

FRACTURE OF THE LEFT WRIST AS A POSSIBLE INDICATION OF CUSHING'S DISEASE

Mouslech Z.¹, Somali M.¹, Sakali A.K.², Kakaletsis N.¹, Tsoutsas G.¹, Savopoulos Ch.¹, Mastorakos G.², Hatzitolios A.I.¹

¹1st Medical Propedeutic Dept of Internal Medicine, Aristotle University of Thessaloniki, AHEPA University Hospital, St. Kyriakidis 1, P.O. 54636, Thessaloniki, Greece

²Department of Endocrinology, Metabolism and Diabetes, Aretaieio Hospital, School of Medicine, University of Athens, 76 Vas Sofias Avenue, P.O. 11528, Athens, Greece

OBJECTIVES

Cushing's syndrome is a rare (0.004%) hormonal disorder, which develops due to hypercortisolemia. Cushing's disease refers to a corticotroph cell pituitary tumor overproducing adrenocorticotrophic hormone (ACTH), which induces abnormally increased cortisol production from the adrenal glands. Cushing's disease is a causative factor of osteoporosis, hypertension, glucose intolerance and dyslipidemia.

METHODS

Case report: A 50-year old woman was referred to our department for the investigation of osteoporosis. She reported a 2-year history of weight gain, hypertension and hair loss and currently a fracture of her left wrist. Reported age of menopause, 49 yrs. On physical examination her blood pressure was 140/90mmHg, she was overweight (BMI=25) and had bilateral supraclavicular fullness, buffalo hump, calf bruises and white striae on the abdomen.

RESULTS

Laboratory examination revealed shortened APTT, eosinopenia, increased fasting glucose, dyslipidemia, high-normal sodium levels ($\text{Na}^+ = 145.0 \text{ mmol/L}$), mild hypokalemia ($\text{K}^+ = 3.4 \text{ mmol/L}$), hypercortisolemia (cortisol = 754.0 nmol/L , n.v. $171.0-536.0$), FSH = 132.0 mIU/ml , LH = 36.9 mIU/ml , ACTH = 13.6 pg/ml (n.v. $0-60.0$), PTH = 10.8 pmol/L (n.v. $1.58-6.03$) and 24-hour urinary free cortisol = $436.4 \mu\text{g/dl}$ (n.v. $10.0-110.0$).

Estimation of lumbar spine bone mineral density by dual-energy X-ray absorptiometry was diagnostic of osteoporosis (T score -3.3). The patient underwent dynamic investigation with dexamethasone-CRH combined (Dex-CRH) test, which indicated ACTH-dependent Cushing's disease.

MRI (3 Tesla) of the pituitary gland suggested the presence of a microadenoma. Bilateral inferior petrosal sinus sampling (IPSS) established the diagnosis of a microadenoma on the right anterior part of the pituitary gland.

Treatment was started with pasireotide $900 \mu\text{g}$ bid.

Patient's laboratory results					
		Normal value			Normal value
FSH	132.0 mU/ml	21.7-153.0 mU/ml	CORT	754.0 nmol/L	171.0-536.0 nmol/L
LH	36.9 mU/ml	11.3-40.0 mU/ml	CORT (Combined Dex-CRH test)	923.0 nmol/L	171.0-536.0 nmol/L
PROG	2.0 nmol/L	0.6-4.7 nmol/L	ACTH	136.4 pg/ml	0-60.0 pg/ml
TESTO	22.6 ng/ml	0-43.0 ng/ml	PTH	10.8 pmol/L	1.58-6.03 pmol/L
DHEA-S	171.0 $\mu\text{g/dL}$	35.0-430.0 $\mu\text{g/dL}$	TSH	0.34 mU/L	0.3-4.0 mU/L
PRL	252.0 $\mu\text{U/ml}$	102.0-496.0 $\mu\text{U/ml}$	FT ³	4.30 pmol/L	3.4-8.5 pmol/L
			FT ⁴	0.93 ng/dL	0.84-1.76 ng/dL
			CORT (24 hour urinary sample)	436.40 $\mu\text{g/dl}$	10.0-110.0 $\mu\text{g/dl}$

DEXAMETHASONE SUPPRESSION TEST (1mg overnight test)		LOW DOSE DEXAMETHASONE SUPPRESSION TEST - LDDST					
Serum Cortisol ($\mu\text{g/dl}$)		Serum Cortisol ($\mu\text{g/dl}$)					
33.4		18.1					
COMBINED DEXAMETHASONE/CRH TEST (DEX/CRH)							
Time	0'	15'	30'	60'	90'	120'	
Serum Cortisol ($\mu\text{g/dl}$)	15.8	15	18.9	15.2	13.3	12.2	

Inferior Petrosal Sinus Sampling (IPSS)		
	Normal value 8 a.m. 9.0-52.0 pg/ml	Normal value 6 p.m. 6.0-30.0 pg/ml
Peripheral vein	109.5	97.5
Right	93.8	92.1
Left	96.6	89.6



CONCLUSIONS

Mortality in Cushing's disease is by 8-times higher than in the general population, especially when the disease is not fully controlled. Unfortunately, many disease-related complications such as hypertension, dyslipidemia and osteoporosis are not completely reversible when diagnosis is delayed. We suggest the diagnosis of Cushing's disease to be considered in the differential diagnosis of osteoporotic fractures or osteoporosis.

