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MISLEADING INSULIN-LIKE GROWTH FACTOR 1 (IGF-1) LEVELS IN AN ACROMEGALIC PATIENT WITH LIVER CIRRHOSIS

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INTRODUCTION: Acromegaly is a rare disease characterized by growth hormone (GH) hypersecretion typically from a somatotroph pituitary adenoma. Growth hormone excess in acromegaly leads to subsequent hypersecretion of insulin-like growth factor 1 (IGF-1) which contributes to the clinical findings and is a recommended biomarker for diagnosis, monitoring, and screening of acromegaly. GH/IGF-1 axis is impaired in patients with chronic liver diseases. Coexistence of acromegaly and chronic liver disease is very rare. We herein report a case of acromegaly with accompanying liver cirrhosis that presents with inappropriately normal IGF-1 levels and shows increased IGF-1 levels after liver transplantation (LTX).

CLINICAL CASE: A 48-year-old man with a history of acromegaly was admitted to our outpatient clinic for further evaluation. His symptoms started 23 years ago with progressive enlargement of hands and feet, polyuria and polydipsia. After laboratory investigations he was diagnosed with acromegaly and diabetes mellitus. Pituitary MRI showed a macroadenoma with minimal suprasellar extension. After surgical intervention his symptoms resolved, and he lost to follow-up.

Three years ago he was investigated for abdominal distention and edema and was diagnosed with liver cirrhosis. Liver transplantation was planned, and as he had a history of acromegaly, he was referred to our endocrinology outpatient clinic for evaluation. On physical examination, his height was 1.84 m and his weight was 104 kg. His shoe size was stable. He had coarse facial features and was normotensive.

Laboratory investigations revealed the following RESULTS: glucose 87 mg/dl, prolactin 33.9 ng/ml, testosterone 6 ng/ml, fT4 14.5pmol/L, TSH 2.08 mIU/L, Albumin 3.96 g/dl, 8 a.m. cortisol 8 µg/dl, peak serum cortisol after an i.v. injection of 250 µg of synthetic ACTH was 14 µg/dl. GH 7.3 ng/ml, IGF-1 87.1 ng/ml (94-252). Upon repeated measurement GH was 5.6 ng/ml and IGF-1 was 114 ng/ml.

Pituitary MRI revealed postoperative changes with no residual tumor. On June 2017 he received liver transplant from a living donor. After the operation he developed diabetes and was started basal-bolus insulin therapy. He complained of tightness of his shoes and deepening of his voice. Laboratory investigations revealed the following results: glucose 160 mg/dl, HbA1c 8.4%, Prolactin 22.3 ng/ml, testosterone 5.4 ng/ml, GH 2.17ng/ml, IGF-1 321ng/ml (53.3-215).

Pituitary MRI showed a previously unnoticed suspicious milimetric residual tumor. He started to use cabergoline. IGF-1 levels were still elevated under 2mg/week of cabergoline and lanreotide 60 mg/28 days was started. On the last visit he was on lanreotide 60 mg every 5 weeks and his GH was 0.18 ng/ml and IGF-1 was 166 ng/ml (48-209).

CONCLUSION: Inappropriately normal or low IGF-1 levels may be misleading during the monitoring of acromegalic patients with severe liver disease, and deregulated GH/IGF-1 axis can be restored by LTX in these patients.

KEYWORDS: Acromegaly, liver cirrhosis, IGF-1, Growth hormone