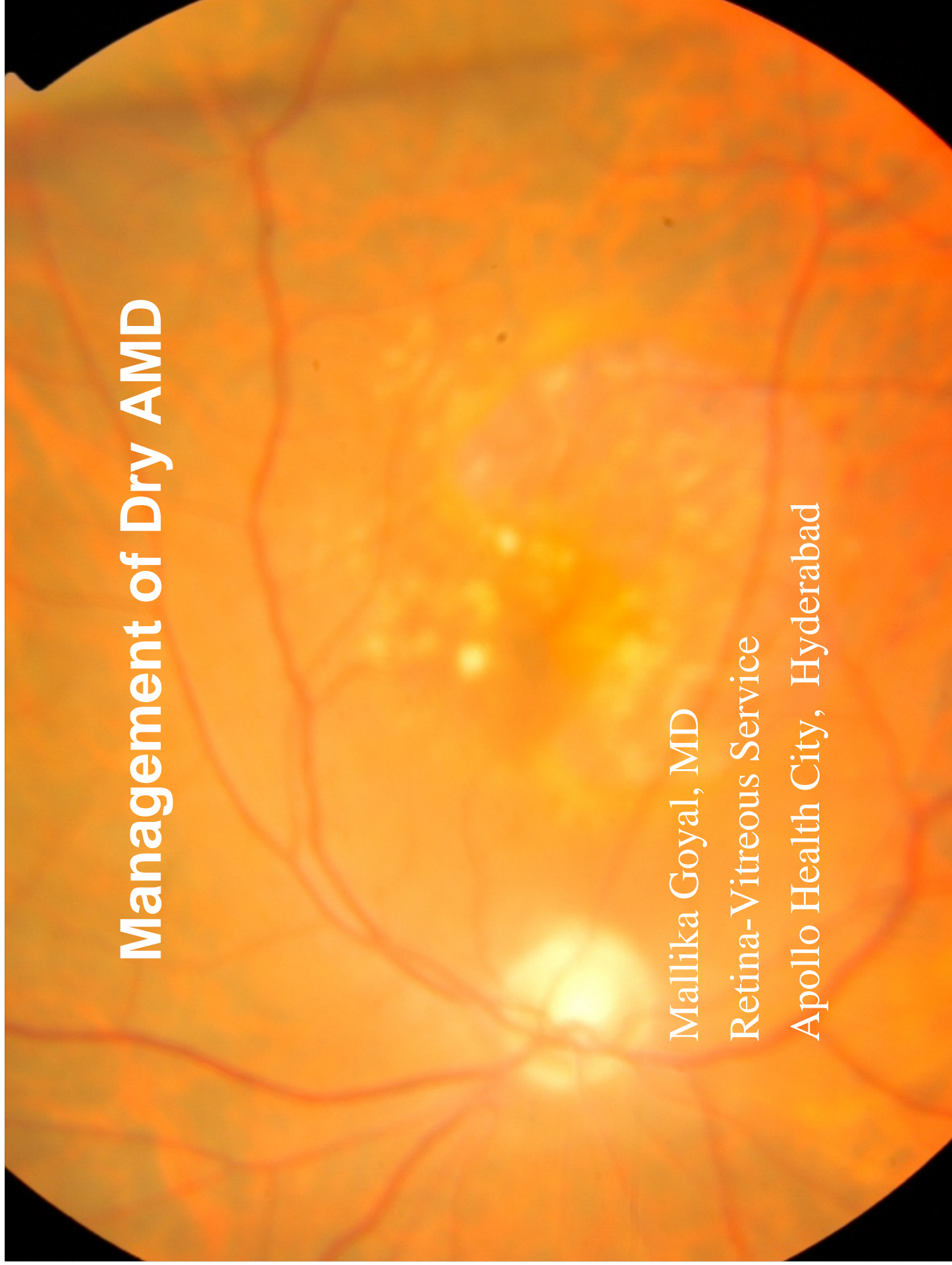


# Management of Dry AMD

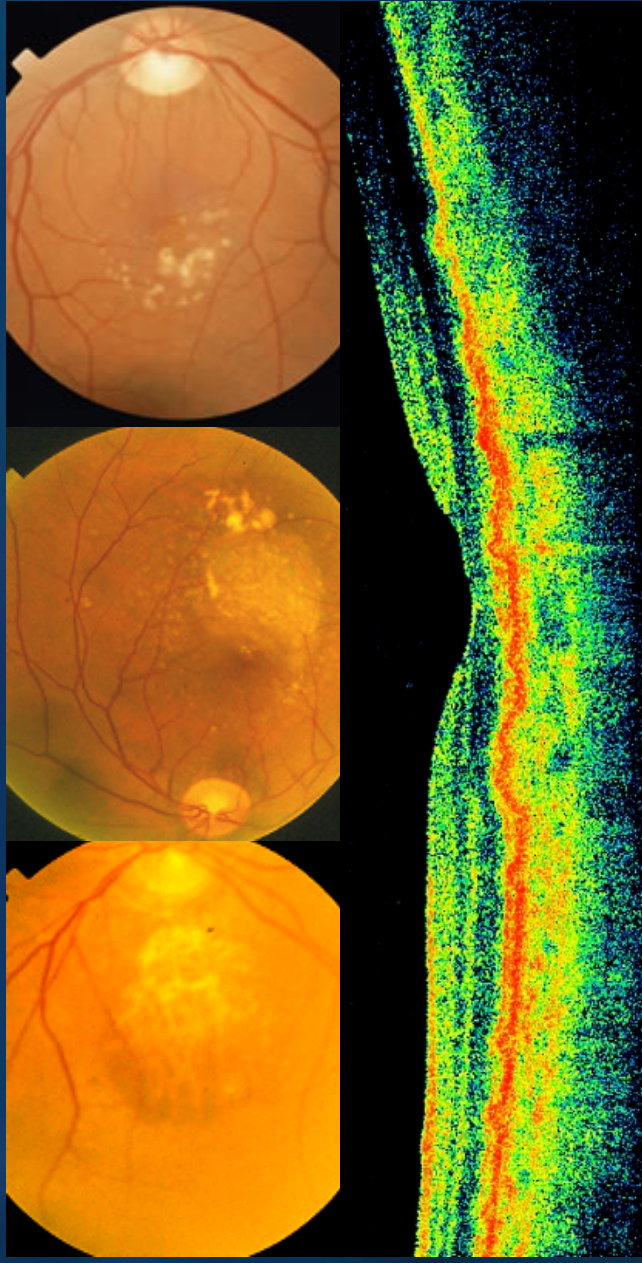
Mallika Goyal, MD  
Retina- Vitreous Service  
Apollo Health City, Hyderabad





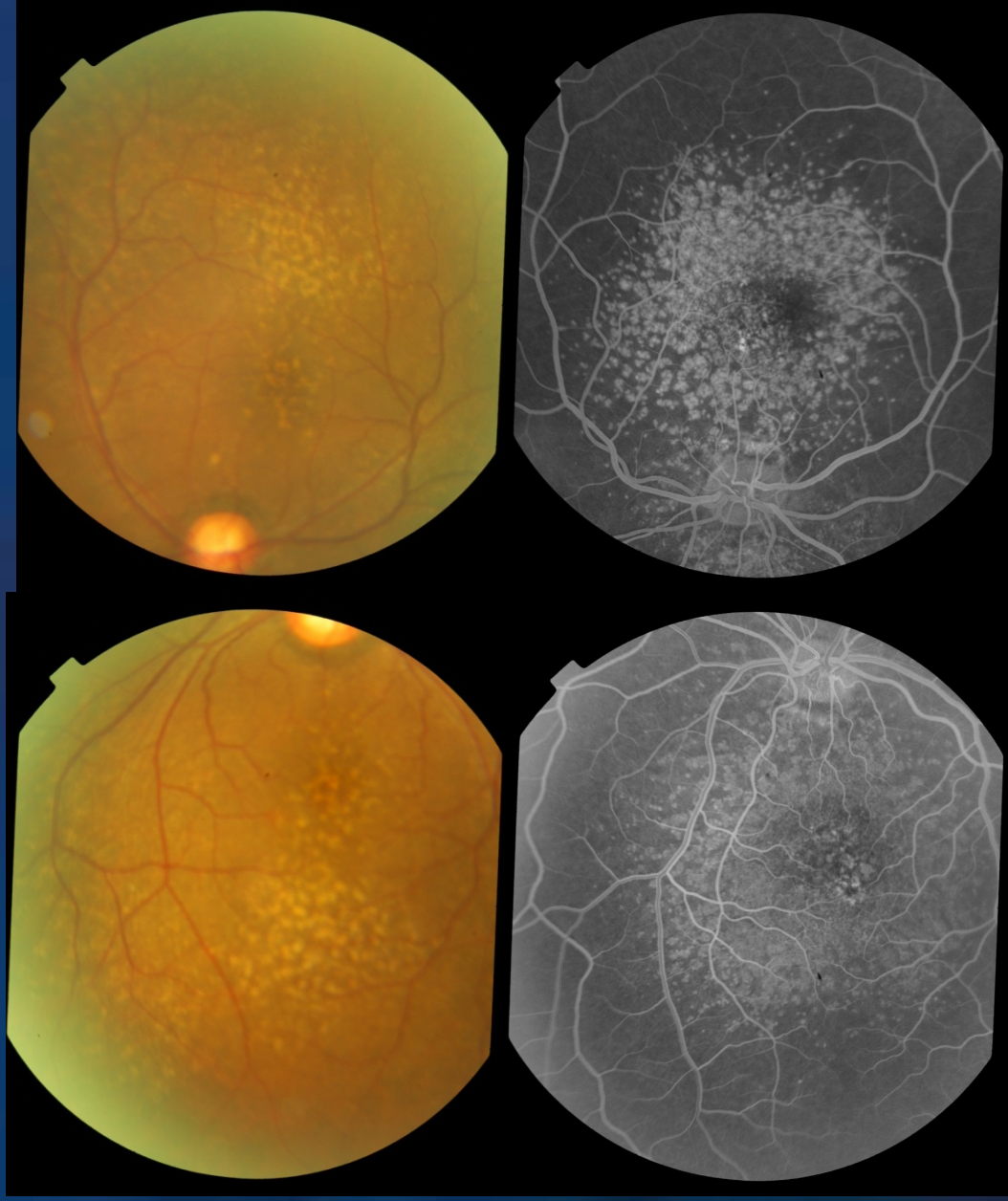
# What is Dry AMD ?

## Drusen with / without RPE atrophy





# Transmitted fluorescence





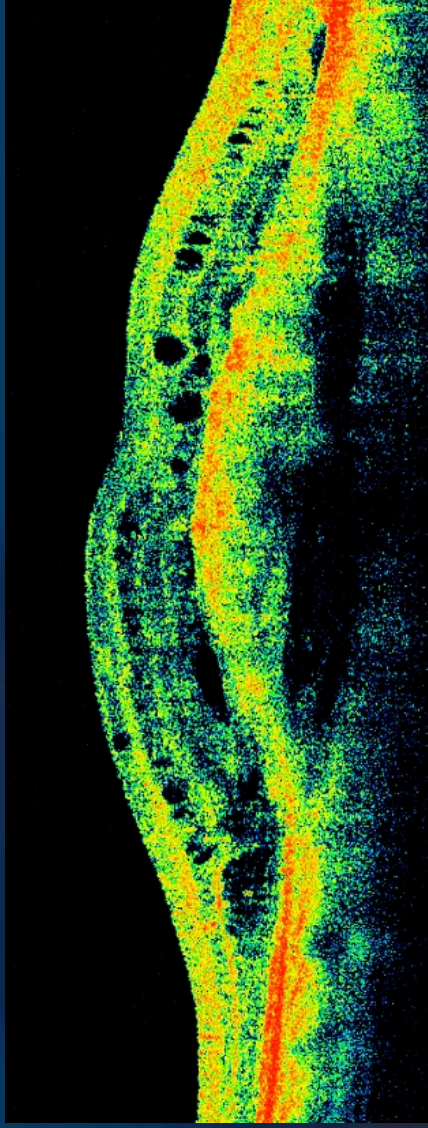
## FFA versus OCT

- OCT is quick
- Suffices most cases



## FFA versus OCT

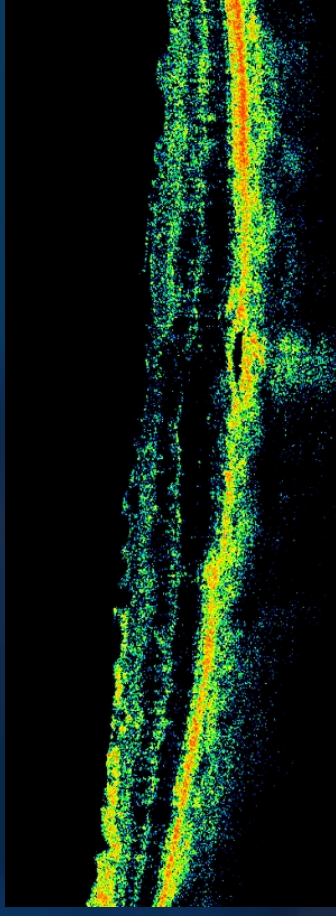
- RE with wet AMD





## FFA versus OCT

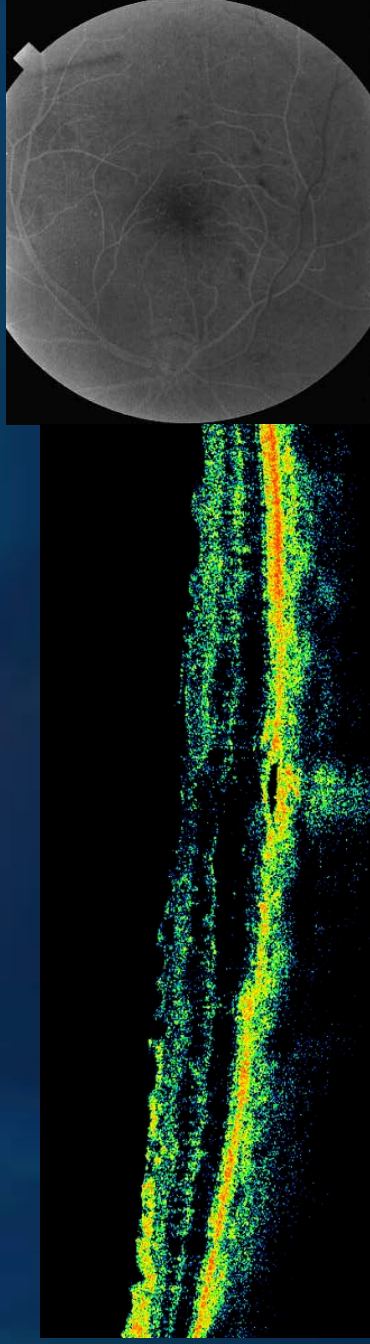
- Lucent spaces in Dry AMD maybe interpreted as fluid, and therapy for wet AMD started





## FFA versus OCT

- FFA identifies lack of leak/CNVM
- When in doubt with OCT, FFA important





Free Radicals → Cell Damage

ANTIOXIDANTS

RADICALS







# Age-Related Eye Disease Study

## AREDS

- 11 centers
- 4,757 participants
- F.U. 6.3 years
- Completed in 2001



## AREDS Formulation

- Vitamin C: 500 mg
- Vitamin E: 400 IU
- Beta-carotene 15 mg  
(Vitamin A: 25,000 IU)
- Zinc: 80 mg
- Copper: 2 mg



## AREDS Results

- Antioxidants + Zinc group:  
25% reduced risk of advanced AMD
- Zinc alone / Antioxidant alone:  
reduced risk at more moderate rates



# Xanthophylls – Lutein & Zeaxanthin

- Provide Macular Pigment Optical Density (MPOD)
- Absorb phototoxic blue light
- Scavenge free radicals



## Lutein

- Cannot be manufactured by the body
- Has to be consumed in food
- Zeaxanthin produced from lutein by the body



## Lutein

- Dark green leafy vegetables
- Fruits & vegetables that have red, orange, yellow pigments: tomatoes, carrots, corn
- Average diet : 1 - 2 mg
- Supplements: 10-15 mg





# Zeaxanthin

- Oranges, corn
- Supplements: 4.75 mg





# Lutein Antioxidant Supplementation Trial (2004)

To study effect of lutein on MPOD and  
central vision in atrophic AMD





## “Other antioxidants” in LAST

- Vitamin D3
- Vitamin B1, B2, B3, B5, B6, B12
- Manganese, Selenium, Calcium, Molybdenum, Zinc, Magnesium
- Lycopene, Biotin, Iodine
- Vitamin A, C, E



# Lutein Antioxidant Supplementation Trial

## Results

- Increased MPOD
- Increased Glare Recovery
- Increased Near Visual Acuity
- Improved Contrast Sensitivity



# Lutein Antioxidant Supplementation Trial

## Results

- L/A group had broader effect than L alone
- Maybe beneficial at all stages of AMD



## AREDS 2

- Other studies revealed reversal of symptoms & signs
- AREDS 2 trial to look for improvement



## AREDS 2

additional.....

- Xanthophylls (lutein and zeaxanthin)
- Omega-3 fatty acids
  - docosahexaenoic acid [DHA]
  - eicosapentaenoic acid [EPA]



	AREDS 1 IU	Vitalux plus Novartis 50%	I-Site Avesta 25% antiox 50% minerals	Fiteye Cipla 25% antiox 50% minerals	Zevit 15%
Vit A IU	25,000	10,000	6,000	6000	5,000
Vit C mg	500	300	150	150	75
Vit E IU	400	100	15	50	22.5
Zn mg	80	40	40	40	63
Cu mg	2	2	2	2	2



# Pigments

	AREDS 2 100%	Vitalux plus Novartis 50%	Novoret Allergan 50%	I-Site Avesta 25%	Fiteye Cipla 25%
Lutein	10.0 mg	4.0 mg	5.0 mg	3.2 mg	2.5 mg
Zeaxanthin	2.0 mg		1.0 mg		0.5 mg
Omega 3 Fatty Acids (purified fish oil)	1228 mg		500 mg		



## When to consider Supplements ?

- Early AMD
- Family history of AMD
- Smokers
- Excessive exposure to sunlight
- Poor dietary intake





## Caution

- Zinc:  
copper-deficiency anemia  
add copper
- Beta carotene & Lutein:  
lung cancer in smokers



# Dry AMD management

## Other aspects

- Stop smoking
- UV protection: sunglasses, hats
- Amsler's Grid self-test
- Periodic macula check
- Increase HDL cholesterol



# Macula Risk

[www.macularisk.com](http://www.macularisk.com)

- Cheek swab from buccal mucoa
- Used to assess genetic risk of AMD
- Minimal, mild, moderate, severe



Thank You !