

# Diabetic retinopathy in pregnancy

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# DR in pregnancy

- Risk factors in pregnancy
- Pathophysiology
- Management of DR in pregnancy
- DESP guidelines
- A few cases

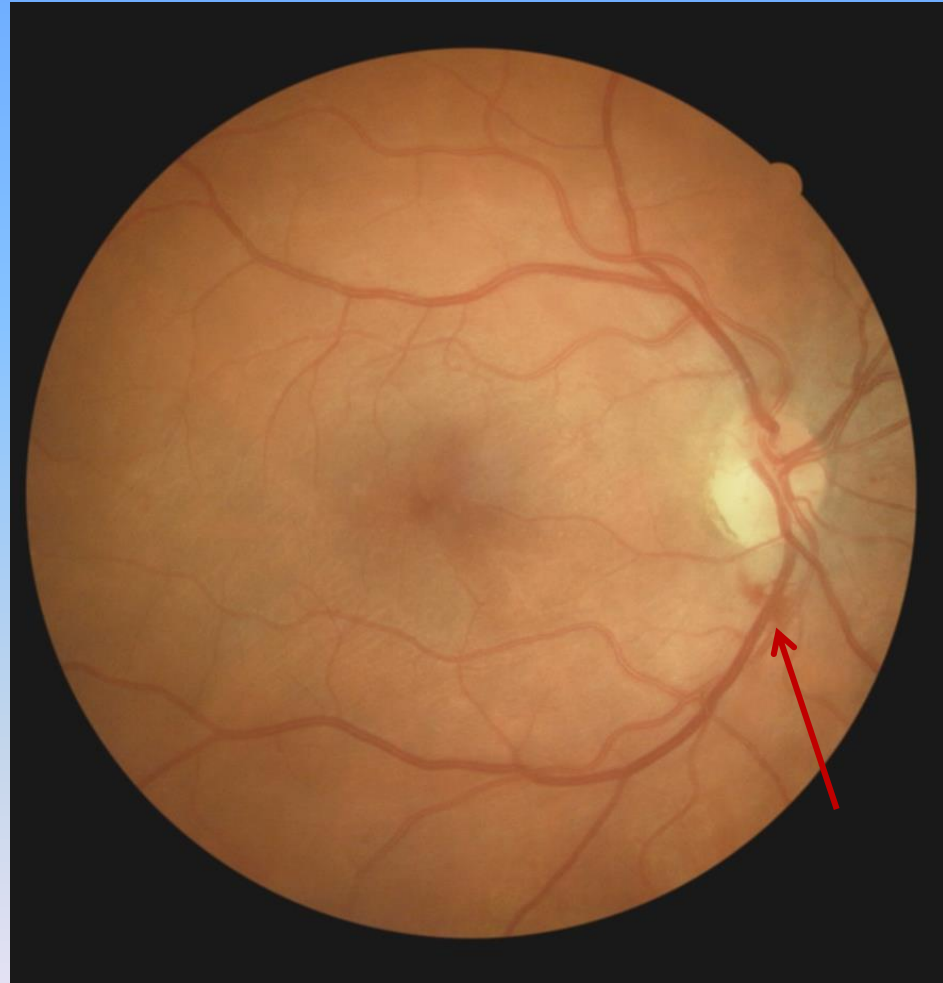


# Case 1

- JC
- 34 year old, Type 1 diabetes
- Recently moved to Bristol area
- Previously R1M0 both eyes

# April 2014

- 13 weeks pregnant
- Seen at BEH
- Blurred right vision
- VA: 6/12 R, 6/6 L



- **Proliferative retinopathy (R3A)**
- Pan-retinal PRP recommended

Declined!

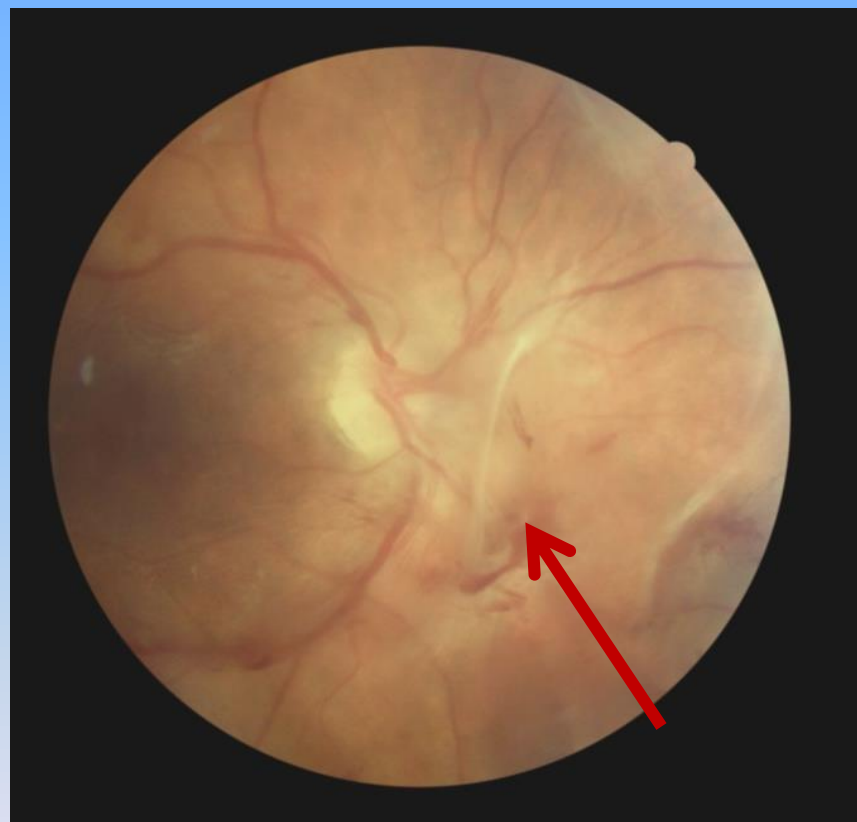


# August 2014

- Missed previous appointments
- Difficult pregnancy
- 31 weeks pregnant
- Pre eclampsia







- Progression of Proliferative DR
- Tractional retinal detachment
- Required vitrectomy, delamination

What are the risks factors for progression of DR in pregnancy?



# Glycaemic control

- Diabetes in Early Pregnancy Study (DIEP 1995)
  - 140 pregnant women
  - Followed from early pregnancy to delivery
- Most likely to progress
  - Poorest control at baseline (**highest HbA1c**)
  - Largest improvement in glycaemic control in 1<sup>st</sup> 14 weeks (**greatest HbA1c reduction**)

# Duration of diabetes

- Duration of diabetes associated with more severe retinopathy during pregnancy
- Women with Type 1 at higher risk of progression than those with Type 2
- Gestational diabetes not at risk of DR progression

# DR severity at baseline

- Risk of visual loss is low with no pre-existing retinopathy
- Severe proliferative or non-proliferative DR prior to conception = higher risk of progression of disease during pregnancy
- DIEP
  - 29% with moderate DR → Proliferative change
  - 6.3% with minimal DR → PDR
- Severe proliferative disease may regress postpartum

# Hypertension

- Known risk factor for DR progression
- Particularly hazardous during pregnancy
- 50% of women with HT developed DR progression vs 25% without HT



# Pathophysiology



# Retinal blood flow

- Pregnancy = Increased cardiac output and plasma volume
- Non-diabetic: autoregulation, no change in retinal blood flow



# Retinal blood flow

- Diabetic patients
  - Increased blood flow = vessel stress, endothelial damage= retinopathy progression
  - No increase in blood flow – no retinopathy
- Some diabetic women have flawed autoregulation resulting in increased blood flow

# Hormonal changes

- Specific hormones affecting the eye
  - human placental lactogen, oestrogen and progesterone
- Elevated hormonal levels = vascular changes

# Long term consequences of pregnancy on DR

- No long term detrimental effects
- Intensive glycaemic control has a possible protective effect (in the long term)

# Key points

- Pregnant state is the primary cause of worsened DR
- Rapid improvement in glycaemic control has an effect on worsening of retinopathy
- Effects of pregnancy are additive to the effects of poor metabolic control

# Of note...

- Increased severity of diabetic retinopathy has been correlated with poor foetal outcomes
- The incidence of congenital malformations is higher in patients with proliferative changes

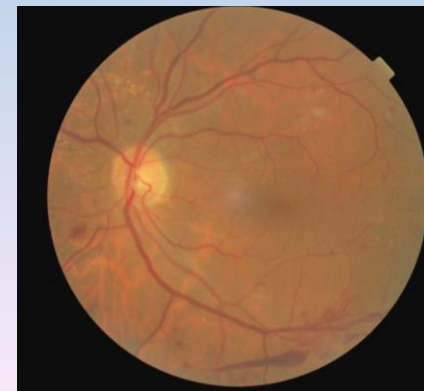


# Management of DR in pregnancy



# Diabetic retinopathy

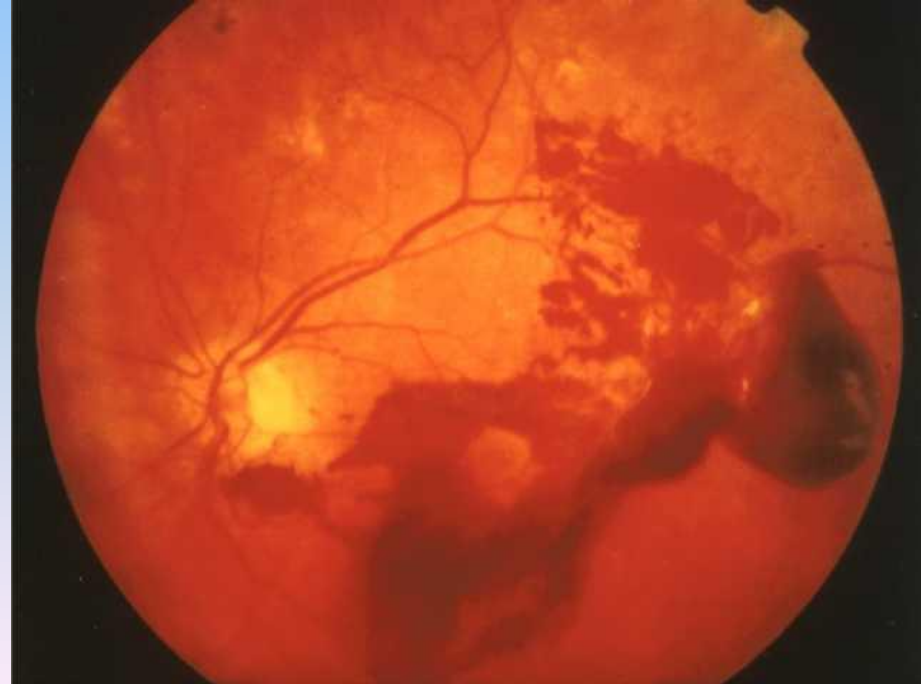
- R1, R2 = observe
- R3a- Indications for pan retinal laser are the same
- Laser treatment is safe during pregnancy
- PDR should be detected and treated preferably before onset of pregnancy





# Vitreous haemorrhage

- Bleeding into the vitreous cavity
- Mild
  - Clears within days/weeks
  - PRP possible
- Non resolving
  - Vitrectomy
  - Generally safe in pregnancy (consult with obstetrician)



# Diabetic Macular Oedema

- Observation
  - Mild to moderate DMO
  - Improve glycaemic control
  - Monitor closely
- Laser treatment
  - No improvement after observation



# When laser won't work

- Consider intravitreal steroids
  - Risk of increased IOP & cataract



# Role of anti-VEGF therapy?

- No reports of anti VEGF use in pregnancy
- Lack of long term safety data
- Risk of foetal harm



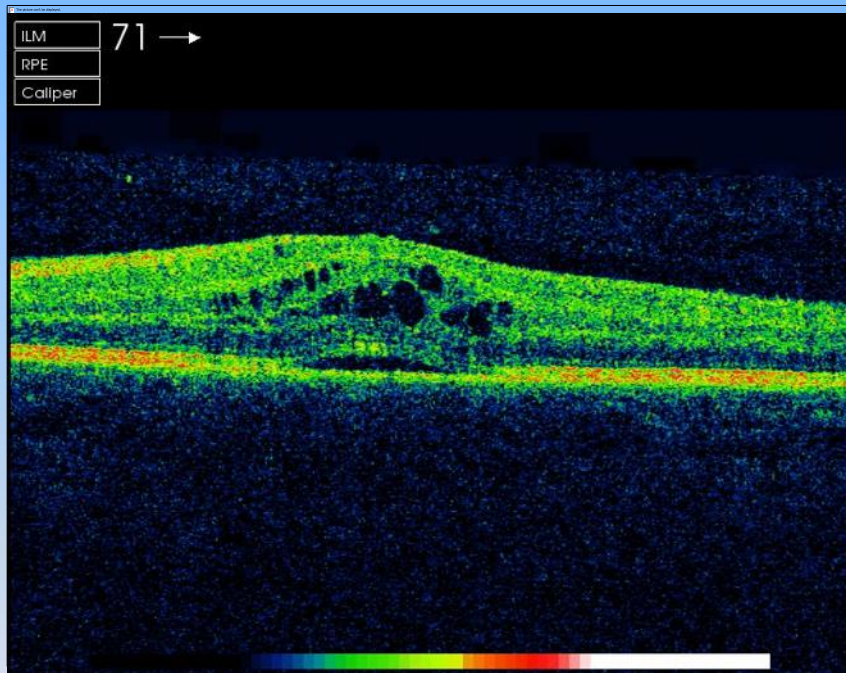
# DMO in pregnancy

## Key points

- 1<sup>st</sup> line = glycaemic control & laser
- Intravitreal steroids considered in refractory cases
- Only consider anti-VEGF therapy as a last resort
- DMO is likely to resolve spontaneously post partum

# Case 2

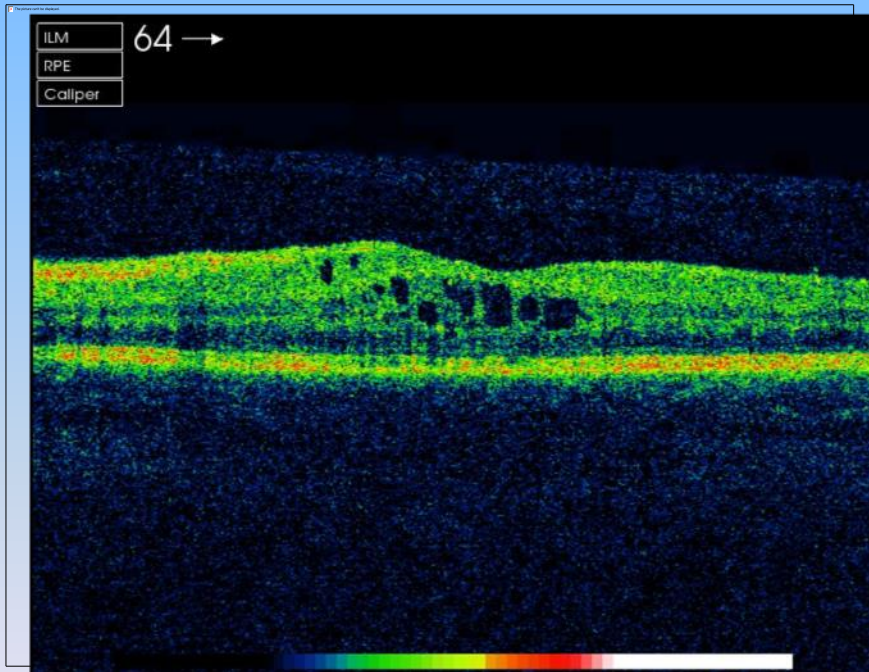
- MH
- 26 year old
- Aug 2013
- 12 weeks pregnant



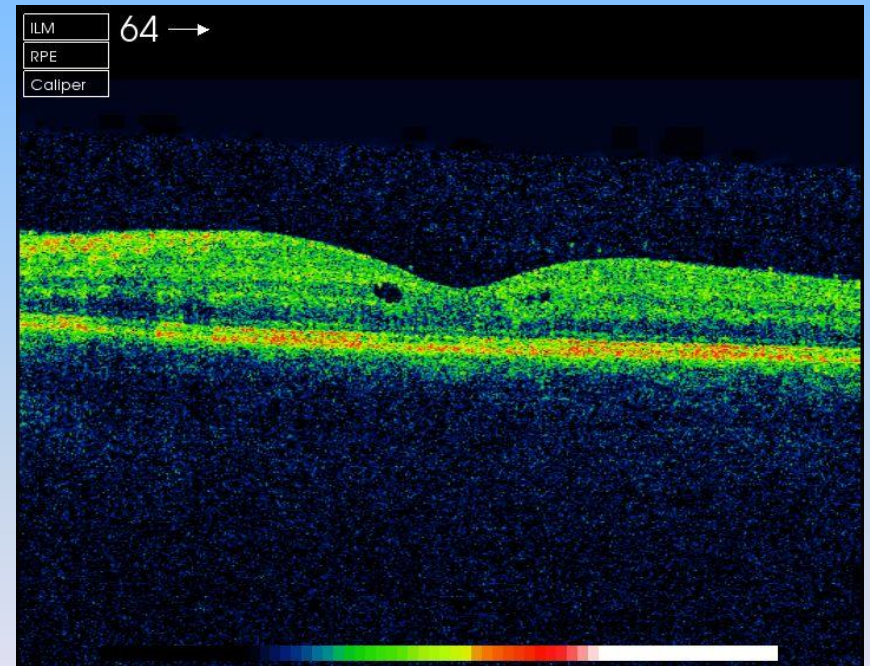
- Diabetic macular oedema
- Good BP control
- Macular grid laser



- Dec 2013
- 6 weeks following laser

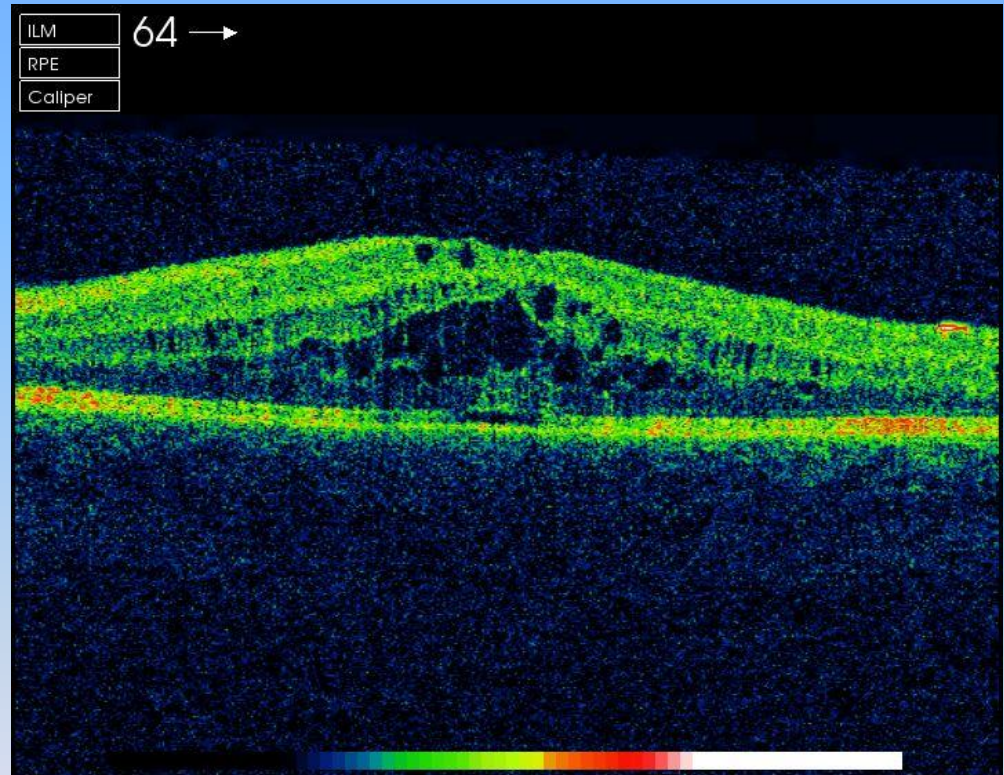


- Jan 2014

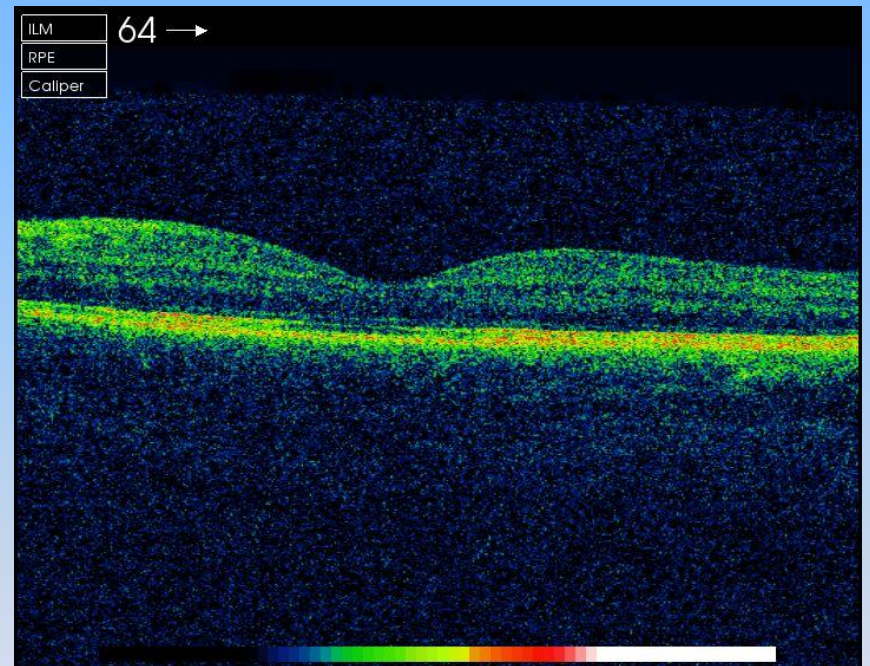




- April 2014
- Post partum
- Stopped breastfeeding
- ...Lucentis



- One month post Lucentis
- 6/6 vision



Pre conception

# Pre conception care

- 5% of women who give birth have diabetes mellitus
  - 87.5% have Gestational diabetes
  - 7.5% Type 1, 5% Type 2 (NICE 2015)
- DR assessment before pregnancy
  - Preconception DES
- Optimisation of glycaemic control before pregnancy
- Stabilise PDR before pregnancy

DES in pregnancy

# NICE clinical guideline 63

- Pregnant women with pre-existing diabetes should be offered retinal assessment by digital imaging following their first antenatal clinic appointment and again at **28 weeks** if the first assessment is normal
- If any diabetic retinopathy is present, an additional retinal assessment should be performed at **16–20 weeks**
- Women with Gestational diabetes are not at risk
- Diabetic retinopathy should not be considered a contraindication to rapid optimisation of glycaemic control in women who present with a high HbA1c in early pregnancy.
- Women who have preproliferative diabetic retinopathy diagnosed during pregnancy should have ophthalmological follow-up for at least 6 months following the birth of the baby
- **Diabetic retinopathy should not be considered a contraindication to vaginal birth**

And finally...

# Case 3

- CS
- 32 years old
- Pre-existing treated PDR
- 16 weeks pregnant
- Presented with blurred right vision



Right



Left



- R3A both eyes
- Pan retinal laser

# Post treatment & post partum



# Summary

- DR can progress in pregnancy
- Preconception care is critical
- Frequent DES based on national guidelines
- Laser photocoagulation is safe during pregnancy
- Long term risk of progression is not affected by pregnancy



