## 10:00 AM

# Fluorescein Angiographic Findings in Spontaneously Regressing Stage 1 or 2 Retinopathy of Prematurity


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**OBJECTIVE** Show the angiographic findings of patients diagnosed with regressed stage 1 and 2 ROP

**PURPOSE** To correlate the clinical and fluorescein angiography (FA) findings in infants with mild, retinopathy of prematurity (ROP) that underwent spontaneous regression

**METHODS** Retrospective case series of infants who underwent FA for clinical evaluation of stage 1 or 2 ROP which eventually regressed spontaneously. Retinal images and FAs were captured using a wide-angle device (RetCam-II; Clarity Medical Systems, Pleasanton, CA) under topical anesthesia. An intravenous injection of 10% solution of fluorescein, with total dosage 0.1 ml/kg, was used. Infants noted to have macular abnormalities underwent additional imaging with optical coherence tomography (OCT)

**RESULTS** Twenty eyes diagnosed as ROP stage 1 in zone II (4 eyes), stage 2 zone II without plus disease (6 eyes), stage 1 zone III (8 eyes) and stage 2 zone III (2 eyes) were studied. Patients diagnosed as stage 2 showed a junction between vascular and avascular retina with diffuse leakage similar to a pathological neovascularization, capillary free zones in the newly developing area, dilatation of vessels and irregular vessels branching near the ridge. In stage 2 patients aforementioned regressed to stage 1, some areas of hypoperfusion with perivascular hyperfluorescence regressed completely. FA showed variability in retinal circulation and choroidal filling in stage 2 and persisted after regression to stage 1. In the macular zone, areas of hyperfluorescence in a pattern that suggested an exudative macular pathology where found. No abnormalities in macular architecture were noted on OCT imaging. Once the retinal vasculature reached the ora serrata, the vascular abnormalities regressed

**CONCLUSION** Using FA, we were able to distinguish the developing pattern of retinal vessels and assess vascular leakage. We identified changes in capillary beds and other hypoperfused areas of the retina and choroid, and recognized angiographic features of the junction zone between the vascularized and non vascularized retina.

**TAKE HOME MESSAGE** Important fluorescein angiography data is observed in regressed ROP

## 10:08 AM

# Safety and Efficacy of 137 Intravitreal Bevacizumab Injections Without Laser as Primary Therapy for ROP With 5 Years of Follow-Up


- Alay S. Banker, MD



**OBJECTIVE** To study the long-term efficacy and safety at 5 years follow-up of Intravitreal Bevacizumab without laser as primary therapy for ROP.

**PURPOSE** What is the the long-term (5 years follow-up) efficacy and safety of intravitreal Bevacizumab alone without laser as primary therapy for retinopathy of prematurity (ROP)?

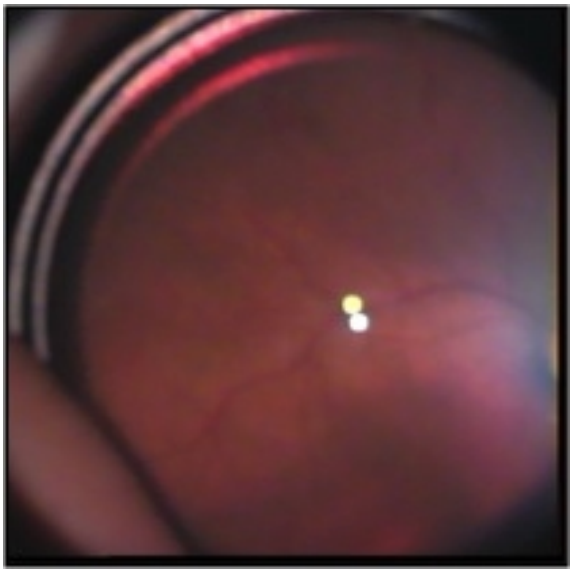
**METHODS** 137 eyes (88 patients) with mean gestational age of 27.95 weeks and mean birth weight of 1241 grams received single intravitreal Bevacizumab (0.625mg/0.025 ml) without laser as primary therapy for threshold ROP disease with or without plus

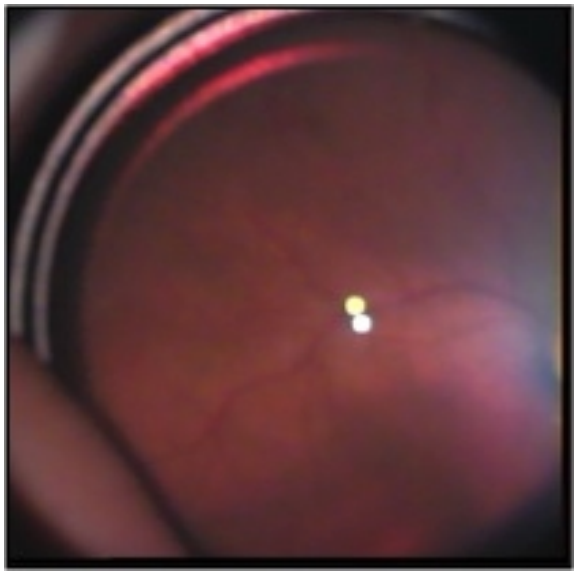
disease. Regression of ROP and adverse ocular/systemic events were evaluated at 5 years follow-up. ERG, VEP and development quotient analysis were also performed.

**RESULTS** All eyes had complete regression of ROP and prompt resolution of plus signs and neovascular proliferation after just single injection. ERG & VEP were normal. 8(6%) eyes had persistent peripheral avascular retina. 3 eyes has flat fibrous tissue nasal to disc, sparring the macula. 1 patient had some degree of psychomotor developmental delay in D-Q analysis.

**CONCLUSION** Intravitreal Bevacizumab without laser is a safe and effective treatment option as primary therapy in severe ROP.

**TAKE HOME MESSAGE** Intravitreal Bevacizumab may be useful as a primary therapy without any laser in a certain defined group of ROP cases and does not cause any ocular or systemic side effects





## 10:16 AM

# Systemic and Ocular Adverse Events After 334 Injections of Intravitreal Bevacizumab in the Treatment of ROP: 5-Year Follow-Up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- Lihteh Wu, MD
- Alay S. Banker, MD
- Andres Kychenthal, MD
- Paola Dorta, MD
- Robison V.P. Chan, MD
- Hugo Quiroz-Mercado, MD



**OBJECTIVE** To report the ocular and systemic adverse events associated with intravitreal bevacizumab in the treatment of ROP.

**PURPOSE** The purpose of the current study is to present our experience using intravitreal bevacizumab for the treatment of ROP with specific attention to the ocular and systemic adverse events associated with this treatment.

**METHODS** Open label, uncontrolled, interventional retrospective study. We included 334 eyes of 212 consecutive patients treated with intravitreal bevacizumab for ROP during a 5-year period in 3 centers of 3 different countries. Systemic and local adverse events associated with this treatment were collected and analyzed. Follow-up was at least 3 months.

**RESULTS** A total of 68 local adverse events including worsening of the retinal detachment, elevation of IOP, peripheral fibrous avascular membrane, vitreous hemorrhage, and avascular periphery. Systemic adverse events included 3 deaths that apparently were not related to intravitreal bevacizumab.

**CONCLUSION** After 5 years of follow up, intravitreal bevacizumab appears to be safe for ROP, with treatable ocular adverse events. Systemic abnormalities may be sequelae of prematurity itself and not related to the medication. Longer follow-up is needed.

**TAKE HOME MESSAGE** The use of intravitreal bevacizumab appears to be safe for type 1 pre-threshold and threshold ROP.

## 10:30 AM

# Late Complications of Non-enzymatic Vitrectomy in Infants


- Michael T. Trese, MD



**OBJECTIVE** Ocriplasmin-assisted vitrectomy in infants may reduce late complications.

**PURPOSE** This paper will demonstrate how the use of ocriplasmin as a surgical adjunct in infants may eliminate late hyaloidal contraction and posterior vitreous separation.

**METHODS** Case presentations demonstrating the potential benefit of ocriplasmin as a surgical adjunct in infants. The mechanism of action and the pathophysiologic explanation as to why ocriplasmin intervention may be of value will be described in both human and animal studies.

**RESULTS** Ocriplasmin adjunctive surgical therapy can cause complete posterior vitreous separation and reduce or eliminate hyaloidal contraction and late posterior vitreous separation eliminating the need for repeat vitreous surgery.

**CONCLUSION** Ocriplasmin as a surgical adjunct in vitrectomy in infants can eliminate the need for late vitrectomy to treat a separated or contracted hyaloid.

**TAKE HOME MESSAGE** Ocriplasmin-assisted vitrectomy in infants may reduce late complications.

## 10:34 AM

# Candida Lens Abscess in Premature Infants


- G. Baker Hubbard, MD



**OBJECTIVE** Candida sepsis in neonates may result in seeding of the lens and abscess formation.

**PURPOSE** To present the clinical features of 3 premature infants who developed lens abscess after candida sepsis and to graphically illustrate the presumed pathogenesis of this condition.

**METHODS** Institutional review board approval was obtained for this retrospective review. A medical illustrator was employed to create a diagram illustrating the presumed pathogenesis of this condition. Previous medical literature consisting of fewer than 10 cases of fungal lens abscess in neonates was reviewed.

**RESULTS** Three consecutive premature infants with Candida lens abscess were identified. All 3 were hospitalized in the neonatal intensive care unit and all 3 had blood cultures positive for Candida. Signs of lens abscess developed 21 weeks, 10 weeks, and 54 weeks after episodes of sepsis in each of the 3 patients respectively and consisted of posterior synechia, leukocoria, cataract, and eye redness. All patients were treated with lensectomy and vitrectomy. Two patients received intravitreal antibiotics. Cultures of lens material revealed Candida species in each case. With follow-up of 3 years, 11 years, and 2 years respectively, visual acuity outcomes were LP, CF, and NLP for each patient. One patient developed phthisis bulbi.

**CONCLUSION** Premature infants may develop lens abscess after episodes of Candida sepsis. Abscess formation may be related to regression of tunica vasculosa lentis before adequate treatment. Signs of infection may be unrecognized for many weeks after the

episode of sepsis. Increased awareness of this condition may improve early detection and treatment.

**TAKE HOME MESSAGE** Premature infants with Candida sepsis may develop lens abscess.

## 10:38 AM

# Digital Fluorescein Angiography-Guided Treatment for Pediatric Retinal Diseases


- Audina M. Berrocal, MD, FACS
- Timothy G. Murray, MD, MBA
- Andres Emanuelli, MD
- David W. Parke, MD
- Ditte Hess, CRA



**OBJECTIVE** Look at the benefits of fluorescein angiography in the diagnosis and treatment of pediatric retinal diseases.

**PURPOSE** To look at the use of digital fluorescein angiography for the diagnosis and treatment of pediatric retinal diseases such as familial exudative vitreoretinopathy (FEVR), incontinentia pigmeti (IP), Coats' disease and retinopathy of prematurity (ROP).

**METHODS** IRB approved, retrospective chart review of pediatric retinal diseases diagnosed and guided treatment by fluorescein angiography. We used digital fluorescein angiography photography (RetCam, Clarity, Pleasanton, CA) in the operating room during examination under anesthesia in children. We looked at 10 cases of FEVR, 5 cases of Coats' disease, 2 cases of IP and 3 cases of bevacizumab treated ROP.

**RESULTS** We conclude that fluorescein angiography in the operating room is essential the the time of diagnosis and treatment of pediatric retinal diseases. Fluorescein angiography aids in the diagnosis of nonperfusion and leakage in patients noted to be stable on clinical examinations.

**CONCLUSION** Fluorescein angiography should be part of the diagnosis and treatment of children with peripheral avascular retinal diseases.

**TAKE HOME MESSAGE** Fluorescein angiography in the operating room should be consider when doing an examination under anesthesia in a child with peripheral retinal disease.