



# Nethralaya Insight

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As this maiden issue goes to press, all of us behind the scenes feel a deep sense of satisfaction. A long awaited project has finally matured; the fulfillment of a much-felt need is in sight. The name "INSIGHT" was adopted to give readers an insight into our work, activities and goals.



Dr. Badrinath receives the "Padmashri" from the President of India.

January 26, 1983 marked a very important event in the history of Sankara Nethralaya. Dr. S.S. Badrinath the Medical Director of the Foundation was honoured with the prestigious award of 'Padmashri'. This was a moment of great pride to his family, friends and associates. The award was presented by His Excellency, Shri Zail Singh, President of India in a colourful ceremony at New Delhi on the 2<sup>nd</sup> April 1983. To all those who know him well this was not a surprise, but rather an expected fact that had to happen sooner or later. An informal get-together was held at Hotel Palmgrove to mark this important occasion. Dr. Badri in his usual modest way, insisted that **this was not an award to an individual but to Nethralaya as a whole.**

March 1983 saw another eye camp at Nethralaya which is the second of its kind and conducted as a joint venture with the Lions Club of Madras and the Sankara Nethralaya Team. This Lions club and Volunteers helped in the

advertisement and enlisting of patients whereas members of the staff screened and worked up the patients. The operations were conducted using the operating microscope and latest suture techniques. The numbers were reduced on purpose in order to provide greater individual care and attention. A weekly post-operative follow up was done and glasses prescribed at the end of six weeks.

At the request of the Ophthalmological Association of Sholapur, Dr. Badrinath conducted a vitreo-retinal workshop on 25<sup>th</sup> and 26<sup>th</sup> June 1983. It was attended by ophthalmologists not only from Sholapur, but from nearby cities like Pune, Bombay etc. The sessions were lively and directed towards updating the practicing ophthalmologists in vitreo-retinal disease and surgery and to the post-graduates it served as a teaching programme as well.

Smt. M.S. Subbulakshmi, the renowned musician and a well-wisher of the Foundation has volunteered to render 3 music concerts for the benefit of Sankara Nethralaya. We are indeed honoured of these concerts. The first concert was held at Bombay on September 10<sup>th</sup> and the next in Calcutta on the 13<sup>th</sup> of November. The third will be held in Delhi in March 1984. Her interest in the foundation does not stop with this. She has also renounced her entire royalty from three L.P. records consisting of songs of Poet Subramanya Bharathi in favour of Nethralaya.



Smt M S Subhlakshmi singing at the Bombay

Nethralaya has launched into yet another programme – namely, community ophthalmology.

Two villages—Padur and Pudupakkam on the outskirts of Madras have been adopted by the Foundation. To mark this event, the Y's Mens Association came forward to donate an ambulance which would be ever so useful for this project. The ambulance was donated on 22<sup>nd</sup> June 1983 in a simple ceremony, where Mr. Hande, the Honble's Minister of Health presented it on behalf of Y's Mens and addressed the gathering.

The cornea service was started in January 1983 with Dr. Manju Kulkari at the helm. Equipment and accessories intended for anterior segment work including Pachometry, specular microscopy and photo slit facilities are available. A total of 23 keratoplasties have been done so far with a large proportion of the eyes being donated by the local Jain community. Besides this, eyes were obtained from Bombay and Sri Lanka. The awareness of the people within the state to donate eyes is very encouraging and we do hope more and more people will shed their old beliefs and come forward to promote this concept of eye donation.



The Ambulance Van donated by the "Y" 's Men International.

Nethralaya has opened yet another department. It has appointed Mr. K. Santhosh Kumar to head the department of Bio-engineering which will commence after his return from his study tour to the Europe and USA in early 1984. This department will cater to the maintenance and service of all the instruments available and take up designing and manufacturing new instruments and equipments which can be made easily available and prepared to suit our conditions and requirements.

Facilities for electro diagnostic studies are now available at the Nethralaya. The LKC visual electro diagnostic unit is used which has all three modes namely ERG,EOG and VER. Together with the already existing ultrasonography facility it forms an excellent pre-surgical evaluation aid.



**The New Operation Theatre Complex being inaugurated by Dr.V.G.Appukutty.**

Two new, ultramodern operating rooms have been added this year which are centrally air-conditioned and completely equipped for anterior segment as well as vitreo-retinal work. With the commencement of these operation room facilities, the number of surgeries performed have doubled and the patient waiting period reduced considerably.

As we come to the end of this year we look back with satisfaction on the events gone by and hope the new year has greater things in store for us.

Conveying our best wishes for coming season and looking forwards to a continuing, constructive association with you.

*Mary Abraham*

Editor

# Significance of Routine Indirect Ophthalmoscopy after Cataract Extraction

**Dr.L.Gopal**

The intention of this article is to highlight the significance of routine and through Indirect Ophthalmoscopic examination of the fundus after cataract extraction. Patients who come for cataract extraction usually have dense cataracts, which preclude a good view of the fundus, and the retinal function can only be indirectly assessed by tests like projection of light, colour vision and two-point discrimination. None of these really give a satisfactory idea of the retinal function.

Post-operatively, the busy practitioners usually prescribe glasses after taking a quick look at the disc and macula. Patients who do not improve with glasses are possibly examined in slightly greater detail with dilated pupils. By this routine, a great many details and significant lesions are missed.

The incidence of retinal detachments ranges between 0.4 to 3.5% In our series the incidence was found to be 1.9% in a total of 987 cataract extractions, performed. The relationship of cataract extraction to retinal detachment needs special emphasis.

1. There may be an obvious complication of cataract surgery with vitreous incarceration in the section which are well known to predispose to retinal detachment.
2. There may be an undetected partial retinal detachment even before cataract extraction.
3. Retinal detachment may occur post-operatively, in which case, the role of cataract extraction in the occurrence of retinal detachment needs to be discussed in greater detail.

Cataract extraction has several effects on the eye.

1. The vitreous moves forwards and increases vitreo-retinal traction. This can precipitate retinal detachment.
2. The incidence of posterior vitreous detachment is very high after cataract extraction and this definitely has an adverse effect on the areas of vitreo-retinal traction.
3. The zonules of the lens are inserted in the vitreous base region. The posterior capsule of the lens has an attachment to the anterior vitreous face through Weigert's ligament. Hence, considerable traction is exerted on the retina through the vitreous when the lens is removed.
4. Changes occur in the vitreous composition after cataract extraction leading to vitreous degeneration and aggregation of collagen fibrils in turn which is dangerous to an eye predisposed to retinal detachment.
5. The factor of endophthalmitis must also be considered.
6. It is also a fact that lesions like degenerative myopia acquire a more sinister significance in the presence of aphakia.

According to Peter Mors,<sup>2</sup> 32.2% of the detachments occur within 6 months of cataract extraction and 48.8% within one year. In our series, about 40% occurred within 6 months and 60% within one year. It is also a fact that retinal detachment occurring in aphakes progresses more rapidly to totality than one in aphakic eye, the incidence of periretinal proliferation and fixed folds are much more common in aphakic retinal detachments which make their management more difficult and less satisfactory.

Based on the above discussion, it is easy to understand why an approach towards prophylaxis in the management of retinal detachment is so necessary. It is with this in view

that indirect ophthalmoscopy should be performed as a routine in all patients after cataract extraction. Equatorial breaks are more common than oral breaks in both phakic and aphakic detachments of retina. Oral breaks are more often seen in aphakic than in phakic eyes. Therefore a thorough exploration of the fundus upto the ora serrata is necessary which can be achieved only with the indirect ophthalmoscope.

As a routine, patients operated at Sankara Nethralaya for cataract undergo a thorough examination after six weeks, which includes refraction, slit lamp examination and estimation of intraocular pressure. The Pupils are then dilated and fundus examination is carried out with the binocular indirect ophthalmoscope and scleral depressor, Any significant lesions like lattice or breaks are noted and treated with trans conjunctival cryopexy or photocoagulation. With this approach 59 out of the 987 cases in the series quoted above required prophylactic treatment.

It is important to remember that a break in aphakia if left untreated has 50% chance of leading to retinal detachment.

Reference:

1. Mary Nalini Abaham etal – 1981 – Indian journal of Ophthalmology – Vol.29 – p.363
2. Morse Peter, H. – 1979 – Year Book Publishers Inc.USA-P 121.
3. Schepens Charles, L – 1983 – Retinal Detachment and Allied Diseases –W.B. Saunder's Company – Vol.I P.54 & voll P.639.

## **Herniation of ocular contents through pars plana sclertomy site**

**Dr. S.S.BADRINATH**

Herniation of ocular contents through the pars plana sclerotomy site occurs at certain specific times during the operative procedure. It could happen while creating the sclerotomy openings or while removing the vitrectomy or accessory instruments from within the eye either in the course or conclusion of the operative procedure. In closed pars plana vitrectomy, sclerotomies are performed in the pars plana for entry of instruments. In the ocutome system, three openings are created. They are located in an avascular area of pars plana, approximately 3.5 mm from the limbus above or below the superior and inferior borders of medial or lateral recti depending on whether the right or left eye is being operated. A sharp MVR blade parallel to limbus is thrust towards the mid vitreous cavity while a Saint Martins forceps is used as fixation at the limbus 180<sup>0</sup> opposite the entry site. This is a one step procedure and the MVR blade is slowly withdrawn from within the vitreous cavity. At this juncture all pressure over the eye ball must be eliminated to avoid prolapse of vitreous through the sclerotomy opening. The wound is closed temporarily with a 20G plug and the other sclerotomies are similarly created. It is common to see a bead of vitreous prolapsing through the sclerotomy wound on withdrawal of the MVR blade. Increase in the intraocular pressure is the main cause. Infusion should not be turned on unless the intraocular pressure is too soft, as the build up of pressure due to infusion can cause vitreous herniation.

When I asked Dr.C.L. Schepens<sup>1</sup> for his opinion on this, he said that vitreous loss through the sclerotomy site is as serious as loss through a corneoscleral wound and would result in same sequelae. He advised meticulous wound toileting and felt that with this technique of creating a sclerotomy vitreous loss hardly occurred. Dr.Steve Charles in his book<sup>2</sup> has suggested abscising the bead of vitreous with Vannas Scissors and flushing the wound with a stream of irrigating solution. The idea is to reposit the herniated tissue and disengage the same from the wound. Surprisingly there is hardly any other mention of this complication in the literature.

### **Personal observation**

The prolapse could be simple or serious. The cause for both is an open sclerotomy wound with an increased intraocular pressure, In the simple type, the herniated material is a bead of formed vitreous gel and altered blood. I have followed the advice of Dr.Steve Charles for managing these and have not found any post operative complication. The eyes heal well and do not remain irritable. Post-operative indirect ophthalmoscopy does not reveal any vitreous

incarceration in the wound or anterior loop syndrome. Except in one, I have not seen fibrovascular ingrowth as a late quale.

The serious type is one in which the retina or the pars plana epithelium has herniated out of sclerotomy wound. When the ora serrata is off due to vitreous traction and when the retina relieved of all traction has become mobile following vitrectomy, prolapse or pars plana epithelium or the retina is likely to occur.

It occurs, in the course or conclusion of surgery and not at the beginning of the surgery.

The reason for this is that as the Ocutome or accessory instrument is withdrawn the infusion fluid which is still on cause prolapse of pars plana epithelium or the adjacent retina. If an instrument like the flute needle is withdrawn with the vent open, the high transorificial pressure may force the adjacent retina to be sucked out as the flute needle is withdrawn. Similarly, if the ocutome is not sharp enough, uncut vitreous may also be dragged out as the instrument is withdrawn. The prolapsed retina appears as slimmy tissue while the bead of vitreous looks like a blob of jelly. Rarely one can see retinal blood vessels in the delicate herniated tissue.

Abcising the herniated tissue advocated by Steve Charles, while is the method of choice for handling the simple prolapse, could unfortunately lead to large iatrogenic breaks if herniated retina is abscised. While avoidance of its occurrence is ideal, by constantly being aware of it, if the serious prolapse occurs, the following steps are recommended:

1. Turn infusion off.
2. Reduce intraocular pressure by draining some fluid through the other sclerotomy opening.
3. Irrigate wound as advised by Steve Charles. Small herniations would get repositied.
4. If these measures fail, the ocutome with blunt conical tip may be used to reposit the tissue, If all these fail, the iris repository introduced through the other sclerotomy may be used to sweep the tissue back into the eye.

Herniation of retina, after handling as mentioned above, needs careful indirect ophthalmoscopic evaluation. If a retinal break has occurred, cryo therapy and buckling should follow.

On three occasions, I have created large retinal breaks without reconising the serious type of prolapse but have been able to repair them without serious sequelae.

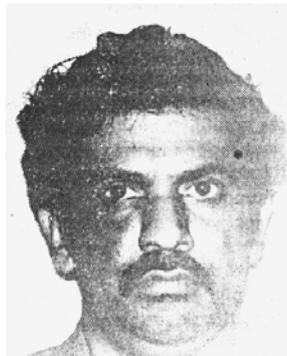
Reference:

1. Schepens, C.L. 1981-Personal communication.
2. Steve Charles: Vitreous Micro Surgery – Williams & Wilkins, Baltimore, 1981, p-92.

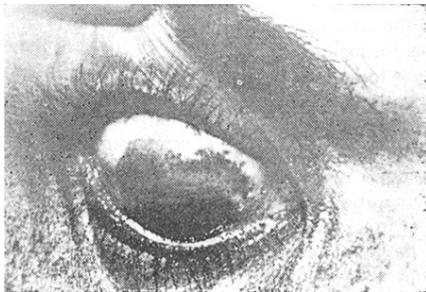
# Nevus of Ota

Dr.K.Ganesh

A 39 year old male, with a history of seeing floaters and frequent blurring of vision in the left eye was examined at Sankara Nethralaya. The corrected visual acuity was 6/5 and 6/6 for distance and N/6 in both the eyes for near. He had a bluish black pigmentation of the right peri-orbital region and the right cheek. A dark blue pigmentation of the sclera was present and the iris was deeply pigmented. The intraocular pressure was normal. Fundus examination showed a strand of vitreous membrane arising out of the retina and projecting into vitreous cavity from just below the disc in the right eye. In the left eye, a normal retinal vessel was pulled forwards into the vitreous cavity at 12 O'clock meridian and there was evidence of vitreous haemorrhage. The vitreous haemorrhage was probably due to vitreous shrinkage causing traction on the normal retinal vessel. Fluorescein angiography failed to reveal any gross abnormality. During the follow up period, visual acuity has remained the same, though he had frequent episodes of vitreous haemorrhage and blurring of vision. The pigmentation of the sclera and iris has remained unchanged and the intraocular pressure continues to be normal. But increase in the pigmentation of the choroids was observed. Our diagnosis in this case is **oculodermal melanocytosis**, also known as the Nevus of Ota. **Nevus of Ota** is a congenital, benign, unilateral pigmented lesion affecting females more frequently than males. It affects the skin of the periorbital region in the area supplied by the 1<sup>st</sup> and 2<sup>nd</sup> division of the trigeminal nerve. The skin is flat with one or more hyper pigmented areas, the colour varying from light brown to blue-black. There is a bluish pigmentation in the conjunctiva and the sclera, the latter being more heavily involved. There is hyper-pigmentation of the iris and trabecular meshwork and glaucoma has been reported as a sequelae. There may be pigmentation of choroids and even of the optic disc.



***Patient showing pigmentation of the right periorbital region and cheek.***



Sclera showing dark blue pigmentation

The other associated ocular findings are Duane's syndrome, retinitis pigmentosa and congenital cataract. Histologically it consists of dendritic or fusiform chromatophores containing granules of melanin. In the skin, it is situated deeply in the corium, It is usually stationary, Malignant changes rarely occur. This condition was originally described by-Ota and Tanino in 1939 as Naevus Fusco Coercelens Ophthalmomaxillaris. It occurs most commonly in orientals, particularly Japanese. It is also relatively common among Negroes. It is closely related to the Mongolian spot in the skin of the lumbo-sacral region, found in 100% inheritance has not been established.

#### Reference:

1.Duke Elder, S (1964) System of Ophthalmology, kimpton, London, Vol. III P. 798-799

**From the Department of Bio Engineering . . .**  
**K.SANTHOSH KUMAR**

Medical Engineering is the art and science of conceiving developing and applying various mechanical, electrical, electronic, chemical, optical and nuclear devices to the field of medicine. In the medical world, it is referred as Bio-engineering or Bio-Medical Engineering.

The advent of electronics has changed face of Bio-Engineering to a great extent. Today we hardly have any equipment or instrument that has not used electronics either in its developing or functioning. Like all other man-made devices, medical equipments also require periodic maintenance and overhauling. The more sophisticated they are, the more care they require. Sankara Nethralaya will shortly commission its own department of Bio-Engineering with the main purpose of servicing and maintaining all equipments present and keep them running to their full capacities. Besides this, our services would be available to other institutions in the country which face the hassels of getting their equipments serviced. The third objective is to develop new instruments and equipments to suit our own conditions and requirements. It is also possible to expand the department into a full fledged Research and Development unit with a panel of ophthalmologists, neurologists, physiologists, physicists and engineers. The department also plans to train personnel to hand and operate equipments, and to update existing equipments with the latest developments. Besides this the department would be able to evaluate new equipment and in this regard to offer its consultancy services to other institutions and hospitals.

In short, the department of Bio-Engineering is intended for the meaningful future of medicine and engineering to diagnose and treat patients more effectively and quickly.

## **Conjunctival Transplantation in Eyes with Severe Chemical Burns**

**DR.MANJU KULKARNI**

Chemical burns is an ocular emergency; the outcome of which depends not only on the degree of burns but also on the rapidity with which treatment is instituted.

The initial repair of the epithelial defect is brought about by the movement of uninjured epithelial cells over damaged conjunctiva and corneal stroma. However, if the stromal damage is severe, the epithelial recovery is usually arrested and results in epithelial defects which usually persist for weeks or months. These chances very easily lead to stromal melting which may end in perforation and loss of vision. These events get accelerated in the presence of symblepharon with loss of lid mobility and corneal exposure. Various collagenase inhibitors namely Disodium and Calcium EDTA, Cysteine, Acetylcysteine and Penicillamine have been recommended to prevent stromal ulceration. Guled on contact lens (epikeratoprosthesis) prevent ulceration by mechanical protection on one hand and eliminating the damaged epithelium which can release collagenase resulting in stromal melting.

Continuous perfusion of homologous serum is yet another therapeutic approach. Two serum proteins which are found to have an action on collagenase are antitrypsin and macro globulin.

The management of an eye with alkali burns becomes critical in the absence of or non-availability of the above mentioned modalities of treatment Conjunctival transplantation is a newer approach in the management of such cases.

### **Conjunctival Recession and Transplantation**

This method of treatment is more suitable for uniocular burns or in cases of bilateral burns where one of the eyes has a mild degree of burns while the other is severe.

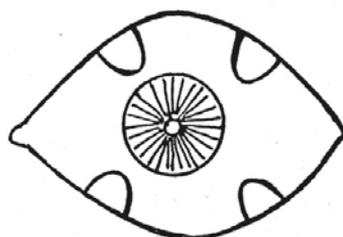
A recent development in the technique, advocated by Thoft et al utilizes both the principle of conjunctival recession, and auto transplantation of healthy conjunctival tissue from the uninjured fellow eye. Patients with severe degree bilateral burns with extensive damage to conjunctive in both eyes are naturally unsuitable for this procedure.

**Method: Affected eye :** A peritomy is performed 5 mm from limbus. Excision of conjunctiva and Tenon's is performed, until a 5 mm rim of bare sclera remains all around the limbus.

Superficial keratectomy is performed to remove all epithelium, dead tissue and superficial pannus.

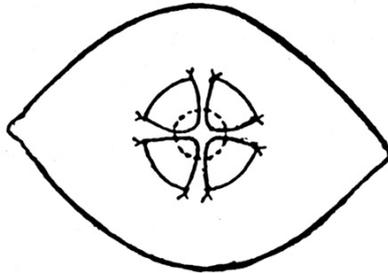
### **Good Fellow eye:**

5 mm patches of conjunctiva are excised from the fornices in between the muscles. These are sutured in the limbal region of the affected cornea with 2 interrupted 60 silk sutures at the base. A single continuous suture is passed through the apices of these triangular conjunctival tissues. Which when drawn completely covers the corneal surface. It is ideal to apply a therapeutic soft contact lens in order to protect these tissue. The grafted membrane remain flat and pale for about a week. After a week, they show thickening and vascularization and by the end of the week, there is exuberant growth.



**5mm bits of conjunctiva taken from fornices of good fellow eye.**

Post operatively, cycloplegics and antibiotics are used frequently and the intraocular pressure monitored digitally. Around the 6<sup>th</sup> to 8<sup>th</sup> week, the patches begin to flatten out with regression of vessels. The cornea becomes completely re-epithelized and the condition has become stable. Stromal ulceration is completely prevented, mainly by removal of adjacent damaged conjunctiva and thereby removing the source of collagenase.



**Conjunctival grafts sutured with interrupted sutures at their bases and single continuous suture through the apices.**

Vascular endothelial buds entering the cornea are accompanied by fibroblasts and therefore the scar tissue formed is resistant to collagenase.

Once the eye has remained stable for 2-3 months, release of adhesions and repair of symblepheron can be attempted.

Reference:

- (1) Duane: Clinical Ophthalmology; Harper & Row Publishers Philadelphia 1982, Vol. IV Chap.28, Pg.11-22
- (2) Pfister, R.R. et al, Alkali Burns of the Eye; Parhophysiology and Treatment, Southern Medical Journal, April 1981, 75:417-422
- (3) Thoft, R.A. Conjunctival Transplantation Arch, Ophthal, 1977, 95:1425-1427