

Gestational Hyperandrogenism: A rare complication of pregnancy with a subtle presentation

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INTRODUCTION

We present the case of a woman who presented with symptoms of a Gestational hyperandrogenism (GH). Hyperandrogenism is a common endocrine disorder in women of reproductive age however, the implications of hyperandrogenism in pregnancy can have significant effects if unchecked.

CASE PRESENTATION

A 25 year old woman of Black Caribbean descent presented to book for her pregnancy after a previous first trimester miscarriage. Her medical history and family history were unremarkable.

In her first trimester, she was noted to have a simple left ovarian cyst measuring less than 5 cm diameter and a normal right ovary. Mild left sided discomfort continued in the first trimester but was resolved by week 14 of the pregnancy. Anomaly ultrasound at 20 weeks revealed a male infant with no anatomical concerns.

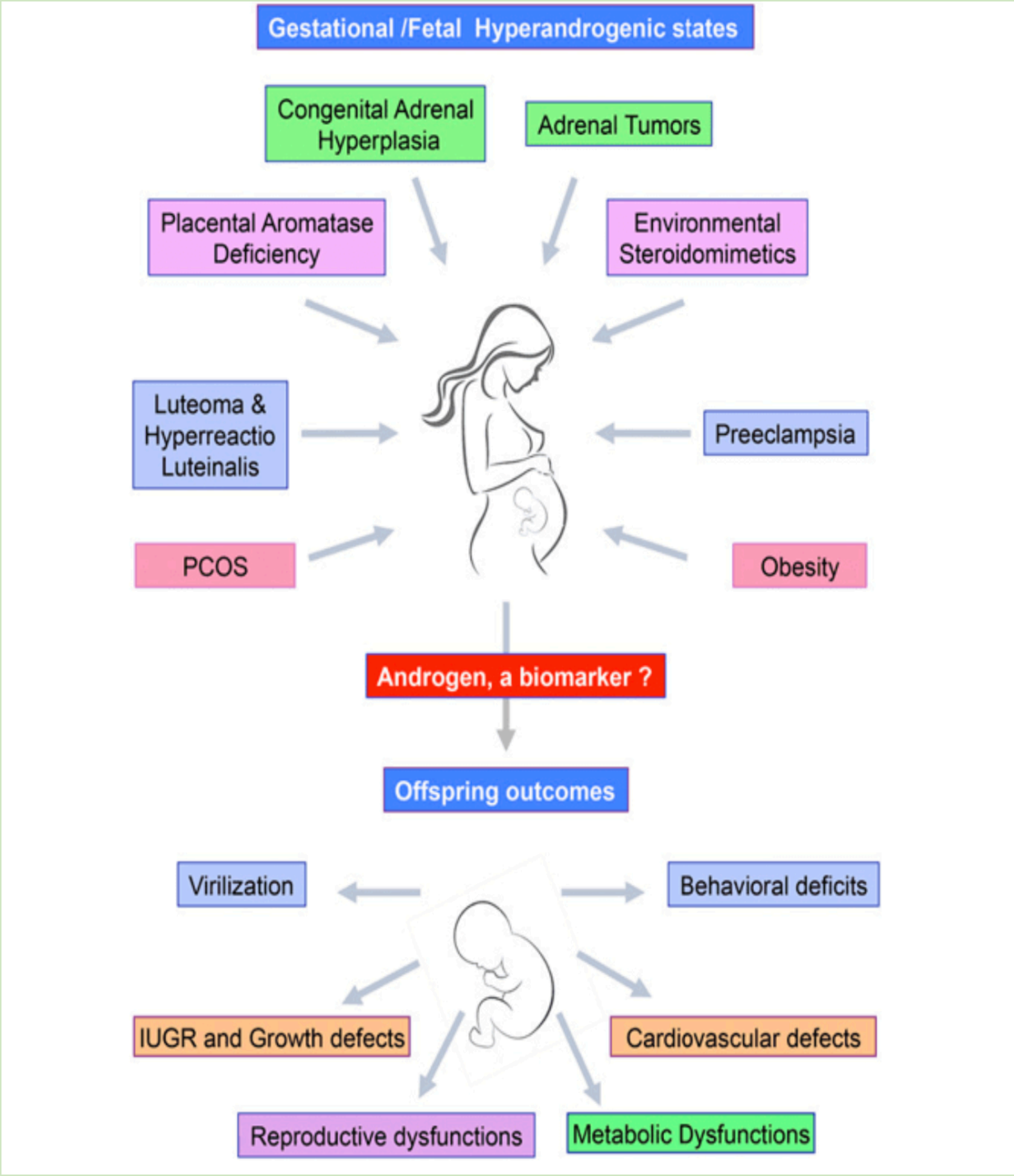
At 28 week review, the oral glucose tolerance test was reported as normal. On further consult however, the patient noted that she felt she had gained weight suddenly and described her hair to be growing “very fast and thick”.

On clinical examination, she was noted to have deepening of the voice and significantly more coarse hair was noted both on arms and legs. At this time, she disclosed a possible history of having “a lot of testosterone” noted by her previous physician and the pre- pregnancy diagnosis of polycystic ovarian syndrome (PCOS) was thought to be likely.

Ultrasound examination excluded any ovarian pathology with resolution of the previously seen 5 cm cyst. Testosterone levels were undertaken and shown to be well above the normal range for mid trimester [605.3ng/dL]. The patient transferred to the USA in the third trimester due to the devastation of Hurricane Dorian to the local healthcare system. Follow-up revealed that she had delivered a healthy baby boy weighing 7lb 11oz via spontaneous vaginal delivery. There was full resolution of virilizing features.

DISCUSSION

The normal physiology of pregnancy includes several adaptations to avoid high levels of circulating testosterone in the sex steroid milieu of the parturient.



Infographic Gestational and Fetal Hyperandrogenic States.
Source: Gestational Hyperandrogenism and Developmental Programming. Hakim, C et. Al. *Endocrinology* 158:199-212, 2017

Testosterone levels increase throughout normal pregnancy from the first trimester. However, increased sex hormone binding globulin reduces the circulating volumes of testosterone, in addition to, placental aromatase cytochrome P450 conversion of androgens to estradiol and then estriol for excretion in urine. These mechanisms are protective from the expected increase in androgen production. The level of testosterone in this case was well above normal range for pregnancy (50-120ng/dL).

Most commonly, GH occurs secondary to ovarian pathology which develops in pregnancy. This case highlights the pre-pregnancy hyperandrogenic state of PCOS as the cause.

The pregnant population of our island exhibit high levels of menstrual dysfunction, obesity and gestational diabetes - common findings in women with PCOS. Studies have shown a statistically significant difference in the incidence of Small for gestational age infants of women with PCOS (12.8% versus 2.8%) and the long-term effects on metabolic programming on offspring can have critical impact on the long-term health of the Nation. Co-existent pathologies of pregnancy such as pre-eclampsia, and gestational diabetes would further risk intrauterine growth restriction.

RELEVANCE TO CLINICAL PRACTICE

It is unknown what the true burden of disease for Polycystic ovarian disease is in The Bahamas. However, it is reasonable to estimate that it is high as the approximate rate of obesity lies at just below 40% for Bahamian women. The interplay between the physiology of menstrual dysfunction, obesity, insulin resistance and cardiometabolic dysfunction secondary to hyperandrogenism is well proven. These risks are generational. It is reasonable therefore to propose increased awareness of symptoms of Gestational Hyperandrogenism and potentially screen this population to avoid long term effects.