

Poster number EP16.51

Fetal Pancreatic Enlargement and Adverse Pregnancy Outcomes in Women with Flat OGTT (oral glucose tolerance test)

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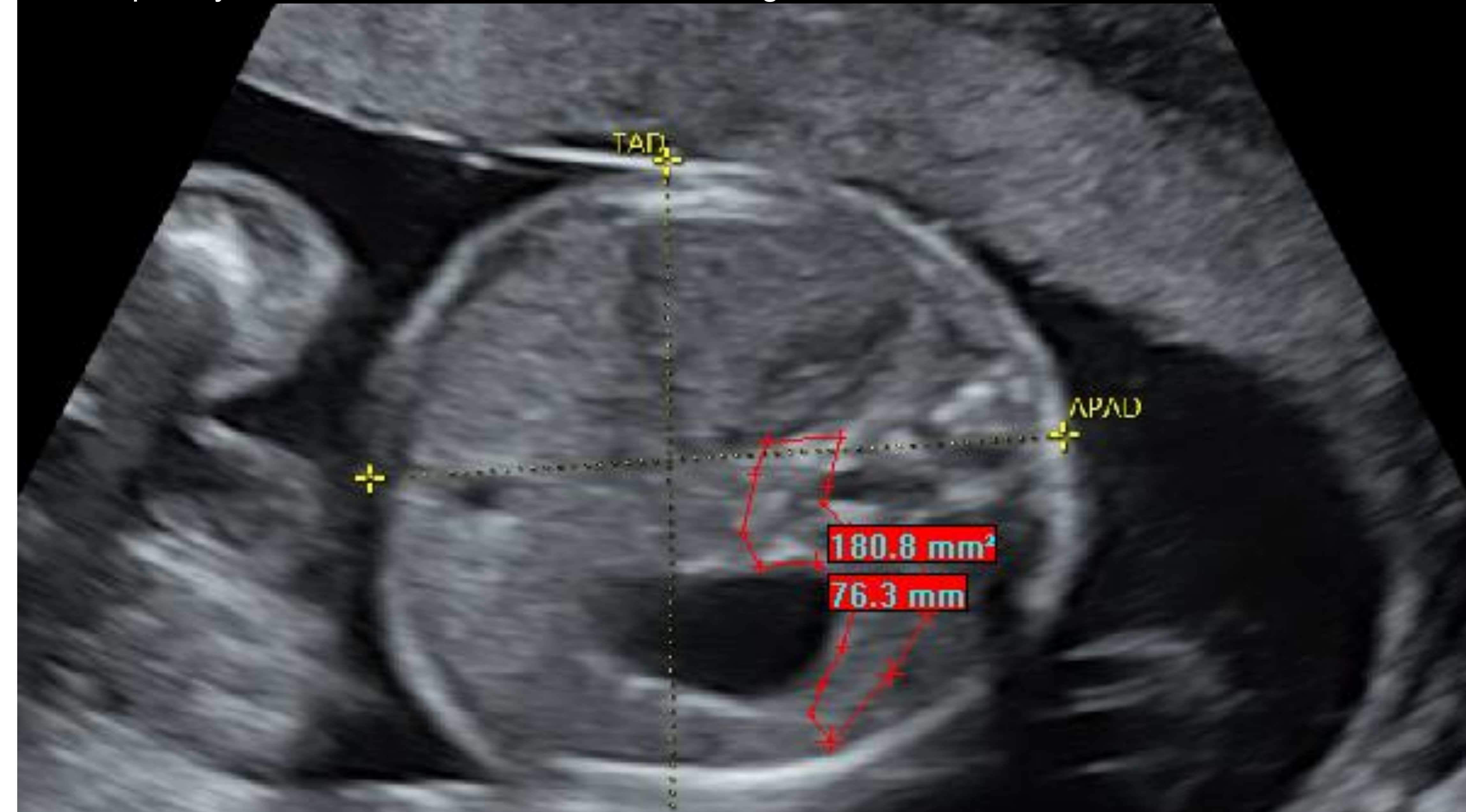
Introduction

OGTT is defined as flat when there is an increase of less than 20% at 60 and 120 minutes compared to fasting glucose levels. We report 3 cases of adverse perinatal outcomes in pregnant women with flat OGTT values.

Our cases

- ❖ First case involves a stillborn female infant at 32 weeks of gestation. Two OGTTs were conducted: values 86-97-89 mg/dl at 15 weeks gestation and 78-86-91 at 24 weeks. Histological examination of placenta and stillborn infant suggested acute hypoxia as cause of fetal death. Placental parenchyma was histologically immature, with acute atherosclerosis, and fetal pancreatic islets of Langerhans showed hyperplasia and hypertrophy. Retrospective measurement of the fetal pancreas circumference revealed that its dimensions were above the 95th percentile according to the biometry.
- ❖ Second case involves a stillborn male infant at 34 weeks. Two OGTTs were conducted: values of 84-74-82 mg/dl at 16 weeks and 71-95-84 mg/dl at 26 weeks. Histological examination of the stillborn infant's placenta revealed histologically immature placental parenchyma with placental infarcts.
- ❖ Third case concerns a woman whose second pregnancy resulted in intrauterine fetal death at 38+4 weeks of gestation. Patient had a flat OGTT at 21 weeks of gestation: values of 77-70-85 mg/dl. Histological examination of placenta was attributed to metabolic disturbances. The woman developed gestational diabetes in her subsequent pregnancy.

Figure 1: Fetal pancreas circumference and area above the 95th percentile at 23 weeks of gestation measured in a transverse plain at the liver and stomach level in pregnancy that subsequently resulted in stillborn at 32 weeks of gestation.



Conclusion

While neonatal hyperinsulinemia as a consequence of maternal diabetes is established, little is known about adverse outcomes in flat OGTT. We report 3 cases of non-diabetic patients with flat OGTT whose placental histological examination showed signs of altered maternal glucose metabolism. An exaggerated fetal glucose steal phenomenon in pregnancy can mask the diagnosis of gestational diabetes. Clinicians should acknowledge that flat OGTT result is not entirely normal.

Fetal pancreas could be enlarged not only in women with gestational diabetes but also in those with a flat OGTT values.