Adrenectomy as a weight loss strategy in morbid obesity associated with adrenal incidentaloma

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Abstract

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Rationale

She did not have nuchal or supracleavicular fat pads, nor did she have visible striae or acrochordons. Her overall clinical phenotype was not dominated by predominant abdominal obesity nor with extremely muscle atrophy.

Examination findings:

Beyond subcutaneously controlled blood pressure and morbid obesity, the vital signs were within normal limits. Her examination was notable for extensive acne associated with the nuchal // upper chest and hand areas along with moon faces, scarring facial acne and mild facial ecchymoses. Her overall clinical phenotype was not dominated by predominant abdominal obesity nor with extremely muscle atrophy.

The rest of her examination was essentially unremarkable.

Clinicardinal Case:

44 yr old African American lady with a left AI referred for weight management in whom adrenectomy was followed by profound weight loss.

Clinical Case: 44 yr old AA lady with a left AI referred for weight management in whom adrenectomy was followed by profound weight loss.

She had a history of a left AI presumed non functional but was required to lose weight prior to consideration for adrenectomy. She was told she had diabetes (DM), obstructive sleep apnea (OSA), and hypertension (HT).

Examination showed MO (initial BMI; 63.6kg/m2  and weight; 195.4kg), Acanthosis Nigricans and facial acne with hirsuitism. ACTH was 12.5ug/dl; cortisol 16mu/ml; and Androstenedione.

Lipid profile

TC; 143, Trig; 81, HDL; 32, LDL; 95 mg/dl

Post operative (~ 7mths)

Weight (Kg) 160

BMI (kg/m2) 52

Waist Circumference (in) 78

Blood pressure (mean) 12.5/7.2mmHg

ACTH (7.2 pg/ml)

Fasting insulin (5-16mu/ml) 16

Cortisol 4.2 ug/dl

Metanephrines 0.30 ng/ml

Suppression 26 ug/dl

Baseline Renal Function Test

Serum Creatinine (mg/dl) 0.9

Baseline Blood Pressure

Systolic and Diastolic 120/74

Baseline Lipid profile (mg/dl) HDL 50, LDL 122

Baseline Fasting Blood Glucose (mg/dl)

95

Discussion

The suppression of both AI and SCs among morbidly obese subjects may be associated with profound weight loss and clinical improvement of co-morbid CS suggests that elective adrenalectomy should be considered for the initial management of MO subjects.

The impact of Adrenalectomy on subjects with SCs and AI as regards weight has generally been positive but rather modest with most reports suggesting no greater than a 2-3 unit drop in BMI and weight loss generally less than 5% of initial baseline weight.

The prevalence of SCs and/or AI among subjects with morbid obesity is essentially unknown and neither is there is any published information on the impact of adrenalectomy on the weight lossthis in this group of patients.

What little data is available suggests that regular Cushing's syndrome is an uncommon cause of the metabolic syndrome but routine screening for Cushing's syndrome is not included in standard guidelines for the baseline evaluation of morbidly obese subjects even when they are seeking Bariatric surgical intervention. Some more recent data challenge this assumption and argue for Cushing’s syndrome screening among morbidly obese subjects.

Our case is unique not just in reporting the finding of SCS and AI in a morbidly obese subject but demonstrating a profound clinical weight loss response following adrenectomy that rivals the degree of weight loss typically seen following bariatric surgical procedures.

Summary

Adrenocortical (AI) can be present in subjects with morbid obesity as they do in the general population.

Subclinical Cushing’s syndrome (SCS) is often associated with AI and is far more prevalent than regular Cushing’s syndrome in the general population and also probably in the morbidly obese subpopulation.

Just as it is recognized in the general population, the possibility of SCS in the morbidly obese subject needs to be considered as a possible cause of the metabolic syndrome (hypertension, especially resistant hypertension, diabetes, dyslipidemia etc) are present in the subject along with subtle clinical signs of mild hypercortisolism such as excess facial acne, hirsuitism and pigmented striae.

Adrenectomy in subjects with SCS and AI as regards weight has generally been positive but rather modest with most reports suggesting no greater than a 2-3 unit drop in BMI and weight loss generally less than 5% of initial baseline weight.

More study is required to define the prevalence of both AI and SCS among the morbidly obese.

Epileptic adrenalectomy in such patients may be the preferred first intervention before even contemplating elective bariatric surgery.

Conclusion

Our case is unique not just in reporting the finding of SCS and AI in a morbidly obese subject but demonstrating a profound clinical weight loss response following adrenectomy that rivals the degree of weight loss typically seen following bariatric surgical procedures.

References/bibliography

1. Besser CM, Keating NL, Beck S, et al. The entity of Adrenal incidentalomas (AI) also appears to be fairly prevalent. The prevalence of SCS is also greater among subjects with AI than in the general population and has been estimated to be between 5-20% among subjects with AI.

2. Patients with AI and SC as a cause of the metabolic syndrome and especially when co-existent have a substantially increased prevalence of elements of the metabolic syndrome including hypertension, dyslipidemia and obesity compared to the general population.

3. The prevalence of SCS is also greater among subjects with AI than in the general population and has been estimated to be between 5-20% among subjects with AI.

4. Patients with AI and SC as a cause of the metabolic syndrome and especially when co-existent have a substantially increased prevalence of elements of the metabolic syndrome including hypertension, dyslipidemia and obesity compared to the general population.

5. The impact of Adrenalectomy on subjects with SCS and AI as regards weight has generally been positive but rather modest with most reports suggesting no greater than a 2-3 unit drop in BMI and weight loss generally less than 5% of initial baseline weight.

6. The prevalence of SCs and/or AI among subjects with morbid obesity is essentially unknown and neither is there is any published information on the impact of adrenalectomy on the weight loss trajectory in this group of patients.

7. What little data is available suggests that regular Cushing’s syndrome is an uncommon cause of the metabolic syndrome but routine screening for Cushing’s syndrome is not included in standard guidelines for the baseline evaluation of morbidly obese subjects even when they are seeking Bariatric surgical intervention. Some more recent data challenge this assumption and argue for Cushing’s syndrome screening among morbidly obese subjects.

8. Our case is unique not just in reporting the finding of SCS and AI in a morbidly obese subject but demonstrating a profound clinical weight loss response following adrenectomy that rivals the degree of weight loss typically seen following bariatric surgical procedures.

9. Adrenal incidentalomas (AI) can be present in subjects with morbid obesity as they do in the general population.

10. Subclinical Cushing’s syndrome (SCS) is often associated with AI and is far more prevalent than regular Cushing’s syndrome in the general population and also probably in the morbidly obese subpopulation.

11. Just as it is recognized in the general population, the possibility of SCS in the morbidly obese subject needs to be considered as a possible cause of the metabolic syndrome (hypertension, especially resistant hypertension, diabetes, dyslipidemia etc) are present in the subject along with subtle clinical signs of mild hypercortisolism such as excess facial acne, hirsuitism and pigmented striae.

12. Adrenectomy in subjects with SCS and AI as regards weight has generally been positive but rather modest with most reports suggesting no greater than a 2-3 unit drop in BMI and weight loss generally less than 5% of initial baseline weight.

13. More study is required to define the prevalence of both AI and SCS among the morbidly obese.

14. Epileptic adrenalectomy in such patients may be the preferred first intervention before even contemplating elective bariatric surgery.

15. There may be prudence in including routine screening for significant, autonomous hypercortisolism in the baseline laboratory evaluation of morbidly obese subjects even if they don’t demonstrate overt an overt Cushingoid phenotype.