Residents Day American Academy of Optometry San Francisco 2010  
Grand Rounds Case Submission  
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Abstract:  
Monocular patient presents with initial complaints of irritation induced by prosthesis. Annual exam is performed and mild retinopathy noted. She returns one week later with transient vision loss and diagnosis of macroaneurysm overlying optic nerve.

I. Case History

Patient Demographics:
58 yo Hispanic female

CC/HPI first visit:
1. “Burning, irritating prosthetic eye,” reports moderate discharge, difficulty inserting prosthetic with associated bleeding of lid margins for one week. States she has been cleaning prosthetic with tap water approximately twice per month.

CC/HPI second visit (1 week later):
1. Tissue surrounding prosthetic eye is feeling better, but still significant discharge. She reports she has been removing and cleaning daily as well as compliance with all medications previously Rx’d.

2. Annual diabetic eye exam for left eye. No significant change in vision and feels diabetes is well controlled. No known history of retinopathy. Reports she recently visited with primary care provider for annual diabetes exam; states labs were drawn, but her overall impression from physician is diabetes is well controlled.

CC/HPI third visit (2 weeks after initial visit):
1. Patient in for follow up on prosthetic eye/infection. No significant changes. Reports compliance with medications.

2. States the day before she was sitting down and felt her vision go “oily” for approximately an hour causing a severe reduction in vision which spontaneously resolved; associated symptoms included floaters. States this is first occurrence and denies any unusual activities, trauma to eye, change in subjective systemic health, headaches, or jaw claudication.

Ocular History:
-Trauma to right eye at age 23 resulting in enucleation/prosthetic eye.
-Prosthesis is reported to be 35 years old, prosthetic fit by ocularist in Mexico.
-Uknown last eye exam, reports no history of any other ocular findings/abnormalities.

Medical History:
(+ ) HTN, Hypercholesterolemia, Type 2 DM x 7 years, Arthritis, Anxiety, Depression

Medications:
-Lisinopril, Metformin, unknown blood pressure medication.

Salient Information:
-Patient does not check own blood sugar and does not know her last A1c, however was seen at primary care during course of treatment who reported to patient she has adequate control of diabetes.
-She reports she is currently living with daughter and is unemployed.
-No health insurance, patient receives health care assistance through government funded program
-Patient is Spanish speaking and all exams are performed via translation.

II. Pertinent findings
Visit 1:
Right Eye:
- Anterior Segment: ptosis superior and inferior, eyelashes matted to prosthetic, petechial hemorrhages with desiccated blood along lid margins.
- Full Thickness Prosthesis:
  Anterior surface: abrasions with desiccated blood. (Photo 1)
  Posterior surface matted with mucous discharge.
- Orbital tissue: 1+-2 mucous discharge and injection of vasculature. (Photo 2)

Left Eye:
Uncorrected Distance Visual Acuity: 20/25+2
IOP: 18 mmHg
EOM: no restrictions
Confrontation visual field: full to finger count
Pupils: round, reactive to light
Anterior Segment: Pterygium extending 1 mm onto cornea nasally, otherwise unremarkable.
Posterior segment evaluation deferred.

Visit 2:
Right Eye: No change from previously listed above.
Left Eye: No changes from previously listed above in entrance testing or anterior segment.
Posterior segment:
- Lens: 1+ nuclear sclerosis
- C/D: .6/.6, 1.6 mm vertical disc diameter with 60 D lens (Photo 3)
- Background: no signs of diabetic retinopathy, grade 1 crossing changes superior and inferiorly, increased arterial light reflex, no vessel attenuation.
  (-) NVI, NVD, NVE, HEMES, MA, HE, IRMA, VB, ME, CWS (Photo 4)
- Macula: (-) CSME, RPE mottling
- Periphery: No holes, tears, RD 360 degrees. RPE drop out superiorly.
- Vitreous: Clear

Visit 3:
Right Eye:
Anterior Segment: Improvement from previous exam: clear lid margins, no signs of hemorrhages or mucous discharge.
Prosthesis: Abrasions on surface otherwise clean and clear. (Photo 5)
Orbit: Grade 1 discharge, trace vascular injection

Left Eye:
Anterior segment unchanged from previous exam
Posterior segment unchanged from previous exam excluding:
Optic nerve: Arterial macroaneurysm superior temporal disc
Arterial microaneurysm inferior temporal disc. (Photos 6 & 7)

III. Diagnosis and Differentials:
Right Eye:
Visits 1,2,3:
-Primary/leading: conjunctivitis secondary to mechanical interaction with prosthetic
-Others: Giant Papillary Conjunctivitis, Blepharitis, Acquired Anophthalmos

Left Eye:
Visit 2:
-Primary/leading: Diabetes Mellitus without ophthalmic manifestations
-Others: Mild hypertensive retinopathy, pterygium
-Hypertensive Retinopathy DDx: Diabetic Retinopathy, Collagen-Vascular Disease, Anemia, Radiation Retinopathy, Central retinal vein occlusion, Branch retinal vein occlusion (4).

Visit 3:
-Primary/leading: Retinal arterial macroaneurysm and microaneurysm most likely a sequauea of systemic hypertension and atherosclerotic changes
-Others: Amaurosis Fugax, Hypertensive retinopathy, pterygium
-Retinal Arterial Macroaneurysm DDx: Coats disease, Idiopathic retinal vasculitis, aneurysms, neuroretinitis, diabetic retinopathy, valsalva retinoapathy, retinal telangiectasias (4).

IV. Diagnosis and discussion
-Orbital muscle cone tissue/anterior segment irritation: secondary to ill maintained prosthetic eye. The patient is not cleaning prosthetic appropriately, does not use any lubricants, reports the prosthesis has never been replaced, and is only removed from orbit approximately two times per month. The recommended care and maintenance of prosthesis includes removing daily and cleansing all surfaces with a mild soap such as baby shampoo and warm water (3). Recommended replacement varies between sources, however it has been noted that modern plastic prosthetics are more durable, but patients are advised to have prosthesis evaluated yearly due to possible anatomical changes such as orbital fat atrophy which can affect comfort (3).

-Retinal arterial macro aneurysm (RAMA) over optic nerve: patients with RAMA often report with a sudden, painless loss of vision or are asymptomatic and vascular abnormality is noted upon examination (1). Most patients do not lose any visual acuity unless there is macular involvement. If the macula is involved likely sequelae include macular edema which can be treated with focal laser. It is reported that many RAMA may remain unchanged for several years, however many overlying the optic nerve will
involute spontaneously \(^{(2)}\). The primary associated risk factor is systemic hypertension \(^{(1)}\). Unfortunately, due to clinician neglect, blood pressure was not recorded throughout course of examination and may have provided further insight to development of RAMA.

This case is unique for a few reasons:
- This is a great demonstration of a prosthesis causing chronic ocular irritation. Mucous discharge is documented as a common finding in patients with prosthetics, however pain, chronic discolored secretions, or socket bleeding need to be addressed by appropriate eye care professional \(^{(3)}\).
- Retinal arteriolar macroaneurysms overlying the optic nerve are reported to be rare \(^{(2)}\). Perhaps the most interesting feature is the photo documentation of this case showing no abnormalities only days before the macroaneurysm occurred.

V. Treatment, management

**Right Eye:**

Visit 1:
- Prosthetic hygiene: patient to remove prosthesis daily and clean with baby shampoo.
- Lid Hygiene: warm compresses with lid scrubs daily for blepharitis.
- Erythromycin ointment sample: Instill ¼ inch strip into orbital tissue twice daily for conjunctivitis.

Visit 2:
- Continue prosthetic and lid hygiene
- Continue erythromycin ointment twice daily for conjunctivitis.
- Pred Forte sample: instill one drop into orbital tissue twice daily for resolution of giant papillary conjunctivitis.
- Ocularist referral to evaluate for new prosthesis.

Visit 3:
- Continue prosthetic and lid hygiene.
- Discontinue Pred Forte and Erythromycin

**Right Eye Treatment Summary:**
Medications relieve acute symptoms, however chronic irritation unlikely to subside pending prosthetic replacement. Medication selection was based upon sample availability in office.

**Left Eye:**

Visit 2:
- Monitor DM/HTN changes with yearly DFE.
- Artificial tears/UV protection for pterygium

Visit 3:
- Refer to primary care provider for further evaluation of hypertensive state and atherosclerosis.
- RTC three months for DFE evaluation of aneurysms or PRN concerns.
- No laser treatment necessary for RAMA

**Bibliography**


**VI. Conclusion**

*Clinical pearls:*
- Prosthetic eyes need to be cared for and replaced at regular intervals.
- Retinal arterial macro aneurysms can occur suddenly in eyes without or with minimal pathology.
- Record blood pressure on every hypertensive patient.

**Photos:**

![Photo 1: Right Eye Prosthetic Visit 1](image1)

![Photo 2: Right Orbit Visit 1](image2)
Photo 3: Left Optic Nerve Visit 2

Photo 4: Left Fundus Photo Visit 2

Photo 5: Right Prosthetic Visit 2
Photo 6: Left Optic Nerve with Macroaneurysm Visit 3

Photo 7: Left Fundus Photo Visit 3