

# 118. Kongress der Deutschen Ophthalmologischen Gesellschaft

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Berlin

## Wissenschaftliches Programm

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### Friday, 09. October 2020

ISOT

13:30 - 14:15

Channel Helmholtz

### ISOT-02 Diagnostic measures in ocular trauma

Vorsitzende/r: Ameli Gabel-Pfisterer, Potsdam

Vorsitzende/r: Hugo Ocampo, Cali, Colombia

Vorsitzende/r: Zlatko Slezak, Vara, Croatia

ISOT-02-01 **Clinico-radiological study of RTA related Orbital Fractures: A teaching hospital survey** 13:30 - 13:35

Referent/in: Rajendra Prakash Maurya, Varanasi, India

**Background:** Road traffic accident (RTA) is a major health problem, causing high rates of mortality and morbidity. Orbit is most commonly fractured facial bone in RTA and often associated with blindness. In this study we evaluate the epidemiology, clinico-radiological pattern, severity and outcomes of RTA related orbital trauma.

**Materials and methods:** We reviewed 224 cases of orbital trauma due to RTA. The data retrieved including patients demographics, details of accident (type of road, vehicle & passenger) details of injury (fracture type, associated injury & radiological findings), treatment offered and final outcome.

**Results:** Out of 224 patients, 80.36% were males. The commonest affected age groups was 16 to 30 years (34.82%). 41.07% were from rural background. Commonest fate of accident was collision with vehicle / object (67.41%). 51.34% had frontal & 42.86% had side impact. Common risk factors were night driving, alcohol consumption, bad condition of road & vehicle. Majority (66.07%) had Maxillofacio-orbital trauma. Commonest orbital fracture was floor (29.90%) followed by medial wall (24.11%) and roof (17.86%). 77.23% had  $\geq 2$  orbital wall fracture and 20.09% had bilateral involvement. 36.16% had complex & comminuted fracture. 17.41% had open globe injury. Majority required miniplate fixation (24.11%) & floor implant (22.32%). 19.20% had blinding outcome most of them had  $\geq 3$ , In 17.41% cases injuries were fatal.

**Conclusion:** Victims of RTA had poor visual outcome due to severe trauma. Visual outcome related with number of orbital wall fracture. Immediate treatment is necessary.

ISOT-02-02 **Peculiarities of diagnostics, clinical progression and treatment of eye and orbit injured with fragments of wood** 13:35 - 13:40

Referent/in: Nataliia Bondar, Odessa, Ukraine

**Relevance:** Presence of wood in the tissues of the orbit, unlike its localization in the eye, can be asymptomatic for a long time.

**Purpose:** Presenting the peculiarities of the clinical findings, diagnostics, approaches to removing wooden FBs, depending on their localization.

**Material and methods:** Clinical findings and treatment of 6 patients (6 eyes) with the eyeball and orbit injury and the introduction of wooden fragments are presented. In 2 eyes, the injury was corneal. On one eye, a scleral injury with the introduction of FB into the vitreous was observed. On 3 eyes, a lower eyelid injury with the introduction of FBs into the tissues of the orbit was observed.

**Results:**

Case No. 1. FB, located in the cornea, was removed with approximating forceps. Visus (Vis) = 1.0.

Case No. 2. At admission, the corneal injury edges were infiltrated, hypopyon, the FB was located on the iris and partially introduced in the lens. Primary surgical treatment (PST) of the corneal injury, removal of the FB (1.5x5.0 mm) and lavage of the anterior chamber with vancomycin and ceftazidime solutions were urgently performed; 3 days later, a 3-port lensvitrectomy (LVE) was performed. Vis - correct light projection.

Case No. 3. At the place of residence, the PST of scleral injury was carried out. IFB was not detected. In the institute, in connection with the developed endophthalmitis, a 3-port 23g VE, removal of the FB (0.7x9.0 mm) followed by anti-inflammatory therapy were performed; Vis increased to 0.3.

Intraorbital FB was removed through the injury of the conjunctiva in the region of the medial angle of the eye in one case and through the incision of the lower eyelid skin in the fistula area in two cases. In the first case, at admission, the ocular motility was limited in all directions; the eye was dislocated outward, deformed. At discharge, Vis - 0.7. In the 2nd patient, the FB remained in orbit for 28 years with no symptoms and with the preservation of good visual function. In the 3rd patient, in the early stages after the injury, a decrease in visual function was observed due to the involvement of the optic nerve.

**Conclusion:** Careful medical history taking, clinical symptoms, careful slit-lamp biomicroscopy and ophthalmoscopy, intraoperative surgical revision are very important. CT is the method of choosing "visualization" in cases of suspected presence of a wooden FB in the eye cavity or in the orbit.

ISOT-02-03 **Glaucoma after ocular trauma: Mechanisms and prevention** 13:40 - 13:45  
Referent/in: Eleftherios Paschalis Ilios, Boston, United States

**Introduction:** Long-term glaucoma after severe ocular trauma (chemical or mechanical) occurs frequently and is often difficult to treat with standard anti-glaucoma measures.

**Objectives and Aims:** To review evidence of a non-IOP-mediated rapid and inflammatory pathway to retinal ganglion cell apoptosis and irreversible glaucoma - and to propose prophylactic treatment.

**Methods:** In a series of studies on ocular trauma and corneal surgery, molecular mechanisms and the role of TNF- $\alpha$  and other inflammatory cytokines have been analyzed. Prophylactic anti-TNF- $\alpha$  antibodies have been evaluated for efficacy and safety in animal experiments.

**Results:** Immediately following trauma or surgery, in experimental animals, TNF- $\alpha$  is massively upregulated in the anterior segment. From there it diffuses posteriorly within hours or a few days and causes retinal ganglion cell apoptosis - the hallmark of glaucoma - while IOP is essentially normal. Prompt administration of the TNF- $\alpha$  antibodies infliximab or adalimumab can markedly prevent damage to the neuroretina.

**Conclusion:** In addition to IOP-mediated glaucoma after ocular trauma, it must now be suspected that a rapid, inflammatory, IOP-independent pathway to glaucoma kicks in immediately after the accident. Prompt prophylactic administration of anti-inflammatory medication (in particular biologics) are markedly neuroprotective in animals. In addition, carbonic anhydrase inhibitors are recommended prophylactically to keep IOP at the lowest safe level for months. With this modified regimen it might be possible to reduce post-traumatic glaucoma substantially.

ISOT-02-04 **Repositioning a luxated globe - A necessary evil - Video** 13:45 - 13:55  
Referent/in: Sahil Agrawal, New Delhi, India

**Purpose:** To describe a simple technique for repositioning globe in cases with traumatic luxation so that the case is managed by the primary surgeon and thereby prevent any unnecessary delay and wait for the case to be managed at a higher centre.

**Method:** Orbital exploration under local anaesthesia (Frontal nerve block and van Lint facial nerve block) was done. Assessment of orbital wall, periorbita, EOM and optic nerve injury was first carried out. The globe was then re-positioned into the orbit by applying gentle pressure antero-posteriorly. This maneuver was facilitated with the use of two Desmarrers retractor underneath upper and lower eyelid which helped in guiding the globe to its normal position. A temporary suture tarsorrhaphy was then done to support the globe. The associated lid and eyebrow laceration was repaired using 6-0 silk. A 5 day course of oral antibiotic along with topical antibiotics was prescribed.

**Result:** On a 8 week follow up, the globe was well placed with no residual proptosis and relatively good cosmesis. A fundus examination showed that excavated defect in the disc area persisted with marked peripapillary gliosis. Although the vision did not improve in the affected eye, the ocular movements were adequate in all gazes except restriction on adduction with right exotropia. The other eye remained unaffected with a vision of 6/6.

**Conclusion:** A simple maneuver of gentle backward pressure applied to globe with forward traction on eyelids at the same time, helps in easy repositioning. Therefore, even a general ophthalmologist should know it and thereby prevent any unnecessary delay and wait for the case to be managed at a higher centre.

Prompt reduction results in restoration of full anatomical, functional, and visual recovery in otherwise healthy eyes. Further it prevents ischemia of globe and development of phthisis bulbi, important for cosmetic rehabilitation.

Referent/in: Andrea Huth, Halle/Saale

**Hintergrund:** Jedes Jahr zu Silvester werden durch Feuerwerkskörper neben Händen und Gesicht vor allem schwere Verletzungen der Augen verursacht. Diese reichen von einfachen oberflächlichen Verletzungen bis hin zu schwersten Traumata, die einer aufwändigen und zum Teil wiederholten operativen Versorgung bedürfen. Folgen dieser schweren Traumata sind nicht nur funktionelle und kosmetische Beeinträchtigungen für den Patienten, sondern auch sozioökonomische Auswirkungen wie z.B. Arbeitsunfähigkeit und Minderung der Erwerbsfähigkeit. Die Deutsche Ophthalmologische Gesellschaft führt seit 3 Jahren eine deutschlandweite Datenerhebung durch. Die Deutsche Umwelthilfe hatte für Silvester 2019 ein Innenstadt-Böller-Verbot in 98 Städten beantragt, umgesetzt wurde es in 39 Innenstädten. Eine Novellierung des Sprengstoffgesetzes ist erst für 2021 geplant.

**Material und Methode:** Die Feuerwerksverletzungen an unserer Universitätsaugenklinik der Jahre 2008 bis 2019 wurden retrospektiv untersucht und systematisch ausgewertet. Die Patienten wurden bezüglich Alter, Geschlecht, Seitenverteilung, Art der Verletzung, Begleitumstände, Art der Behandlung, Folgen und Dauer der Arbeitsunfähigkeit analysiert.

**Ergebnisse:** Vom Jahreswechsel 2008/2009 bis zum Jahreswechsel 2019/2020 wurden 141 Patienten mit 172 Augenverletzungen vorgestellt (96 männliche Patienten = 68%, 45 weibliche Patienten = 32%, 55 Kinder im Alter <18 Jahren = 39%). 49% der Patienten hatten den Feuerwerkskörper selbst gezündet, 51% waren sogenannte „Bystander“. Am häufigsten waren Verletzungen durch Knaller mit 37% vertreten.

44 Patienten wurden stationär behandelt, 18 Augen mit einer sofortigen operativen Intervention. 3 Augen benötigten eine chirurgische Intervention zu einem späteren Zeitpunkt. 15 Augen mussten mit mehrfachen Eingriffen versorgt werden. Insgesamt erblindeten 4 Augen infolge der Feuerwerksverletzungen.

**Schlussfolgerungen:** Die erhobenen Daten korrelieren gut mit den Dreijahresergebnissen der deutschlandweiten Umfrage der DOG. Mit 25 Patienten war der Jahreswechsel 2019/2020 in Halle der bisher verletzungsintensivste. Auffällig war auch eine deutliche Zunahme der Schwere der Verletzungen durch zu früh explodierende Feuerwerksbatterien. Trotz vermehrter Öffentlichkeitsarbeit in Deutschland haben sich die mitteldeutschen Städte nicht am Böller-Verbot in den Innenstädten beteiligt, so dass für den kommenden Jahreswechsel mit einer weiteren Zunahme an Feuerwerksverletzungen gerechnet wird.

Referent/in: Ameli Gabel-Pfisterer, Potsdam

**Background:** Direct impact of fireworks can cause devastating structural damage to the eyeball. But even incidents with lower energy can lead to superficial injuries with consequences on visual acuity.

Our aim is a continuous national survey on patients with eye injuries due to fireworks who present at German eye departments and hospitals around New Years Eve. Data are needed to increase awareness of risks and to prove relevance of prevention. In longterm we are able to report numbers and assess changes in regulations and behavior of consumers.

**Methods:** All German eye departments were prospectively asked for anonymized data by an electronic case report form on age, sex, severity and therapy required and the incident.

**Results:** For the last 4 New Year Eves we have consecutively collected data from 41 eye departments in 16/17, 49 (17/18) 51 (18/19) and 59 in 19/20. The total number of patients were 350 (16/17), 518 (17/18), 488 (18/19) and 480 (19/20).

Over four years we observed stable patterns: roughly 40 % were minors. One fourth of injuries were severe and required admission to hospital care and were estimated to have a 40 % risk of sustained reduction of visual acuity. Roughly 75 % of injuries were less severe with ambulatory therapy for mainly superficial injuries. Most injuries were caused by fire crackers in minors, and rockets in 40 % of adults. Roughly 60 % of patients reported on having been injured not self-inflicted.

**Conclusion:** We reviewed data of 1836 patients. Minors and bystanders are overrepresented and roughly 25 % of patients suffer from severe eye injuries. We see good reasons for increasing awareness, improving protection and restrictions on consumer fireworks in order to decrease numbers of those avoidable injuries.

Studies from Holland and Finland demonstrate a clear impact of public campaigns and legislative regulations. The ICO has thus appealed to all national societies to engage for a worldwide ban of consumer fireworks.

Referent/in: Matteo Forlini, San Marino, Italy