentation in twelve eyes. In eleven of these the angioma regressed following treatment and visual acuity was maintained or improved. One eye developed epiretinal membrane formation and tractional retinal detachment with a resultant poor visual acuity.

The retina was detached at presentation in two eyes. The final acuity was poor.

In conclusion eyes treated prior to the development of secondary complications such as extensive exudation or detachment had a good outcome.

PARACENTRAL RHEUMATOID CORNEAL ULCERATION: CLINICAL FEATURES AND CYCLOSPORINE A THERAPY
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Central or paracentral corneal ulceration and perforation in otherwise quiet eyes of rheumatoid patients (RA) presents a difficult therapeutic challenge. In our experience treatment of this condition using previously recommended immunosuppressive regimens, conjunctival resections and tectonic corneal surgery is often unsatisfactory. A prominent clinical feature distinguishing paracentral keratitis from the more typical ulcerative keratitis is the often complete lack of associated ocular inflammation of the former at initial presentation. The different treatment response and clinical features of these 2 types of RA associated ulcerative keratopathies, suggest that they differ in their pathogenesis.