

Proliferative Retinopathy in Pregnancy after Bariatric Surgery

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Introduction

Worsening of retinopathy after bariatric surgery has been reported (1) and there has been a recent small cohort stating the same (2). However to our knowledge this is the first report of occurrence in pregnancy post bariatric surgery with a previous diagnosis of type 2 diabetes mellitus.

Background

The obesity epidemic has meant there are increasing numbers of women of child bearing age undergoing bariatric surgery. Some have had or have a diagnosis of type 2 diabetes mellitus with or without complications. Experience in this group of women is limited but increasing. The Karolinska institute looked at 2543 women who underwent bariatric surgery of various forms (gastric banding, gastric bypass and vertical banding) and compared against age, parity and BMI matched women (n=12000) and found that in this group there was a statistically significant higher preterm birth rate at 9.7 % compared to 6.1 % (5). There has also been a recent pilot study looking at whether bariatric surgery adversely impacts on diabetic retinopathy in the morbid obese or type 2 diabetic group. Although study numbers were not high, this essentially found that at 12 months post bariatric surgery 40 of 148 patients were found to have had retinal assessments pre and post bariatric surgery and those with minimal back ground retinopathy showed no progression, but those with of severe back ground retinopathy and pre-proliferative diabetic retinopathy did show progression in retinal disease (6). However to date a NCBI pubmed literature search has not revealed reporting of deterioration in pregnant women post bariatric surgery with pre-diabetes.

Case

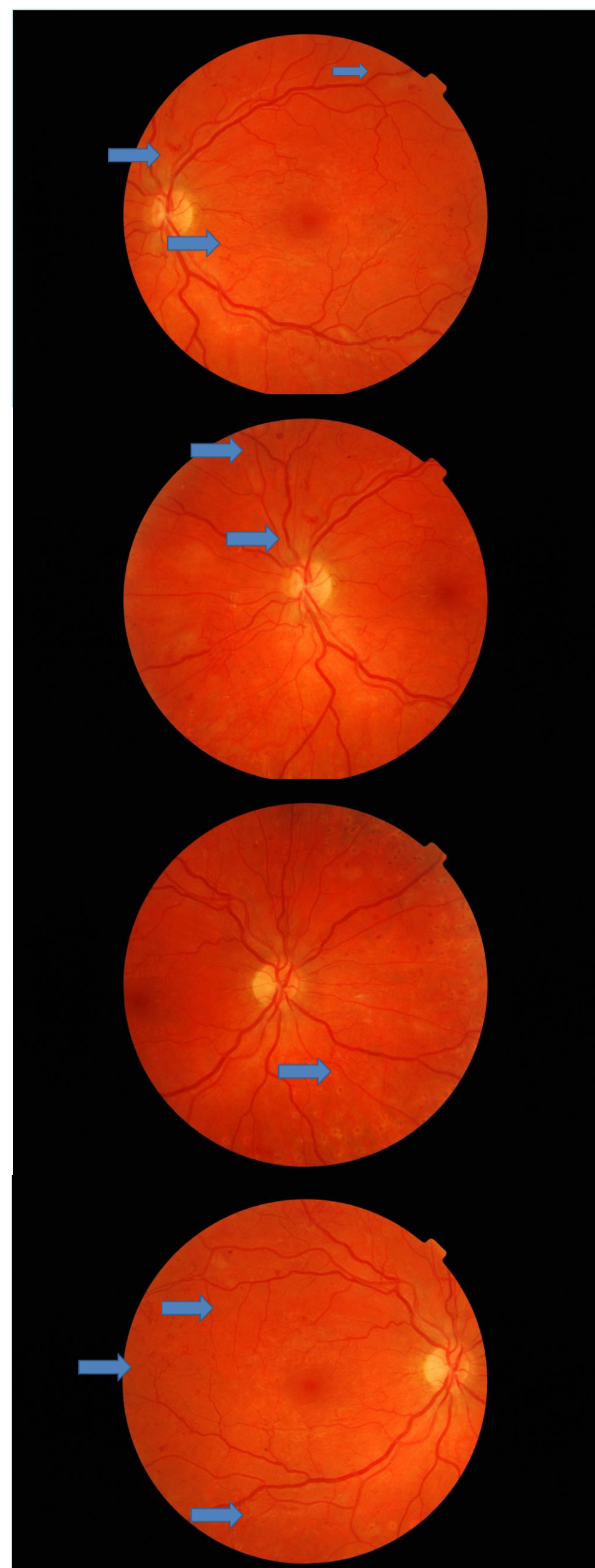
A 33 year old female, with an apparent diagnosed of diabetes in remission, presented to the joint antenatal clinic at 28/40 gestation for a GTT, having had 2 previous pregnancies. She had undergone a Roux en y gastric bypass (01/2012), 11 months prior to this pregnancy so GTT was avoided to prevent dumping syndrome. BM monitoring was commenced. The referring midwife at booking stated she was told that her diabetes had "gone away," or was in remission. However no recent pre-conception HbA1c was available and recent retinal screening had not been attended. She had a history of type 2 diabetes mellitus since 2005, retinopathy and hypertension. Her BMI was 55 with a weight of 145 kg pre-surgery (she had a 10kg weight loss with Liraglutide). Post-surgery her weight was 102 kg giving her a booking BMI of 36. Diabetic medications were discontinued at this stage as glycaemia had rapidly improved, see table below. BMs were out of pregnancy targets at 28 weeks and metformin commenced. Given her past history urgent retinal examination was requested, revealing proliferative retinopathy and she underwent urgent pan-retinal laser. Particular attention was given to her micronutrients requirements. Her elective section was uneventful, BMs remained stable 4-7 and she had subsequent follow up in the diabetes clinic..

Clinical Assessment

Clearly this patient had a history of obesity and type 2 diabetes. The gastric bypass surgery gave her a massive reduction in her BMI and probably increased her fertility. She did however become pregnant prior to recommended guidance and upon booking with the midwife felt her diabetes had gone away, which clearly was not the case. She only presented to the joint ANC for consideration of an OGTT which was contraindicated due to the risk of profound dumping syndrome.

At this stage it was clear that her diagnosis needed review and urgent retinal screening was arranged. Notably the findings in this case concur with the retinal changes found in the study (6). The presence of previous pre-proliferative changes, and bariatric surgery causing rapid weight loss (BMI 53 to 36 in 12 months), reduction in HbA1C (12.6 % to less than 7 %) and pregnancy may well have had an additive affect on her retinal changes and the need for urgent laser therapy.

Retinal Imaging



Upper two panels left eyes. Lower two right eyes. Arrows demonstrate diabetic changes. Thanks to Mr Luishi for images. Known bilateral diabetic macular oedema. Laser performed 31/1/2011. Bilateral modified macular grid laser treatment underwent pan retinal grid laser therapy Jun 2013 when pregnant

Timeline and Summary of Results

Date	HbA1C in mmol/mol	BMI	Clinical Event
20/10/10	114 or 12.6 %		
19/11/10	120 Or 13.1 %		
28/01/11	68 or 8.4 %	52.6	Bilateral macular laser
4/7/11		40	
19/3/12	114 or 12.6 %		
25/4/12			Roux-En-Y laparoscopically
1/10/12	64 or 8 %		
1/12/12			Pregnant
16/4/13	Patient stated normalised	36	Attends ANC
4/6/13	62 or 7.8 %		Bilateral pan retina laser

Discussion

We know from the Swedish NHS birth register study that women are at an increased risk of pre-term and small for gestational age births post-surgery (3). In addition a review of the key results of the Swedish Obese Subjects Trial in which diabetes prevention and remission were secondary end points showed after 2 years, 72 % of patients with T2DM at baseline were in remission in the post-surgical group- however 50 % relapsed after 10 years (4). This case highlights the need to ensure appropriate education regarding the metabolic and fertility sequelae after surgery. Currently there is no UK guidance surrounding GDM screening post bariatric surgery, these may need to be patient and procedure specific i.e. personalised medicine.

Learning Points

Post bariatric patients need pre-conception advice and careful review when pregnant. National guidance with specific reference to appropriate choice of test for gestational diabetes is needed, as in the US and parts of Europe. Specific laboratory measurements for Folate, B12, Ferritin, and vitamins should be considered every trimester, with oral vitamin supplements. Pre-conception counselling is key in all patients of child bearing age undergoing bariatric surgery. In addition the terminology used for those who become normoglycaemic post surgery is very important and the term diabetes in remission is recommended. Any patients with complication in this group must continue upon the diabetic screening programme.

References

- Silva RA et al, Opth Surg Lasers Imag Retina 2013.
- Thomas RL, ADA Poster 2013.
- Roos N et al BMJ. Nov 2013.
- Sjostrom, L, Journal of Internal Medicine 2013.
- Jin J, JAMA. Dec 2013.
- Thomas RL, J. Diabetes Complications. Oct 2013.

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