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CASE REPORT

Adrenal Crisis in a Patient with Autoimmune Polyglandular Syndrome 2 (APS 2) During Pregnancy

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Introduction

Autoimmune polyglandular syndrome 2 (APS 2) presents with autoimmune adrenal insufficiency and at least one autoimmune endocrine disorder such as autoimmune thyroid disease, type 1 diabetes mellitus or both. The prevalence of adrenal insufficiency during pregnancy is 5.5 per 100,000 pregnancies [1]. Adrenal crisis is a life-threatening emergency. There are only 10 case reports of APS 2 in pregnancy, and this is a case report of a pregnant woman with autoimmune polyglandular syndrome 2 (APS 2) presenting with adrenal crisis in the third trimester, which is rare.

Case Report

A 26-year-old pregnant woman with obstetric score G5P2L1A2, a known case of primary adrenal insufficiency and Graves' disease, was admitted to our hospital at 36 weeks 2 days in view of foetal growth restriction. At 12 years of age, she was diagnosed with Graves' disease and was on oral neomercazole 2.5 mg twice daily. A year back, she had an episode of fever, vomiting loose stools and altered sensorium. She presented to general physician with hypotension and hyperpigmentation all over the body (Fig. 1). The provisional diagnosis of adrenal insufficiency was made. Her baseline serum cortisol was very low, 0.7 mcg/dl (4.3–22.4 mcg/dl), with elevated ACTH of 411 pg/ml (normal up to 46 pg/ml)). ANA and APLA were negative; CECT abdomen and pelvis were done, which showed bilateral hypoplastic adrenals (Fig. 2). Having established the diagnosis of primary adrenal insufficiency, she was started on parenteral hydrocortisone following which there was drastic improvement in her condition. This was gradually tapered, and oral fludrocortisone was initiated because of persistent hypotension and hyponatraemia and switched over to oral prednisolone.

She was on propylthiouracil 50 mg and prednisolone 5 mg once a day during pregnancy.

She had a non-consanguineous marriage at 19 years, with no prior history of any menstrual abnormality. There was no significant medical disorders in the family, except for hyperthyroidism in her mother.

Regarding the previous obstetric history, she had missed abortion at 3 months of gestation for which she underwent D and C. A year later, she had an intrauterine foetal demise at the 7th month, and cause and details were unknown. Subsequently, she had an uneventful term vaginal of a live 2.5-kg female baby, currently 4 years old, with normal milestones. Three years later, she had a missed abortion at the 3rd month and was medically managed.

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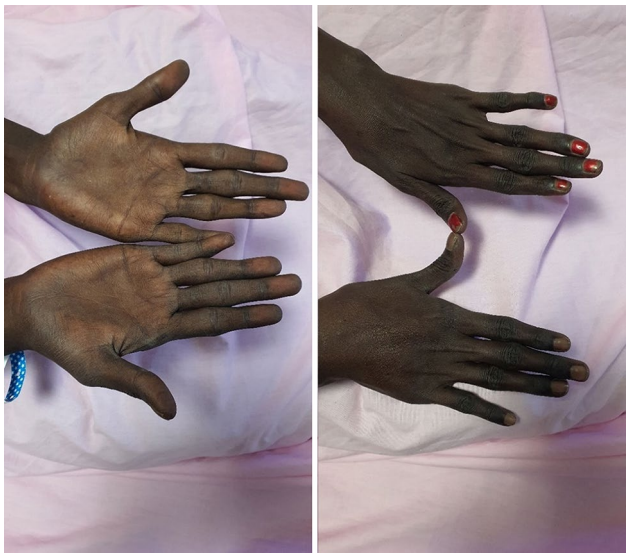

Fig. 1 Hyperpigmentation of palms and nails

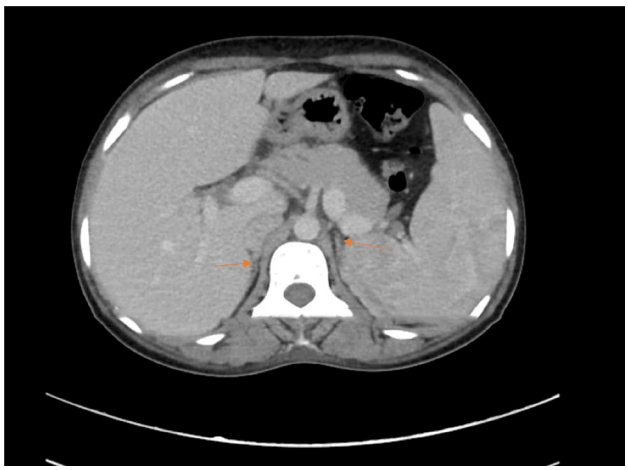

Fig. 2 Hypoplastic adrenal glands

Following admission, she developed altered sensorium, abnormal movements, hypotension, fever (101 °C) and blood sugar was 70 mg/dl. Her renal and liver function tests were normal. Adrenal crisis was suspected, and she was given parenteral hydrocortisone (100 mg 8th hourly) and paracetamol infusion with which her condition improved. Complete haemogram revealed pancytopenia, with haemoglobin—7.9 g% and total count—2260 cells/platelet count—92,000 cells/mm^3, which gradually improved with steroid replacement therapy which was gradually tapered to 50 mg 8th hourly. USG showed foetal growth restriction with estimated foetal weight of 1.7 kg, with normal Doppler and AFI—7. She was induced at 37 weeks with Foley followed by oxytocin. In view of pathological CTG trace, emergency caesarean was performed, and a 1.4-kg female baby was delivered and shifted to intensive care unit in view of very low birth weight. Then, hydrocortisone was tapered and changed to prednisolone and fludrocortisone by postoperative day 3. She developed hypokalaemia during the 3rd postpartum day, for which potassium correction was done. Both mother and baby were discharged on postoperative day 20, and she was advised to follow up after 2 weeks.

Discussion

Autoimmune polyglandular syndrome (APS) is of four types and is not common in pregnancy. APS 1 is juvenile APS, with candidiasis and ectodermal dystrophy. APS 2, 3 and 4 are adult types and common in females. APS 2 presents with autoimmune adrenal insufficiency and at least one autoimmune endocrine disorder—autoimmune thyroid disease, type 1 diabetes mellitus or both. APS 3 is associated with autoimmune thyroid disease and type 1 diabetes mellitus, but without affliction of adrenal gland. APS 4 is a diagnosis of exclusion, with two or more organ-specific autoimmune endocrine syndromes, which cannot be assigned to APS 2 and 3 [2]. In this case, the patient had primary adrenal insufficiency and Graves' disease (APS 2 syndrome).

Adrenal insufficiency during pregnancy is a rare and life-threatening medical condition. The frequency of adrenal crisis during pregnancy is rare and found in one among 93 pregnancies with autoimmune adrenal insufficiency [3]. It can be classified as primary (destruction of adrenocortical cells in the adrenal gland) and secondary type (impaired adrenocorticotropic hormone secretion from the pituitary or hypothalamus). The aetiology for adrenal insufficiency includes autoimmune disease, infections such as tuberculosis, haemorrhage, tumour, etc.

Diagnosis of adrenal insufficiency during pregnancy could be misleading as they can mimic the physiological symptoms of normal pregnancy such as nausea, vomiting, dizziness and easy fatigability, etc. On laboratory examination, adrenal insufficiency will manifest with hyponatraemia, hyperkalaemia and hypoglycaemia. Hence, serial monitoring of blood pressure and blood glucose should be done. Hyperkalaemia is not expected during pregnancy due to the increased renin–angiotensin–aldosterone system. Endocrine Society guidelines recommend that clinical features of adrenal insufficiency with serum cortisol cutoff of < 3 mg/dl are diagnostic during pregnancy [4].

Adrenal crisis is defined as the presence of at least two features—hypotension (systolic < 100 mmHg), nausea/vomiting, severe fatigue, hyponatraemia, hypoglycaemia and hyperkalaemia. It should be diagnosed rapidly and requires parenteral glucocorticoid administration.

Adrenal insufficiency has adverse effects on pregnancy, including increased incidence of preterm delivery, caesarean section, impaired wound healing, infection and thromboembolism [1].

Hydrocortisone is the preferred treatment, as the placental enzyme degrades it. Fludrocortisone is not required if the patient is on a high dose of hydrocortisone. Adrenal crisis is more expected during labour, delivery and the immediate postpartum period. The required hydrocortisone is 12–15 mg/m^2 or 20–30 mg/day in divided doses during the first and second trimesters. Initiation of fludrocortisone (0.05–0.2 mg/day) depends on blood pressure and serum potassium level. During the third trimester, hydrocortisone can be given up to 40–60 mg/day and fludrocortisone in the same dose. Routine therapy can be continued till the onset of labour. During labour, hydrocortisone should be doubled (50–100 mg in parenteral hydrocortisone). If planning for caesarean section, then 100-mg i.v hydrocortisone should be given 6th or 8th hourly. In case of adrenal crisis, 100–200-mg i.v hydrocortisone followed by 50–100 mg every 6th or 8th hourly along with fluid resuscitation. About 5% dextrose and potassium supplementation should be administered, when there is hypoglycaemia or hypokalaemia. Well-controlled disease has a good pregnancy outcome.

During postpartum, tapering of steroid to pre-pregnancy dose can be done within 3 days. Under and overtreatment with glucocorticoids should be avoided during pregnancy, due to maternal and foetal complications. Regarding the foetal implication, maternal antibodies may cross the placenta, but not sufficient to cause neonatal adrenal insufficiency. Hydrocortisone can be also continued safely during breastfeeding.

Conclusion

This is a rare case report of a successfully managed adrenal crisis in a pregnant woman with autoimmune polyglandular 2 (APS 2) syndrome. Diagnosing adrenal crisis even in an established case of adrenal insufficiency during pregnancy is perplexing and mandates strong suspicion, as this can be easily confused with pregnancy disorders. Early diagnosis and initiation of empirical treatment with glucocorticoids, with careful monitoring are essential for rapid recovery of these patients.

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Declarations

Conflict of Interest The authors declare that they have no conflict of interest.

Informed Consent Informed consent has been obtained from the patient for the publication of the case report.

Ethical Approval Institution gives approval on informed consent from the patients for case reports. Institution does not mandate a separate ethical approval for reporting cases.

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