

# SCIENTIFIC SESSION 1

## ORBIT

Shilpakalavedika Convention Center  
Saturday, January 24, 2004  
8:30 AM – 10:30 AM

*Chair: Jerry Shields*  
*Co-chair: Subhash Betharia*  
*Moderator: Bitu Esmali*  
*Session Summary: Santosh Honavar*

	<b>Presenter</b>	<b>Title of Presentation</b>	<b>Time</b>
1	Ramesh Murthy	Clinical and Histopathological Analysis of Orbital Tumors	8:30 AM
2	Anand Lagoo	Lymphoid Lesions of the Ocular Adnexa and Eye: WHO Classification and Clinicopathological Correlation of Cases from a Single Center	8:40 AM
3	Ihab Othman	Sinus Histiocytosis with Massive Lymphadenopathy (Rosai Dorfman Disease): Natural History, Orbital Manifestations and Management	8:50 AM
4	Clare Stannard	Lacrimal Gland Carcinoma: Constructive Management with Excision, Iodine - 125 Brachytherapy and External Beam Radiotherapy	9:00 AM
5	Geeta Vemuganti	Neural Choristoma of the Orbit-Report of 5 Cases	9:10 AM
6	Thomas Cummings	Unusual Orbital Meningiomas and their Distinction from Solitary Fibrous Tumor and Hemangiopericytoma	9:20 AM
7	Ravindra Mohan	Lacrimal Sac Malignancies in a Referral Eye Hospital in India	9:30 AM
8	Shyam Sunder Tiwari	Image Processing Software for Computing Tumor Size and Tumor Location Coordinates from Acquired Optical and X-Ray Image	9:40 AM
9	Nataliya Petrenko	Treatment of Benign Neoplasia Localised at the Orbital Apex	9:50 AM
10	Ahmed Eldaly	Preauricular Orbitozygomatic Approach for Excision of Orbital Apex Tumors	10:00 AM
11	Santosh Honavar	Session Summary	10:10 AM

## CLINICAL AND HISTOPATHOLOGICAL ANALYSIS OF ORBITAL TUMORS

Ramesh Murthy, Sanghamitra Burman, Santosh Honavar, Geeta Vemuganti, Milind Naik

Ocular Oncology Service, LV Prasad Eye Institute, Hyderabad, India

**PURPOSE:** To analyze the demography, clinical features, surgical management and frequency of biopsy proven orbital tumors. **METHODS:** Retrospective review of records of all histopathologically proven orbital tumors between 1996-2002. **RESULTS:** A total of 300 patients were studied. The lesions were mostly unilateral (95.3%). The age ranged from 0 to 93 years (mean, 28.6 years  $\pm$  17.5 years). Most of the lesions were chronic (76%). An excisional biopsy in 57.7%, incisional biopsy in 32.7% and FNAC in 9.6% established the diagnosis. Benign lesions (62%) were more common than malignant lesions (38%). Benign tumors showed a peak during the first decade and malignant tumors in the first and fifth decade. On histopathologic classification, lymphoid and histiocytic lesions were the most common (18.7%) followed by cystic and vasculogenic lesions (14%). In the under 18 year age group dermoid was the most common lesion while in the middle aged and elderly, lymphomas predominated. **CONCLUSION:** There is a wide range of tumors that can occur in the orbit. Lymphoma is the most common orbital tumor, especially in the elderly population.

## LYMPHOID LESIONS OF THE OCULAR ADNEXA AND EYE: WHO CLASSIFICATION AND CLINICOPATHOLOGICAL CORRELATION OF CASES FROM A SINGLE CENTER

Anand S. Lagoo, Matthew Hammons, Young S. Kim, Robert Levy, Gordon Klintworth

Duke University Medical Center, Durham, NC, USA

**PURPOSE:** To classify the lymphomas of ocular adnexa according to the WHO classification and correlate clinical features with specific lymphomas. **METHODS:** All available pathological material from biopsies of lymphoid lesions obtained at Duke University Medical Center, USA since 1971 was reviewed along with patient charts. In some cases additional immunohistochemical stains were performed. **RESULTS:** Of the 121 patients studied, 91 had lymphomas and 30 had reactive lymphoid lesions. Majority of reactive lesions were inflammatory (13), follicular hyperplasia (9), or sarcoidosis (5). Of the 91 lymphomas, a vast majority (86) were B-cell neoplasms with the following subtypes: Marginal zone lymphoma of MALT type (49), diffuse large cell lymphoma (12), small lymphocytic lymphoma (9), follicular lymphoma (7), mantle cell lymphoma (5), lymphoblastic and Burkitt-like lymphoma (3), anaplastic plasmacytoma (1). Of the five T-cell lymphomas, two each were anaplastic large cell lymphoma and peripheral T-cell lymphoma, and one was cutaneous T-cell lymphoma. Median age at presentation was lower in reactive conditions (32 years), compared to the lymphomas (65 years), and reactive lesions were slightly more likely to be bilateral. **CONCLUSION:** MALT lymphomas are the commonest lymphomas in the ocular adnexa, but other B- and T-cell lymphomas and reactive lymphoid lesions also occur.

## SINUS HISTIOCYTOSIS WITH MASSIVE LYMPHADENOPATHY (ROSAI DORFMAN DISEASE): NATURAL HISTORY, ORBITAL MANIFESTATIONS AND MANAGEMENT

Ihab Othman, Omar, Hassan Farahat, Hisham El-Mazar, Ibrahim El-Desoky, Sherif Abulnaga

Cairo University, Cairo, Egypt

**PURPOSE:** To describe natural history of orbital manifestations

of Rosai Dorfman disease along with difficulties in diagnosis and management. **METHODS:** Two consecutive cases are described. The first case is a ten-year-old female presenting with massive bilateral proptosis erroneously diagnosed and treated as pseudo-orbital tumor since age 3 years. Regular scanning performed over the period of 7 years documented the disease progression from unilateral to bilateral orbital and sinus involvement along with a stationary retrocerebellar mega cysterna magna. The second case is a 12-year-old boy of sinus histiocytosis presenting with massive lymphadenopathy, facial asymmetry, and nasal and orbital manifestation. **RESULTS:** the first case was managed by excisional biopsy OU. Aggressive recurrence OS was managed by chemotherapy and surgical debulking. The second case was managed by local excision of the orbital lesion and endoscopic resection of the disease from nasal, paranasal sinuses, and nasopharynx. Eye and nasal condition markedly improved after surgery for 12 months. **CONCLUSION:** Sinus histiocytosis is a rare cause of bilateral proptosis in pediatric age group. Diagnosis and management are controversial. We present management of two unique cases were the natural history of the disease over 7 years period is well documented, with the unusual associations of a retrocerebellar mega cysterna magna and facial asymmetry in both cases.

## LACRIMAL GLAND CARCINOMA: CONSERVATIVE MANAGEMENT WITH EXCISION, IODINE-125 BRACHYTHERAPY AND EXTERNAL BEAM RADIOTHERAPY

Clare Stannard, Rossall, Egbert Hering, Jan Hough, Ruth Knowles, Karin Lecuona

Groote Schuur Hospital and University of Cape Town, Cape Town, South Africa

**PURPOSE:** To assess a retrospective series of patients with lacrimal gland carcinoma who were treated with local excision and received Iodine-125 brachytherapy as part of the postoperative radiotherapy (RT). **METHODS:** There were 11 patients between 1979 and 2002. There was no residual tumor in 2 patients, microscopic residual in 8 and macroscopic residual in 1. A concave gold plaque with Iodine-125 seeds (I-125) on the outer surface was inserted after removal of the tumor. A median dose of 28 Gy was given over 84 hours at a depth of 7.5 mm, followed by external beam RT of 36 Gy to give a total dose of 64 Gy. **RESULTS:** Eight patients were clear of local disease when last seen at 6 months to 23 years, median 7 years. There were 3 recurrences at 2 weeks, 7 months and 39 months and 2 of these had metastases. Visual acuity remained good in 3 patients, altered by 2 lines in 2 patients and deteriorated in 3 patients. Eye movements were impaired in 5 patients. Cosmesis was acceptable. **CONCLUSION:** Local excision of lacrimal gland tumors is a reasonable alternative to exenteration particularly in those with low-grade tumors or adenoid cystic carcinoma. The addition of I-125 brachytherapy to the RT regime allows a higher local dose to be given to the lacrimal bed and this should increase the tumor control without affecting the morbidity.

## NEURAL CHORISTOMA OF THE ORBIT- REPORT OF 5 CASES

Geeta Vemuganti, Ramesh Murthy, Milind Naik, Santosh Honavar

LV Prasad Eye Institute, Hyderabad, India

**PURPOSE:** Neural choristoma of the orbit are rare. We herein present the clinical and histologic features of five cases of orbital neural choristoma presenting as congenital proptosis. **METHODS:** Clinico-pathologic case series. **RESULTS:** Five patients aged 2 to 24 days, presented with massive, non-pulsatile proptosis noted at birth. No other anomalies were identified. Family history and maternal history were noncontributory. Clinical diagnosis considered were orbital

teratoma and meningo-encephalocele. CT scan revealed large cystic hypodense lesions in the posterior orbit, without evidence of intracranial or intraocular extension. The cysts were excised completely in two; marsupialized in two; and excised along with the microphthalmic eyeball in one patient. Histopathology of excised specimens revealed solid and cystic areas, predominantly consisting of benign neural and glial tissue, lined by stratified and columnar epithelium at places. There was no evidence of pleomorphism, mitotic activity or necrosis. No other mesenchymal tissues were seen. The cells were strongly immunoreactive to antibodies against Glial Fibrillary Acidic Protein (GFAP) and Neuron-specific Enolase. Biochemical analysis of the fluid aspirated from four cases showed high chloride content, similar to the nature of cerebrospinal fluid. Post-operatively, recurrence of cystic lesion was noted in 2 cases in which it was marsupialized. **CONCLUSION:** Neural choristomas should be suspected in neonates presenting with massive proptosis. Complete excision of the lesion should be attempted to prevent recurrences.

#### **UNUSUAL ORBITAL MENINGIOMAS AND THEIR DISTINCTION FROM SOLITARY FIBROUS TUMOR AND HEMANGIOPERICYTOMA**

*Thomas Cummings*

*Duke University Medical Center, Durham, NC, USA*

**PURPOSE:** The orbit is an uncommon location for meningiomas yet is prone to some of the many and unusual variants of meningioma. The differential diagnosis of meningioma commonly includes orbital hemangiopericytoma and orbital solitary fibrous tumor. We describe the pathological features of three unusual meningiomas and discuss the pathologic differences between meningiomas, hemangiopericytomas, and solitary fibrous tumors. **METHODS:** All patients underwent craniotomy and orbitotomy for excision of the lesions. Hematoxylin and eosin-stained histological preparations, immunohistochemical studies, and electron microscopy were performed. **RESULTS:** Three unusual orbital meningiomas are presented. In the secretory variant of meningioma immunohistochemistry and electron microscopy demonstrate the morphology of pseudopsammoma bodies. A meningioma recurred two decades later as an atypical meningioma (WHO grade II) and an elevated Ki-67 (Mib-1) labeling index was seen. A patient with multiple intracranial meningiomas was found at autopsy to display extensive spread of a well-differentiated meningotheliomatous meningioma to the optic nerves and chiasm. **CONCLUSION:** Unusual variants of meningioma should be recognized, and pathological studies including immunohistochemistry and electron microscopy are able to distinguish meningioma from hemangiopericytoma and solitary fibrous tumor.

#### **LACRIMAL SAC MALIGNANCIES IN A REFERRAL EYE HOSPITAL IN INDIA**

*Ravindra Mohan, Nirmala Subramanyam, Lakshmi Mahesh, Saptagirish Rambhatla, Krishnakumar Subramanian, Jyotirmoy Biswas*

*Sankara Nethralaya, Chennai, India*

**PURPOSE:** To study pattern of malignant lacrimal sac tumors. **METHODS:** A retrospective analysis of the malignant lacrimal sac tumors seen during the period 1987 – 1993 with histopathological correlation. **RESULTS:** Ten cases of malignant involvement of lacrimal sac were seen, of which 6 (60%) were primary tumors and 4 (40%) were due to contiguous spread of eyelid or adnexal malignancy. Primary sac tumors included adenoid cystic carcinoma (1 case), mucin secreting adenocarcinoma (1 case), mucoepidermoid carcinoma (1 case), transitional cell carcinoma (3 cases). Contiguous spread was from orbital lymphoma (1 case), adenoid cystic carcinoma of lacrimal gland (1 case) and sebaceous gland carcinoma of eyelid (2 cases).

**CONCLUSION:** Lacrimal sac malignancies are rare in Indian population.

#### **IMAGE PROCESSING SOFTWARE FOR COMPUTING TUMOR SIZE AND TUMOR LOCATION COORDINATES FROM ACQUIRED OPTICAL AND X-RAY IMAGE**

*Shyam Sunder Tiwari, Nitin Suri, Akash Tiwari*

*Sensors Technology Private Limited, Gwalior, India*

We have developed an image processing software code for computing the tumor size and tumor position from acquired optical and x-ray images. Code accepts bit map image data and hunts for multiple tumors of different sizes that may be present in the image definition and then computes size of each tumor and locates its approximate center for registering its location coordinates. Computed coordinates allow a surgical robot arm to navigate around the tumor space coordinates to operate upon the tumor from remote using a laser beam surgery. Details on the robot-arm are to be found elsewhere. Paper discusses ways and means to compute tumor coordinates for different shapes of tumors and their multiple existences in image of interest.

#### **TREATMENT OF BENIGN NEOPLASIA LOCALISED AT THE ORBITAL APEX**

*Nataliya Petrenko*

*Eye Microsurgery Center, Kiev, Ukraine*

**PURPOSE:** The primary aim of our work is to achieve better post-operative cosmesis and function in tumors located in the orbital apex. **METHODS:** Surgery included the following steps: 1. Incision extending in vertical direction from zygomatic arch of maxilla upto the hairline. The incision was linear, Z shaped or horseshoe shaped. 2. Exposure of the bony parts of lateral orbital wall from behind orbital process of maxilla. 3. Trephination behind the zygomatic arch with antero-posterior dimension 2-3 cm, vertical dimension 4-6 cm. The dimensions may be altered according to tumor size. 4. Tumor mass is excised as usual. 5. The trephined opening is not closed and soft tissue is sutured in layers. **RESULTS:** We have operated 43 patients using this technique from the age group of 7 to 68 years. Average follow up is 7 years. MRI and CT-Scan were performed pre and post surgery. Histological studies confirmed total removal of benign tumor. **CONCLUSION:** This method may be used for removal of tumors located at the orbital apex, with reduced intraoperative trauma, preservation of visual acuity and better postoperative cosmesis.

#### **PREAURICULAR ORBITOZYGOMATIC APPROACH FOR EXCISION OF ORBITAL APEX TUMORS**

*Ahmed Eldaly*

*Department of Otolaryngology, University of Alexandria, Alexandria, Egypt*

Orbital apex tumors have been traditionally excised using a transcranial approach. The author presents his experience with 12 cases of primary orbital tumors located at the orbital apex that were surgically removed using a lateral orbitozygomatic approach. This surgical approach avoids the use of craniotomy as well as provides excellent exposure of orbital apex lesions located lateral, inferior or superior to the optic nerve. The surgical technique will be demonstrated as well as the complications and results of this surgical technique will be discussed.

#### **SESSION SUMMARY**

*Santosh Honavar*

*LV Prasad Eye Institute, Hyderabad, India*