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ABSTRACT OF FREE COMMUNICATIONS AND POSTERS

FREE COMMUNICATIONS

Punctal Stenosis: Histopathology, Immunology and Electron Microscopic features. A step towards unravelling the mysterious etiopathogenesis.

M.J. Alì
India

Aim: To study the histological, immunohistochemical and electron microscopic features of puncta and proximal vertical canaliculi to understand the etiopathogenesis of punctal stenosis.
Methods: Prospective study of 26 stenosed punctae which were collected following a punctoplasty. 16 were from lower eyelid and 10 from upper eyelid. Histopathological examination was performed on 20 punctae using hematoxylin,-eosin, periodic-acid Schiff and masson trichrome staining. Immunohistochemical patterns were analyzed after staining with Leucocyte Common Antigen (LCA) or CD45, CD3, CD5, CD10, CD20, CD138 and smooth muscle actin (SMA). 6 punctae (3 upper, 3 lower) were separately processed for electron microscopic studies as per standard protocols.
Results: All punctae showed evidence of sub epithelial and sub conjunctival fibrosis. 30% (6/20) showed extensive fibrosis. Inflammation was noted in 80% (16/20) of the samples, however 20% (4/20) showed severe inflammation. Strong immunoreactivity was noted with CD45 and CD3 in 80% (16/20) with predominance in the sub epithelial areas. Focal immunoreactivity was noted for CD10, CD20 and CD138. Immunoreactivity was negative for CD5. Electron microscopic features include blunted epithelial microvilli, numerous fibroblasts, extensive and irregularly arranged collagen bundles, mononuclear infiltration in the vicinity of fibroblasts or in between collagen bundles and inter and intracellular edema in areas of inflammation.
Conclusion: Chronic inflammation and subsequent fibrosis appear to be the basic ultrastructural response to various noxious stimuli. Mononuclear inflammatory infiltration in the vicinity of fibroblasts could possibly reflect a close cellular interaction between the two.

Ptosis correction in ocular prosthesis wearers

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Ocular prosthesis wearers may be suffering from aponevrotic ptosis, often associated with volume deficit. Before operating ptosis is important to evaluate and eventually correct the volume deficit with a case sensitive strategy. If the patient wears a prosthesis on a subatrophic eye you must provide a prosthesis of an appropriate volume. In anophthalmic patient without implant you must place a secondary implant. In anophthalmic patient with inappropriate implant you must replace it with another of an appropriate volume. In case of appropriate volume, the prosthesis of patients with ptosis is often designed in such a way as to mask the effect of the lowering of the eyelid and that prosthesis is not adequate to properly run the surgery. Therefore, before proceeding to the corrective surgery, you must provide the patient a prosthesis specifically designed for the surgical action: this method enables you to obtain the idea of the correct position of the eyelid directly in the operating theatre and to give a better aesthetic effect right from the early postoperative. Ptosis surgery will be performed with the usual technique of aponevrosis repositioning.

The use of botulinum toxin in dystonia and eyelid malposition: our experience

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Introduction: Botulinum toxin can be a valuable aid for the treatment of dystonia and sore eyelid positions of varying degrees.
Patients and Methods: In clinical practice, we evaluated the efficacy of the treatment of blepharospasm, spastic entropion, cicatricial entropion, facial and eyebrows spasm with subcutaneous injections of botulinum toxin type A, repeated every three months, in 129 patients of both sexes (50 % of male and 50% of female, with an average age of 74 (± 12) years, performed approximately during 16 years, from November 1998 to June 2014.
Results: In our experience we have found a high compliance to treatment, and a significant improvement in both subjective and objective blepharospasm, malpositioning of the eyelid and ocular disorders related to them. In clinical practice, we could also detect an effective reliability in the use of botulinum toxin due to the fact that, during these years, almost negligible side effects have been discovered. Serious adverse reactions have never been verified.
Conclusion: According to our experience, the treatment of dystonia and some sore eyelid placements with repeated injections of botulinum toxin is to be taken into account for the high efficiency and proven reliability over the years.

Amount of eyelid levator tightening in relation to levator function, margin reflex distance and visual field modifications in congenital and involutional ptosis

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Purpose: To evaluate the surgical and functional outcomes of patients with congenital or acquired involutional blepharoptosis and to investigate the amount of levator tightening compared to pre and post-operative margin reflex distance (MRD1), interpalpebral fissure height (IFH), levator function (LF) and visual field.
Methods: Fortyeight eyes of 39 patients: 23 males and 16 females, affected by blepharoptosis who underwent to levator resection associated to 2 mm levator advancement, between April 2013 and June 2014, were included in this study. Pre and postoperative evaluation included MRD1, LF, IFH. A modified Humphrey visual field test was designed to assess the functional defect.
Results: The mean pre and postoperative MRD1 was 1,667 mm and 3,77 mm ($p < 0,01$), respectively, the superior field amplitude was 22,71°±11,80 before surgery and 32,29°±7,78 after surgery ($p < 0,01$). Mean sensitivity in the central 10° of the visual field was 21,54 ±6,95 dB preoperatively and 25,43±5,45 dB postoperatively ($p < 0,01$). A not significant improvement of visual acuity was observed. For every 1 mm of levator tightening (resection and advancement) the mean increase of MRD1 was 0.08mm.
Conclusion: The levator tightening provides satisfactory functional and cosmetic results in patients with congenital and acquired involutional blepharoptosis. This study suggests the predictable clinical outcome in relation to the amount of surgical levator tightening and preoperative parameters (levator function, MRD, IFH).

Prosthetic treatment in oncologic post-operated patients personal experience and review of the literature

Libera Carelli
Ocularistic by Ottica Sacco, Napoli, Italy

Purpose: The loss of an eye has a crippling effect on the psychology of the patient, making rehabilitation process challenging for doctor, prosthetist and patient. Attention to detail ensuring a successful ocular prosthetic rehabilitation must be considered a priority at the time of presurgery, surgery, and at every stage in fabricating the prosthesis. Teamwork between the surgeon and prosthetist will ensure an optimal surgical preparation and definitive prosthesis.
Findings: Evidence of interaction between team members can most certainly be encouraging to the patient. During the prosthetic phase of treatment, focusing on assessment, impression making, mold fabrication, familiarity with materials, appreciation of color, delivery of instructions, and patient education will ensure a satisfactory outcome. With the desire, determination, and encouragement from the restorative team to make the most of this artificial replacement, a patient can have a higher quality of life and a more normalized lifestyle.
Summary: This review presents current concepts regarding ocular prosthetic rehabilitation of patients with ocular and orbital neoplasm .

Unilateral extraocular muscles enlargement in suspected idiopathic orbital inflammatory diseases: retrospective case series

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Purpose: to describe a case series of suspected idiopathic orbital inflammatory syndrome (IOIS) with unilateral extraocular muscle enlargement.
Design: retrospective case series
Method: we collected the medical data of patients diagnosed with IOIS between January 2012 and July 2014, at our Orbit Outpatient Service. Data recorded included age at presentation, clinical and radiological assessment, histopathological results and treatment . Patients with a previously ascertained diagnosis of Thyroid Associated Orbitopathy (TAO) were excluded.
Results: we identified 18 cases of suspected IOIS with unilateral extraocular muscle involvement. 8 cases were males and 10 were females ranging in age from 12 to 68 years. The more common presenting signs were proptosis and extraocular motility limitation with diplopia. All the patients were submitted to MRI and incisional biopsy. 7 patients were diagnosed as having a systemic cause but none of them showed systemic symptoms. 2 patients were diagnosed to have methastasis. 1 patient developed a TAO.
Conclusions: IOIS is an uncommon but growing pathology. Unilateral extraocular muscle enlargement represents, together with lacrimal gland involvement, common signs. Biopsy is mandatory to exclude malignancies or other systemic diseases and to promptly give the more appropriate treatment .

Anaplastic meningioma of cranial base associated with orbital infiltration

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The anaplastic meningioma is the most rare form of meningioma (represent 2% of all meningiomas). It is characterized by a high biological aggressiveness. Its infiltration towards the orbit takes place in most case through the superior orbital fissure and lower, for that reason can determine a proptosis of the eyeball with permanent exposure of the cornea. The main goal of surgery is complete removal of the meningioma including its dural insertion and bone infiltrated often inducing severe mutilation of the eyelids and periocular region.In this case report was performedslippage of the temporal muscle ipsilateral to consolidate the structures behind residue eyelid compromised by surgical resection of the tumor, getting a satisfactory reconstruction of the eyelid and periocular area

A model for a custom fit orbital implant

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To determine the feasibility of a moldable model orbital implant.
In a live animal model, a sheep eye was eviscerated through a 180 degree limbal temporal incision. A medical grade liquid silicone compound was injected and allowed to polymerize, the limbal incision was closed. A Gunderson flap was fashioned, and a custom shape artificial eye was fitted. After 8 weeks artificial eye movement and socket shape where analyzed clinically. The orbit was subsequently exenterated to analyze biocompatibility of the compound. Ethical committee approval was obtained in accordance to Ministerial Decree relating to Animal Welfare.
The moldable silicone provided an excellent fill of the eviscerated scleral cavity. Closure of the eyeball proved to isolate completely the new orbital implant from the extra-scleral tissues. The socket showed adequate room for an Artificial Eye to be fitted as well as good movements. Histological examination of the orbital tissues showed minimal signs of inflammation.
This animal model proves that it is possible to implant a moldable orbital implant in an eviscerated eye.

Clinical presentation and treatment of dacryocystocele secondary to the orbit

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Purpose: To describe the clinical presentation and successful surgical management of four cases of congenital dacryocystocele that presented with extension to the orbital and periorbital regions.
Material and Methods: Retrospective chart review of four cases that were diagnosed and surgically treated for orbital and/or periorbital dacryocystocele extensions in two different centers. The first case was a 12-day-old newborn presenting with acute proptosis of the left eye secondary to complete orbital invasion of a congenital dacryocystocele. The second case was a 40 days old female with an anterior dacryocystocele that showed initial signs of orbital expansion and globe compression. The third case was a 9 day-old girl newborn with a prominent dacryocystocele of the lacrimal sac that developed into an acute cystic expansion and infection of the anterior lower orbit, lower eyelid and upper cheek immediately following overly forceful sac massage by the primary care physician. The fourth patient was a 7-month-old infant with a history of recurrent episodes of acute dacryocystitis

that began several weeks after birth and on presentation demonstrated a large dacryocystocele extending toward the orbit and ethmoid sinus.

Anatomical relationship of nasolacrimal duct and major lateral wall landmarks: a cadaveric study and surgical implications

M.J. Alì
India

Background: Detailed knowledge of the anatomical landmarks on the lateral wall is important for safe and successful endoscopic sinonasal surgery. This study's objective was to study the relationship of major landmarks to the nasolacrimal duct.
Methods: Twenty mid-saggital head sections of ten fresh frozen cadavers were studied after removal of the nasal septum. The insertion of the alar cartilage into the maxilla was taken as a fixed point and all measurements were performed in a defined axial plane at the level of natural maxillary ostium. Two surgeons independently recorded each measurement three times with an average of the readings used for statistical analysis
Results: The overall agreement index was excellent (r=0.84) between the observers. At the level of maxillary ostium, the mean distance to nasolacrimal duct (NLD) was 43.05 ± 4.76 mm on the right and 41.25 ± 4.56 mm on the left. The most anterior projection of the middle turbinate was in front of the NLD in 70% of specimens. In positional relationship, maxillary line was behind the NLD in 55%, whereas the bulla ethmoidalis and the free edge of uncinate process were behind the NLD in all the specimens.
Conclusion: This study provides useful anatomical and positional relationship of nasolacrimal duct and major lateral wall landmarks. Although the maxillary line and head of the middle turbinate are often considered as useful guides to the position of the nasolacrimal duct, their spatial relationship is not always consistent. They therefore cannot be solely relied upon during surgery to avoid injuring the nasolacrimal duct.

Electron microscopic features of nasal mucosa treated with topical and circumostial injection of mitomycin C (COS-MMC): implications in dacryocystorhinostomy

M.J. Alì
India

Aim: To evaluate the ultrastructural effects of topical and circumostial injection of mitomycin C (COS-MMC) on nasal mucosa and compare them with the controls. The study also aimed at classifying the sub cellular effects in detail.
Methods: The nasal mucosa of 6 patients were subjected to 0.02% of mitomycin C for 3 minutes (3 patients) and 0.02% COS-MMC (3 patients) as per standard protocol, during endoscopic dacryocystorhinostomy (DCR). Normal nasal mucosa from untreated areas (2 each from topical and COS-MMC groups) were taken as controls after harvesting the treated areas. 5 mm x 5mm tissues were collected for transmission electron microscopy and ultra structural effects were evaluated.
Results: Both topical and COS-MMC showed significant and distinct ultrastructural changes involving the epithelium, glandular, vascular and fibrocollagenous tissues as compared to the controls. There were profound changes within fibroblasts with intracellular edema, pleomorphic and vesicular

mitochondria, dilated smooth and rough endoplasmic reticulum and chromatin condensation. In addition, COS-MMC samples showed sub epithelial hypocellularity with limited disorganization of structure. The changes in the both the MMC groups were restricted to treated areas only.
Conclusion: Both topical and COS-MMC show profound changes in nasal mucosa with more marked changes in COS-MMC group. These changes being limited in nature may help in enhancing the success of dacryocystorhinostomy by preventing cicatricial changes of the ostium, especially in high risk cases like revision cases and post-traumatic DCR.

Botulinum toxin a injection to lacrimal gland for the treatment of epiphora in patients with bicanalicular obstruction

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Introduction: Epiphora is generally treated by conjunctivodacriyocystorhinostomy (CDCR) in patients with bicanalicular obstructions where recanalisation is not possible or it fails functionally. However CDCR tubes require life-long maintenance and irritation, inflammation and dislocation of the tubes are not infrequent. Lacrimal gland injections of Botulinum toxin A (BtxA) decrease tear secretion temporarily.
In this study management of epiphora with BtxA injections to the lacrimal gland in patients with bicanalicular obstruction is presented.
Methods: We included 25 eyes of 23 patients with bicanalicular obstructions where recanalisation was not possible or failed functionally. Patients with other causes of tearing such as dry eye, facial paralysis, eyelid-globe apposition abnormality and/or other ocular problems were excluded from the study group. Informed consents were taken. We injected 3 IU BtxA into the lacrimal gland of the affected eye. We questioned and recorded epiphora gradings subjectively according to Munk's scale and recorded tear break-up time (TBUT) also, before and 15 days after injections. The patients were also questioned fort he restart time of epiphora and willingness for reinjections for ongoing epiphora.
Results: All 25 eyes had Munk 3 or more tearing before BtxA injections. Complete relief of epiphora was noted in 84% of patients(Munk 0 in 21eyes/19pts). Partial relief of tearing in 12% (Munk 2:2eyes+ Munk 3:1eye) and no response to treatment in 4% (Munk 5:2 eyes) of patients were recorded after BtxA injections. Three patients had complained from foreign body sensation with low TBUT times (%12). Six patients (24%) had temporary blepharoptosis and recovered at 2 months. Twentyone patients wanted to have reinjections(91.3%).
Conclusion: Epiphora is relieved totally or partially with BtxA injections to the lacrimal gland in 96% of patients with bicanalicular obstruction. Dry eye symptoms and blepharoptosis may ocur. Reinjections of BtxA were demanded by 91.3% of patients.

Radiosurgery in dacryology

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Purpose. To summarize the outcome of long-term experience of the application of radio wave energy in dakriology practice.
Materials / Patients. The analysis of the treatment of 2,000 patients (37% men, 63% women, aged from 1 to 83 years) with various diseases of lacrimal apparatus: dakriostenosis, "dry eye", tumors, inflammation, etc.
Methods. For cutting and coagulation of soft tissue and vessels we used the generator of radiowave outage (3.8-4.0 MG), "Surgitron". Thus, the following types of operations and treatment: external, endonasal, transkanalikular dacryocystorhinostomy, as well as other types of lacrimonasal anastomoses, blocking lacrimal points and tubules, removal of adhesions, scars, tumors of various etiology and localization, activation of meibomian gland ducts. Selection of power, exposure, wave profile, the type of active electrode matched features of cut (coagulated) tissues.
Results and conclusions. The comparison of radio knife with other cutting tools has shown its high efficiency. Characteristic features of this method are: convenience, high precision cuts, good visualization, combination of cutting and coagulation, many variants of use, ideal surgical wound healing and low complication rate.

Diagnostic possibilities of single-photon emission computed tomography combined with computed tomography in dacryology

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Purpose: to study diagnostic possibilities of single-photon emission computed tomography combined with computed tomography (SPECT/CT) in the assessment of lacrimal pathways (LP).
Material and methods: we studied 10 scanograms of 5 volunteers without signs of lacrimal problems and 8 scanograms of 12 patients with epiphora. SPECT and CT were obtained using combined tomograph Symbia T16 *(Siemens,*Germany). According to our technique (patent RU № 2453338), LP were opacified with water-soluble contrast medium (CM). A series of sections was obtained using CT. Syngo system (*Siemens*. Germany) was used for superposition of SPECT and CT images. The location and the extent of stenosis of the LP were determined on the base of CT data analysis, the level of CM distribution in the LP – by SPECT and CT data fusion.
Results: the results in patients with disturbed LP patency were compared with those in patients without lacrimal problems. Stenosis of LP was diagnosed by SPECT/CT in 5 cases (stenosis of common canaliculus – 1, of lacrimal sac neck – 2, of nasolacrimal duct meatus – 2), the obliteration of LP – in 3 cases.
The study showed high diagnostic significance of SCPECT/CT in the detection of LP pathology, due to simultaneous study of anatomic and functional changes.

Biofilm Quantification on Nasolacrimal Silastic Stents following Dacryocystorhinostomy

M.J. Alì
India

Aim: The aim of this study was to examine the presence of biofilms and quantify their biomass on silastic nasolacrimal duct stents inserted after dacryocystorhinostomy (DCR).
Methods: A prospective study was performed on a series of patients undergoing DCR with O'Donoghue stents insertion. After removal, the stents were subjected to biofilm analysis using standard protocols of confocal laser scanning microscopy (CLSM) and scanning electron microscopy (SEM). These stents were compared against negative controls as well as positive in vitro ones established using Staphylococcus aureus strain ATCC25923. Biofilm quantification was performed using the COMSTAT2 software and the total biofilm biomass was calculated.
Results: A total of nine consecutive patient samples were included in this prospective study. None of the patients had any evidence of post-operative infection. All the stents demonstrated evidence of biofilm formation using both imaging modalities. The presence of various different sized organisms within a common exopolysaccharide matrix on CLSM suggested the existence of polymicrobial communities. The mean biomass of patient samples was 0.9385 μm3/μm2(range: 0.3901 to 1.9511 μm3/μm2).
Conclusions: This is the first study to report the quantification of biomass on lacrimal stents. The presence of biofilms on lacrimal stents following DCR is a common finding but this need not necessarily translate to post-operative clinical infection.

A very easy method to prevent nasolacrimal bicanalicular silicone tube prolapse: "Double- knot-fixation".

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The aim of this retrospective, randomised ,case controlled study is to present our novel and very easy method to prevent tube prolapse in lacrimal surgery .
Method: 155 eyes who underwent dacryocystorhinostomy with bicanalicular silicone intubation (bicanalicular Crawford intubation set), are included in this study. In group 1, silicone tube is tied on a square knot and left loose in the nasal cavity, in 57 eyes of 57 patients.
In group 2, x mm: distance from punctum to common canaliculus is measured in 58 eyes of 58 patients. Two knots are placed on the silicone tube 2x+5mm apart The silicone tube is passd and tied as in group 1. The tubes were removed at 3rd month, postoperatively.
Success rates of DCRs and complications related to silicone tubes are compared.
Results: The 2 groups were demographically comparable and DCR techniques and postoperative regimen were identical in groups 1 and 2. The follow up time was 6-12 months.
The success was 97.3 % and 96.7% in groups 1 and 2. ($p > 0.05$)
Inadvertent tube prolapse rate was 21.0% (12/57) , and 5.2% (3/58) in groups 1 and 2 ($p < 0.005$), mostly occurring in the first two weeks. Punctum slitting is observed in 5.2% (3/57) and 3.4% (2/58) ($p > 0.05$), in groups 1 and 2,respectively. No other complications, are observed.
Conclusion: The novel "double-knot- tube fixation" is an easy and effective tecnique , which reduces the incidence of silicone tube prolapse.

Ringintubation after Murube del Castillo, for treatment of lacrimal canal lacerations.

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Lacerations of the lacrimal canaliculi mostly result from blunt or sharp trauma of the medial lidangel. Challenge of the surgical treatment is the reconstruction of the lacrimal pump using microsurgical operation techniques with various silicone tube intubations.
Treatment options and operation techniques will be discussed with the examples of the patients treated in our clinic. The most favourable method of treating lacrimal canal laceratios in our clinic is Ringintubation after Murube del Castillo, that was introduced to us by the collegues from Münster Eye Clinic. A short video, 3,5 min , will be presented.

Our experience of probing for congenital nasolacrimal duct obstruction at various ages

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Our experience of probing for congenital nasolacrimal duct obstruction performed in the last 4 years at the Department of Ophthalmology, Ospedale Santa Maria della Misericordia, Perugia.
Congenital nasolacrimal duct obstruction is the most common disorder leading to epiphora in children and is usually due to failure of canalization of the nasolacrimal duct at its distal end.
In children with nasolacrimal duct obstruction we performed syringing and probing under general anesthesia.
Following the procedure, topical antibiotic drops were prescribed for 2 weeks. The patients were evaluated at 2 weeks and 12-24 months postoperatively. Successful probing was documented as complete remission of watering.
We analyzed the success rate of probing in various age group and the rate of intubation.

Modified intubation of lacrimal pathways in dacryostenosis

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Purpose: to increase the effectiveness and to decrease the time of intubation of lacrimal pathways (LP) in dacryostenosis.
Material and methods: 50 patients (58 eyes) with dacryostenosis underwent recanalization. Patients from Group 1 (25 patients, 28 eyes) had Ritleng recanalization. Patients from Group 2 (25 patients, 30 eyes) received a prepared stent ø0.64 mm with perforations at 3—4 mm intervals. The stent was inserted bicanaliculary, its ends were obturated with a silicone socket.
All patients underwent conventional postoperative therapy. Patients from Group 2 received gel-based antibiotic (patent RU №2479291) through the perforation in interpalpebral arch of the stent trice at 3 days intervals. During the intubation period, patients from both groups had seriate microbiological investigation of conjunctiva and cytological investigation of the LP content (patent RU №2348934). The time of extubation was fixed depending on these studies data.
Patients from Group 1 were extubated in 4—6 months (mean, 5.5 months). Patients from Group 2 were extubated in 3—4 months (mean, 3.3 months).
The follow-up in both groups was 12 months.

Results: in Group 1, the recovery was obtained in 20 cases (71.4%). In Group 2, the recovery was obtained in 24 cases (80.0%).
Conclusion: using of perforated stents allows to increase the effectiveness of LP recanalization in dacryostenosis and to decrease the intubation period.

Bony Nasolacrimal duct dehiscence in Functional Endoscopic Sinus Surgery: A Radiological Study and Surgical Implications

M.J. Alì
India

Aim: Nasolacrimal duct (NLD) injury is a possibility following sinus surgery. This study's objective was to analyze the radiological features of the bony nasolacrimal duct before and after functional endoscopic sinus surgery and document the incidence of surgically induced dehiscence.
Methods: A retrospective case series of 63 consecutive patients undergoing uncinectomy as a part of 118 functional endoscopic sinus surgeries (FESS) was conducted. All patients had pre and post-operative CT Scans. Demographic, radiologic and clinical information was recorded. Axial CT images at the level of maxillary sinus were evaluated for the presence of bony NLD dehiscence, osteitis and completeness of uncinectomy.
Results: 118 endoscopic uncinectomies were performed on the 63 patients. 59% (70/118) were performed in conjunction with a maxillary antrosotomy, complete sphenoethmoidectomy and frontal sinusotomy and 41% (48/118) as part of a maxillary antrostomy and anterior ethmoidectomy only. The rate of NLD dehiscence prior to surgery was 6.8% (8 of 118).NLD dehiscence as a consequence of surgery was observed in 3.6% (4/110) with a further 4.2% (5/118) showing post operative reactive bony changes of the NLD in the absence of dehiscence. No mention of the nasolacimal duct was made in any of the radiology reports pre or post-operatively.
Conclusion: This study documents radiological evidence of NLD injury in a moderately large series patients undergoing FESS. The incidence observed was lower than that previously reported in the literature. The Radiologists and the Otolaryngologists should be encouraged to examine for NLD dehiscence as part of their radiological assessment of patients undergoing FESS.

Endoscopic dacryocystorhinostomy and obstructive sleep apnea: the effects and outcomes of continuous positive airway pressure therapy

M.J. Alì
India

Aim: To assess the effects and outcomes of continuous positive airway pressure (CPAP) therapy for obstructive sleep apnea (OSA) in patients who have undergone endoscopic dacryocystorhinostomy (DCR).
Methods: A 10 year retrospective review was performed of 205 consecutive patients who had undergone powered endoscopic DCR for nasolacrimal duct obstruction. Patient notes were reviewed for demographic, clinical and surgical information. Records were also examined for a past diagnosis of obstructive sleep apnea and the management of this condition. In addition all patients were contacted and asked to complete a standardized telephone survey relating to OSA, CPAP use and associated symptoms.
Results: 10 of the 205 patients undergoing DCR were identified to use CPAP for obstructive sleep

apnea. The mean age of these patients was 55.3 years (range: 50-73 years). 4 patients had been diagnosed with OSA before DCR while the remaining 6 were not diagnosed until after the procedure. The mean time interval between OSA diagnosis and DCR was 3.7 years. The mean duration of CPAP use at the time of assessment was 18.8 months (range 1-48 months). 8 patients were initiated on a nasal device while 2 used a full face mask. The mean CPAP pressures were 8 cm H20 (range: 6-10 cm H20). 80% (8/10) of patients complained of symptoms from the use of their CPAP following DCR. The most commonly described symptom was that of air regurgitation in 70% of patients followed by ophthalmic symptoms in 60% (6/10). All the symptomatic patients underwent treatment for these symptoms and this included a change in CPAP device or reduction in pressure or the prescription of topical eye lubrication. 50% (5/10) of patients discontinued their CPAP as a consequence of their symptoms with 20% (2/10) discontinuing because of intolerable ophthalmic symptoms like irritation and dryness.

Conclusion: Symptoms from CPAP use post endoscopic DCR are a common occurrence and may contribute to poor compliance with CPAP therapy. Detailed pre-operative counseling with regards to CPAP use and its effects should be mandatory in known or at risk OSA patients undergoing DCR. CPAP patients should be monitored for symptoms following DCR and corrective measures instituted to reduce the chance of non compliance with treatment.

Outcomes of conjunctivodacryocystorhinostomy with metaireau tube

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Purpose: To investigate the surgical outcome of conjunctivodacryocystorhinostomy (CDCR) operation with Metaireau tube implantation.

Method: Eighteen patients with epiphora due to upper lacrimal system obstructions who had undergone CDCR with Metairaeu tube insertion between 2002-2012 were enrolled in this study where the diagnosis of upper lacrimal system obstructions were based on lacrimal system irrigation to confirm complete obstruction or insufficient tissue to perform canalicular reconstruction. Data patient charts were reviewed retrospectively to obtain data. Preoperative and postoperative epiphora were evaluated and compared by using Munk Epiphora Grading. Tube related complications were also recorded.

Results: Of the 18 patients, 7 were male and 11 were female and the mean age was 45,5 ±14,3. The most common etiology was unsuccessful dacryocystorhinostomy (DCR) (9 eyes, 50%), followed by trauma (27.7%), lichen planus, herpetic infection and systemic lupus erythematosus. After the surgery, the improvement of epiphora was statistically significant on each visit ($p < 0.0001$ for all of the controls, paired samples t test). At postoperative visits, tube dislocation was seen in 9 cases (%50) and obstruction of Metaireau tube because of granuloma formation was seen in 4 cases (%22,2).

Conclusion: Conjuctivodacryocystorhynostomy with Metaireau tube reduces epiphora in patients with canalicular obstructions. Tube complications such as tube loss and frequent obstruction with mucoid debris were prominent with Metaireau tubes.

Drainage and stenting of the tear ducts. Which is better?

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Russia

Purpose: To make the analysis of the effectiveness of drainage and stenting of lacrimal system in treatment of dakriostenosis.
Material 500 patients operated about the obstruction of lacrimal tract on different levels. For the prevention of recurrence of stenosis after elimination polyurethane or silicone tube were conducted to their lacrimal tract for different periods, depending on the specific clinical situation.
Methods: Patients were divided into two equivalent groups: the first group- patients after removing obstructions in the lacrimal ducts or forming an anastomosis whom we set bicanalicular stent, which was a hollow tube with a diameter of 1 mm, second - a similar tube, but with an oval hole in the middle of its wall sized 20 X 0,5 mm.
Results / Conclusions: The main complaint of patients of the first group was tearing and tears standing, which persisted while the stent filled the lacrimal tract. After the stent removing we carried medicinal washing 2-3 times a week for 1 month. In 72% of cases normal tear passage has been achieved. To the patients of the second group we performed drain lacrimal lavage through the window in the tube or retrogradely. Lacrimal drainage was effective in 82% of cases. In addition, significantly fewer patients of the second group complained on tearing during the period of the lacrimal drainage was in pathways. Thus, stenting and drainage comparable in effectiveness, but drainage opens additional opportunities for more effective treatment dacriostenosis.

Endonasal endoscopic dacryocystorhinostomy with the implantation of dacryostoma dilatator

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Purpose: evaluation of the effectiveness of dacryostoma dilatator (DD) in patients after endonasal endoscopic dacryocystorhinostomy (EEDCR).
Material and methods: the study comprised 52 patients (57 eyes) with lacrimal pathways (LP) obliteration: 37 females and 15 males aged 18—83 years. All patients underwent EEDCR. The patients were divided into 2 groups comparable by age and sex. Group 1 (25 patients, 25 eyes) had dacryostoma intubated with an original silicone DD (useful model patent RU №119999). The DD is constructed with two hollow cylinders. These cylinders are connected hermetically at an angle of 115—140°. Two orifices for the fixation are located on the posterior and the anterior walls of the bigger cylinder.
Group 2 (27 patients, 32 eyes) had dacryostoma intubated with Bika (FCI, France) and O'Donoghue stent (Beaver-Visitec, UK).
Results: in Group 1, "recovery" was obtained in 16 cases (64.0%); "improvement" – in 6 (24.0%), "recurrence" – in 3 cases (12.0%). No cases of intranasal synechia were seen.
In Group 2, "recovery" was obtained in 17 cases (53.1%); "improvement" – in 12 (37.5%), "recurrence" – in 3 cases (9.4%). Intranasal synechia developed in10 cases(31.3%).

Comparative proteomics of human tears and saliva in the context of transplantation of labial salivary glands to eyelids for severe dry eyes.

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We successfully employ transplantation of labial salivary glands, as pioneered by J. Murube, to treat patients with severe dry eyes at Miró Center (Mol, Belgium).
Our first employment of quantitative proteomics and peptidomics of tears and labial saliva yielded results which may have clinical relevance in this framework.
Initial "GeLC MS/MS" on quadrupole-TOF instrumentation identified a considerable number of proteins (81) common to labial saliva (191) and tears (132).
Immunohistochemistry using lacritin antibodies orthogonally validates the proteomics data suggesting that lacritin is secreted by labial salivary glands.
The beneficial effects of a transplantation might indeed (in part) be attributed to one of the well-known bioactivities of lacritin, i.e., to stimulate lacrimal gland secretion.
Novel quadrupole-orbitrap-based mass spectrometry equipment allows a much more sensitive analysis of tear proteins and peptides, so that individual clinical samples (healthy versus diseased) collected with Schirmer strips can be profiled.
We envisage that this could lead to more personalized treatment of dry eye patients in the future, including the application of novel peptide and/or protein additives to artificial tears and of innovative biomarkers to facilitate the differential diagnosis between the many subtypes of dry eyes.

Treatment of evaporative form of dry eye syndrome

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Purpose: elaboration of combined treatment of meibomian glands dysfunction in evaporative form of dry eye syndrome (DES).
Material and methods: we have treated 25 patients – 50 eyes (18 women and 7 men aged 60-82 years) using eyeglass device BLEPHASTEAM combined with Restasis. Paper rings inserted into the BLEPHASTEAM frame were moistened with Restasis – 4 drops per ring. The heating of the frame led to the agent evaporation and subsequent settling on the eyelids and eye surface. The influence was achieved with open eyelids for 10 minutes. The cycle of treatment – 20 sessions. The effectiveness of treatment and the indication for repeated cycle were assessed using Shirmer and Norn tests, tests with vital dye, impression cytology.
Results: the cycle of treatment led to the elimination of inflammation signs: relief of hyperemia and edema of the lid margin and conjunctiva, the restriction of newly formed vessels at the lid margin, the opening of the ostia and the restoration of secretion of meibomian glands, the absence of mucous filamentous discharge in cul-de-sac, the restoration of corneal epithelium.
Impression cytology revealed the increasing density of goblet cells of the conjunctiva (from 1-2 to 10-12 within sight). A significant increase of functional tear production indices was noted (=0.01). In the presence of direct positive relation, the coefficient of correlation for both eyes was R= +0.9. The effect persisted for 6 months.

Powered Endoscopic Dacryocystorhinostomy: a decade of experience

M.J. Alì
India

Aim: To report our decade long experience with powered endoscopic dacryocystorhinostomy (DCR).
Methods: A retrospective review of all consecutive patients undergoing powered endoscopic DCR's performed at our institution over a period of 11 years from 2002 to 2013. All patients completed a minimum of 3 months follow up following stent removal. Patient records were reviewed for demographic data, clinical and surgical profiles, adjunctive procedures, complications and success rates at last follow up. Anatomical success was defined as patent ostium on irrigation and functional success as free flow of dye into ostium on functional endoscopic dye test and resolution of epiphora.
Results: 283 powered endoscopic DCR's were performed on 214 patients. The mean age at surgery was 59.5 years (range 3-95 years). All patients presented with epiphora. 91.6% (196/214) patients had a primary DCR's and 8.4% (18/214) had a revision DCR. 50.4% (108/214) patients underwent adjunctive endonasal procedures. The mean follow up was 17.1 months (range: 3 -103 months). At the last follow up the final anatomical success was achieved in 96.9% of primary DCR's and 91.3% of revision DCR's. Functional success was achieved in 93% of primary DCR's and 86.9% of revision DCR's.
Conclusion: Powered endoscopic dacryocystorhinostomy is a safe procedure and offers excellent results both in primary and revision DCR's. The threshold to perform adjunctive endonasal procedures should be very low when indicated.

Endoscopic assessment of the dacryocystorhinostomy ostium after endoscopic surgery: behavior beyond 4 weeks

M.J. Alì
India

Aim: To assess the shrinkage of DCR ostium beyond 4 weeks after a powered endoscopic dacryocystorhinostomy.
Methods: Prospectively collected data of 60 consecutive powered endoscopic DCR's performed in 57 patients over a period of 10 years from 2002 to 2011 was analyzed retrospectively. Patient records were reviewed for demographic data, clinical profiles and surgical notes. All patients had regular follow up of 2 years post surgery. The ostium size at 4 weeks, 6 months, 1 year and 2 years were evaluated. Analysis of variance was used to compare the difference in the ostium sizes at specified time points.
Results: The mean age at surgery was 58.4 years (range 20-91 years). The ostium measured 11.25 mm (Standard deviation (SD) = 1.7; 95% confidence intervals (CI)= 10.80-11.69) x 7.07 (SD = 1.4; 95% CI = 6.71-7.42) at 4 weeks. It measured 10.48 mm (SD = 1.6; 95% CI = 10.06-10.90) x 6.65 mm (SD = 1.2; 95% CI = 6.34 – 6.95) at 6 months, 10.22 mm (SD = 1.5; 95% CI = 9.81 – 10.61) x 6.52 mm (SD = 1.2; 95% CI = 6.20-6.80) at 1 year and 10.15 mm (SD= 1.5; 95% CI = 9.76 - 10.53) x 6,45 mm (SD = 1.2; 95% CI= 6.14 – 6.75). There was no statistically significant decrease in either the ostium size or the area up to 2 years following surgery.
Conclusion: The ostium achieved using the powered endoscopic DCR technique remains stable in size from 4 weeks to 2 years post surgery. This likely reflects the advantages of this technique which facilitates healing by primary intention through the creation of a wide osteotomy and lacrimal/nasal mucosal approximation

8,5 Year experience with transcanalicular laser-assisted dacriocystorhinostomy (tcl-dcr)

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Purpose: To present 8,5 years of experience with minimally invasive TCL-DCR with a 980 nm diode laser.
Methods: We performed 456 consecutive TCL-DCR procedures with mono- or bicanalicular silicone stent intubation, under general or local anaesthesia. The silicone stents have been removed on average 4 months postoperatively and patency of the nasolacrymal duct has been assessed at up to 48 months follow-up. A 980 –nm diode laser was used, with a 200 or 400 micron optic fibre. The fibre is introduced with help of a semi-automatic handpiece with irrigation.
Results: 397 out of 456 procedures (420 patients) had a patent nasolacrimal duct after removal of the silicone stents yielding a success rate of 83%. Kaplan –Meier analysis shows good prediction of success rate of over 80% beyoind three years of follow-up.The average procedure time was 12 minutes, and 205 J of energy were used on average to perform a 5 mm osteotomy.
Conclusions: The 980 nm diode laser is an effective tool for TCL-DCR, with a success rate higher than other endoscopic DCR procedures. The procedure has a steep learning curve, it is quick, minimally invasive and has a relatively high success rate, good and predictable long-term results. Irrigation is essential for inflation of saccus and to avoid charing.

A case of dacryocystitis and epiphora following transcanalicular diode laser assisted dacryocystorhinostomy with a patent rhinostomy due to undiagnosed dacryolith in the lacrimal sac.

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Introduction: External approach for dacryocystorhinostomy (DCR) is a safe modality to detect and treat intrasaccal dacryoliths and tumors. In this study, a case of dacryolithiasis misdiagnosed as a failed external DCR is presented in order to emphasize the importance of dacryocystography before transcanalicular lacrimal procedures.
Methods: A 45 years old female patient previously treated with external dacrycystorhinostomy (Ext-DCR) for primary acquired nasolacrimal duct obstruction (PANDO) in a different surgical center was misdiagnosed as restenosis of the DCR ostium and underwent an uneventful transcanalicular diode laser assisted dacryocystorhinostomy (TDL-DCR). The patient was examined endoscopically after a year due to pain in the medial canthal area and persisting epiphora, dacryocystitis. Endonasal visualisation revealed a large dacryolith filling the entire ostium and sac. The dacrylith was removed mechanically with a forceps.
Results: The patient's complaints were relieved after the removal of the dacryolith.
Conclusion: The disadvantage of transcanalicular lacrimal procedures is the inability to see the content of the lacrimal sac completely, which can lead to neglected intrasaccal pathologies like dacryoliths, foreign bodies and tumors.

Surgical outcomes of primary and revision Endoscopic Mechanical Dacryocystorhinostomy

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Introduction: Endoscopic Endonasal Dacryocystorhinostomy is an alternative method to External Daryocystorhinostomy. In this study, we introduce our method and results of this technique.
Methods: In a prospective , nonrandomized study, 55 eyes (48 patients) with acquired nasolacrimal duct obstruction underwent endoscopic mechanical endonasal dacryocystorhinostomy (DCR) surgery. Data regarding the lacrimal drainage system, comprehensive eye examination, surgical outcome including subjective and objective results and complications during and after surgery were recorded. Irrigation tests were done 6 and 12 months after surgery.
Results: The technique will be shown. Eleven eyes had revision surgery. The mean follow-up time was 10 months (6-12 months). The objective success rate in irrigation test was 93% (51 of 55). The subjective success rate (much better or better improvement of symptoms after 6 and 12 months) was 92% .The complications include pain, echymosis, peribulbar edema and epistaxis.
Conclusion: There is a considerable difference in opinion regarding success rate of External DCR and Endoscopic DCR. In our experience, we had an acceptable success rate and results in endoscopic DCR. Some advantages of Endoscopic DCR include no facial scar, intact canthal ligament, intact physiological lacrimal pump and minimal blood loss. The main disadvantage of this operation is the learning curve time and cost of equipments.

Graves' Orbitopathy as an unrecognised factor in corneal ulceration

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Purpose: Exposure keratopathy and dry eye are recognised features of Graves' orbitopathy (GO). However, prominence of the eye is not always obvious to a clinician who has not previously seen the patient. GO should be considered when patients present with marginal keratitis or corneal ulceration.
Method: Four patients with corneal ulceration are presented.
1. An elderly lady with simultaneous dysthyroid optic neuropathy.
2,3. Developed marginal keratitis and were only subsequently diagnosed with GO.
4. This patient presented with a bacterial corneal ulcer that subsequently perforated, and corneal ulceration in the second eye. Whilst this was initially attributed to rheumatoid dry eye, she was later noted to have exophthalmos and it transpired that she had developed prominent eyes due to active GO several years previously.
Results: Treatments required in this series included orbital decompression, lid recession and tarsorraphy, all to address corneal exposure. These cases all illustrate the important role that exophthalmos and ocular surface inflammation due to GO can play in the aetiology of ocular surface disease. A literature review revealed a long-term follow-up study of GO showing that 72% of patients had dry eyes.
Conclusion: Exophthalmos secondary to GO does not completely resolve, particularly in moderate to severe disease. This case series highlights the need to have a high index of suspicion of GO in cases presenting with corneal ulceration and recognize the long term vulnerability of the cornea following GO.

Visual outcome in Graves' orbitopathy patients treated for DON.

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Singapore

Introduction: Dysthyroid optic neuropathy (DON) is a potentially blinding condition. This paper studied the visual outcome of patients with DON after treatment.
Methods and Materials: A retrospective review of all patients with DON managed at the Singapore National Eye Centre from 1st January 2002 to 31st December 2010 was performed. Patients received either medical or surgical treatment. The primary outcome measure was visual acuity after treatment. Secondary outcome measures included other parameters of visual function such as colour vision, visual field and field of binocular single vision.
Results: 31 patients were identified. 14 patients (19 eyes) received medical treatment and 17 patients (23 eyes) underwent external orbital decompression. Mean follow-up period was 3.6 ± 2.8 years. Patients in the surgically treated group presented later compared to the medically treated group ($p=0.012$). Mean pre-treatment logMAR visual acuity was 0.29 ± 0.18 for the medical group and 0.53 ± 0.48 for the surgical group. The final mean logMAR visual acuity for all patients with DON was 0.16 ± 0.24. For patients presenting with prior visual loss of many months, only a small improvement in visual outcome was seen.
Conclusions: Both medical and surgical treatments can be efficacious in restoring vision for patients with DON. Poor outcomes were associated with long term poor vision prior to presentation, indicative of an ischaemic component in optic nerve damage in these patients.

POSTER SESSION

Best tube radiological calculation in C-DCR candidate

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A new frontier in High Lachrymal Occlusion is the use of a new flanged tube in Conjunctival DCR surgery.
These tubes (Jones, Gladstone–Putterman) show an advantage to reduce incidence of extrusion usually from 10-40%.
The knowledge of best length of the tube to implant before surgery shows many utilities:
- predictable position in every anatomical conformation and consequently a better stability,
-shorter time of surgery (better in local anaesthesiology condition) -to avoid tubes storage of different measures -the possibility of surgery with disposable sets.
Usually in C-DCR the length of the tube has an intraoperative calculation in an open sky condition.
There are many anatomical variations of nose and para-nasal sinuses that can be found by the ENT specialist with a physical examination in a video rhinoscopy and in CT scan.
Before surgery, in all patient, a CT scan was performed utilizing our standard protocol for para-nasal sinuses study, with coronal and sagittal reconstruction Further, VR small parts dedicated protocol was used to create an anatomical model of face. On this model, we considered the lachrymal-jawbone suture and lachrymal caruncle as anatomical landmarks .
On coronal and sagittal views, the distance from lachrymal caruncle and nasal septum passing trough lachrymal bone was taken in order to customize best tube length . Then, proper angle of C-DCR tube in ipsilateral nasal cavity was calculated, usually 45°. The collaboration between ophthalmologist, ENT surgeon and experienced radiologist in order to optimize the proper calculation is essential.

Contraction of the lower conjunctival fornix in conjunctival hyperplasia secondary to external ocular prosthesis

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External ocular prosthesis is a medical device; it is made in compliance with the safety requirements regulated by law. The prosthesis has the function of protection and prevention of infection or ulceration of the orbital cavity and the eyeball residue also has a function of rehabilitative maintenance of muscle tone eyelid.
The construction technique and the materials used should exclude side effects such as allergy, compression of the soft tissues of the orbital cable, metaplastic or hyperplastic reactions that lead to the contraction of the anatomical spaces with subsequent extrusion of the prosthesis

A case of Agger nasi cell misinterpreted as a rhinostomy during transcanalicular diode laser assisted dacryocystorhinostomy

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Introduction: The most anterior ethmoid cells named as "agger nasi cells (ANC)" may be hard to notice in transcanalicular diode laser assisted dacryocystorhinostomy (TDL-DCR).
Methods: A 40 years old female patient with epiphora on her right eye underwent TDL-DCR. At the beginning of the surgery a dull guiding light of the laser probe was seen on the lateral medial wall which became sharper after the first few shots. No passage of irrigation fluid through the rhinostomy was observed.on lacrimal irrigation. A closer view of the rhinostomy revealed an ANC with a small lateral ostium connected to the lacrimal sac and a large medial ostium connected to the nasal cavity. After creating a new superiorly located rhinostomy, both ostiums were merged together and bicanalicular silicone intubation was performed.
Results: The silicone stent was removed on the postoperative first month and the patient was followed up for 12 months without recurrence of epiphora.
Conclusion: In Ext-DCR procedures ANC's are usually easy to see and to remove without hindering an healthy anastomosis between the lacrimal sac and the nasal mucosa. On the contrary, in TDL-DCR procedures ANC's can make the surgery difficult and complicated if they are not noticed or intervened using proper surgical techniques

Management of dysfunctional epiphora: Comparing the surgical outcome of bicanalicular silicone intubation, transcanalicular diode laser assisted dacryocystorhinostomy and external dacryocystorhinostomy.

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Aim: To compare the outcome of bicanalicular silicone intubation (BSI), transcanalicular diode laser assisted dacryocystorhinostomy (TDL-DCR) and external dacryocystorhinostomy (Ext-DCR) as the first choice of treatment of dysfunctional
epiphora.
Methods: The postsurgical success rates of the 3 groups were compared retrospectively from data charts.
Results: Data of 76 eyes of 72 patients were in demographically similar groups were analysed. Functional success rates were 62.5% in BSI, 66.7% in TDL-DSR and 82.1% in Ext-DSR groups at the 12.9, 18.8 and 18.4 months, respectively (p=.035 and p=0.045).
Conclusion: Ext-DCR group yielded a higher success rate compared to BSI and TDL-DCR groups for the treatment of dysfunctional epiphora. BSI may be the first choice of treatment as a minimally invasive procedure which eliminated the need for DCR in 62.5% of the cases.

Post-surgical scar in external dacryocystorhinostomy: is it a real problem?

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Background: External dacryocystorhinostomy (E-DCR) is still the gold standard in the management of primary acquired nasolacrimal duct obstruction (PANDO). It has a high surgical success rate, but scare tissue formation at the incision site may be a major drawback for patients.
Purpose: The aim of this study is to assess visual impact of post-surgery skin scars in E-DCR using an alternative suture technique.
Materials and methods: 40 patients who underwent E-DCR surgery at Ivrea City Hospital from January 2014 to June 2014 were considered.
Exclusion criteria: cases of dacryo-phlegmon and lacrimal sac fistulae with skin maceration.
The diagnosis of PANDO was clinically confirmed by preoperative lacrimal probing and lavage. All surgeries were performed under general anesthesia. Linear skin incisions were closed using an intradermic continuous 6/0 prolene suture.
All patients were operated on using the same surgical procedure. The linear skin incision was 12 mm in length an 8 mm medial to the medial canthus, with one third of incision lying above the medial canthal angle. The orbicularis muscle was dissected; after reaching the periosteum, the anterior lacrimal crest was exposed. H-shaped flaps were prepared on the lacrimal sac. The osteotomy was performed. H-shaped flaps were also prepared on nasal mucosa. Only the anterior flaps were sutured with separate 6/0 Vicryl sutures, creating an anastomosis between the lacrimal sac and the nasal cavity.
Postoperatively, all patients received the same topical antibiotic drops for 10 days and the same steroid nasal spray for 1 week. Sutures were removed on post-operative day 8.
The visual impact of post-surgery scar was assessed and the patients' degree of satisfaction was measured by means of a questionnaire.
Results: According to our experience, continuous intradermic suture enables the surgeon to achieve a barely visible scar, whose visual impact is very low. Patient satisfaction with the E-DCR scar in very high, with the majority considering the scar invisible.
Conclusions: Incisional scar tissue after E-DCR may represent a cosmetic problem for patients. Although endonasal endoscopic DCR is gaining clinical acceptance and popularity, E-DCR is regarded as the gold standard in terms of surgical success and with a high patient satisfaction. E-DCR should not be crossed out beforehand whenever aesthetic, visual effects were criteria in the choice of the surgical technique to be used in case of PANDO.

Balloon catheter dilation with nasolacrimal duct intubation for treatment of nasolacrimal duct obstruction in adults and children.

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Purpose: The aim of the study is to report the outcomes of balloon catheter dilation with nasolacrimal duct intubation for treatment of nasolacrimal duct obstruction in adults and children.
Materials and methods: Between January 2010 and December 2013 balloon catheter dilatation with nasolacrimal duct intubation was performed in 27 eyes of 26 adults (5 males, 21 females, mean age: 51,6 years old - SD 20,11) and 31 eyes of 27 children (16 males, 11 females, aged 10 to 90 months; mean age: 48,72 months - SD 21,24) with nasolacrimal duct obstruction. In all cases the procedure

was performed under general anaesthesia. The silicone tubes were removed 3,13 (SD 1.99) months after surgery in adults and 4,83 (SD 1,73) months in children. In adult patients the mean interval between the onset of epiphora and surgery was 4,82 (SD 5,15) years.
We evaluated the following parameters: epiphora before and after surgery, according to a scale proposed by Munk: from degree 0 (= no epiphora) to degree 5 (= constant tearing); the duration (months) of subjective benefit, the patency of the lachrymal ducts. Epiphora before surgery was at least grade 3 in all patients; treatment success was defined as absence of epiphora (Munk's degree 0 and 1). Follow up examinations were carried out 1 week, 3 months, and then every 12 months postoperatively. At each follow up, Munk's degree was determined, irrigation was performed, and complications were entered in a database.
Statistical analysis was performed using Student's t test.
Results: The mean Munk's degree of epiphora is decreased from 4,30 (SD 0,70) to 1,04 (SD 1,11) ($p < 0,00001$) in adults and from 4,72 (SD 0,53) to 0,69 (SD 1,28) in children ($p < 0,0001$). Treatment success was in 19 of 27 eyes (70,37%) in adults and in 21 of 31 eyes (80,65%) in children.
Conclusions: The obtained data show that in adult patients balloon catheter dilation appears to be an effective technique in resolving cases of epiphora due to recent onset nasolacrimal duct sub-stenosis.
The same procedure has also a good efficacy in the resolution of epiphora in cases of congenital stenosis of the lachrymal ducts, especially as a second procedure after failed probing or when epiphora is treated late.

Microbiological evaluation of a novel gauze formulation for the hygiene of the periocular area

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Periocular hygiene has an important role in the prevention and treatment of infections and disorders of the eye and eyelids. A variety of products specifically formulated for eyelid hygiene are available and effective in reducing the microbial burden of this area. However, most of them contain chemical compounds that can be toxic or exert a sensitizing effect on the eye. In this study, we evaluated sterility and antimicrobial activity of a novel formulation of wet gauzes containing Aloe vera and hyaluronic acid and lacking compounds potentially toxic to the eye.
Gauzes' sterility was evaluated testing for aerobic and anaerobic bacteria, as well as for fungi. Antimicrobial activity of the gauzes was estimated by the CLSI broth method and by the antimicrobial effectiveness test (US and European Pharmacopoeias) against bacterial and fungal strains.
The results obtained indicate sterility of the formulation and demonstrate that the gauzes possess antimicrobial activity against bacteria and yeasts commonly found in the periocular area. Microbial death curves obtained following deliberate contamination of the gauzes' solution revealed a strong bactericidal and fungicidal activity of the formulation.
Taken together, our findings suggest that the novel gauze formulation herein tested can be a useful and non-toxic medical device for the hygiene of the periocular area.