CLINICAL VIGNETTE

Total Absence of Axillary Hair in a Diabetic Man: Clinical Considerations

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Case Report

A 79-year-old male with past medical history of end stage renal disease and type 2 diabetes presented with pelvic fracture after ground level fall. He was managed non-surgically and inpatient endocrinology was consulted for glycemic control. Upon consultation, physical exam revealed complete absence of axillary hair, tanner stage III breast development and sparse pubic hair with female escutcheon. There were no ecchymosis, striae, or moon facies to suggest cushings syndrome. While exam findings were consistent with hypogonadism, complete absence of axillary hair was suggestive of concurrent adrenal insufficiency. Thus, we inquired further about symptoms of hypogonadism and adrenal insufficiency. This was negative except for fatigue. However, further chart review revealed he was taking Megestrol Acetate (MA) 400 mg intermittently for appetite stimulation over the last 2.5 years. Laboratory evaluation while the patient was taking MA revealed cortisol 2.4 ug/dL at 7 am (N: 4.3-22.4), ACTH <5 pg/mL (N: 6-50), DHEA-S 2 mcg/dL (N: 5-253), total testosterone 34 ng/dL (N: 241-827), SHBG 22 nmol/L (N: 22-77), LH 16.6 mlU/mL (N: 1.5-9.3) and free T4 1.13 ng/dL (0.66-1.73). MA was discontinued and he was started on hydrocortisone 10 mg daily for adrenal insufficiency. His ability to participate in physical therapy improved. Four days after cessation of MA and 28 hours after the last dose of hydrocortisone serum cortisol improved to 12 ug/dL at 9 am.

Discussion

Numerous cases of MA associated secondary adrenal insufficiency have been reported in the literature.[1,2] While the exact mechanism of MA associated adrenal insufficiency is not well understood, it is thought to have a dual agonist-antagonist action on the glucocorticoid receptor and can subsequently cause HPA axis suppression and secondary adrenal insufficiency.[1] A small cross-sectional study in 2006 suggested that adrenal insufficiency may be present in up to 43% of acutely ill patients taking MA.[3] Notably, in our case it is likely that the HPA axis recovered rapidly due to the patients' intermittent use of MA. In general, recovery of the HPA axis after prolonged use of MA would be expected to take longer. While secondary hypogonadism has also been reported in patients taking MA this is less commonly described.[2] Notably, our patient had primary hypogonadism that was unrelated to MA as evidenced by his elevated LH. In reference to our case, the complete absence of axillary hair was an important clinical finding leading to the diagnosis of coexisting hypogonadism and secondary adrenal insufficiency. DHEA-S is a steroid precursor produced by the adrenal cortex that exerts androgenic activity after enzymatic conversion in peripheral tissues and is responsible for initiation of axillary hair growth.[4] While severe hypogonadism in men can lead to complete loss of axillary hair,[4] low DHEA-S from secondary adrenal insufficiency may exacerbate post-pubertal axillary hair loss. Changes in axillary hair growth with adrenal insufficiency are generally more pronounced in women as the large majority of post-menopausal female androgens are adrenal in origin.[4] Interestingly, despite a 70-95% decline in DHEA-S with aging, over 50% of androgens in elderly men are derived from adrenal precursors.[4]

In conclusion, complete absence of axillary hair in a post-pubertal male should prompt consideration of concurrent adrenal insufficiency and hypogonadism. Additionally, due to the risk of adrenal insufficiency, MA should be used with caution and clinicians should have a low threshold to suspect adrenal insufficiency.

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