Clinical Features of Thyrotropine Secreting Pituitary Adenomas

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Introduction

Thyrotropin-secreting pituitary adenomas (TSHomas) are a rare cause of hyperthyroidism and represent <1% of all pituitary adenomas. The majority of TSHomas (70%) secrete TSH alone, while mixed adenomas are not infrequent.

Design

Herein, we reported the findings of six patients with TSHoma (mean age 44 yr, 4 female, 2 male). Mean TSH value was 15,1 mIU/L (3,3-38.0) who were followed-up in our department.

Results

Symptoms of hyperthyroidism were the initial findings in all these patients. Three of them recieved high dose antithyroid drugs for hyperthyroidism, Because of unresponsiveness, radioactive iodine (n=1) or thyroidectomy (n=2) was performed as a definitive treatment for hyperthyroidism before the correct diagnosis of TSHoma.The diagnosis delayed for 3-11 years. Four of the patients secrete TSH alone, while three of them were mixed adenomas [TSH, growth hormone (GH) (n=1); TSH, GH and prolactin (n=1); TSH, prolactin (n=1)].

Five of the cases had macroadenoma invading sphenoid and/or cavernous sinuses, and two of them also showed compression on optic tractus, one patient had microadenoma. The primary therapeutic approach was transsphenoidal surgery. İmmunohistochemically, GH, prolactin and TSH positivity was evident in two patients and one also showed diffuse Pit1 positivity. One patient showed positivity,for TSH and prolactin and another showed focal immunostaining for GH and FSH.

No remission was noted in four patients and medical therapy with somatostatin analogues (SSAs) and thereafter cabergoline were started. Radiotherapy was performed for one patient postoperatively. Hormonal control was achieved in all treated patients

Figure 1. Preoperative Sella MRI images of case 4

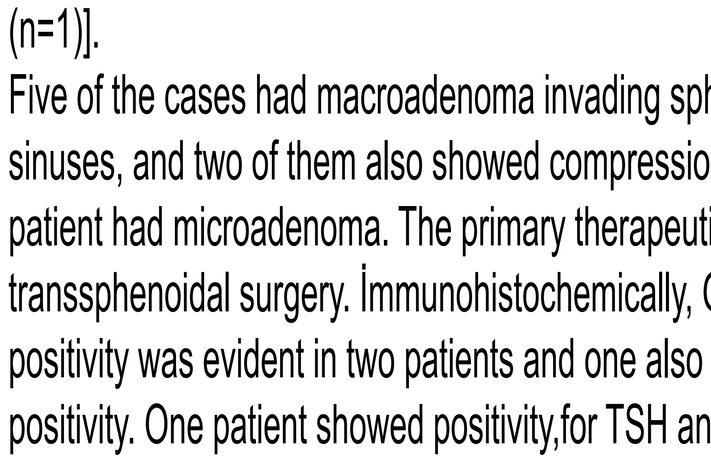

Figure 2. Preoperative Sella MRI images of case 6

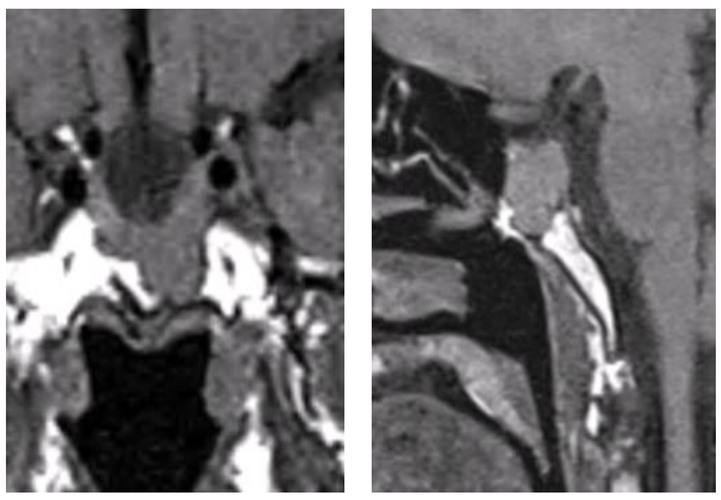

Table 1. Biochemical, radiological and clinical features of TSH secreting adenomas

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Hormonal secretion	TSH+GH	TSH+PRL	TSH+PRL+GH	TSH	TSH	TSH
FT4 (12-22pmol/L)	34	39.7	47	14	30	32
TSH (mIU/mL	5.0	38	3,34	39	3,7	3,38
IGF-1(ng/dL)	2.3 X ULN	Normal	2.1 ULN	N	N	N/A
Tc Scintigram	Diffuse hyperplasia	Diffuse hyperplasia	Diffuse hyperplasia	N/A	N/A	N/A
ATD	Yes	No	Yes	Yes	No	No
Ablative treatment	Tx	-	-	RAI	Tx	-
Sella MRI (mm)	40	39x28	40x30x15	19x17.	9x7	40x30
Invasion	SS	CSI (bilateral), SSC OTC	SSC, SS	CSI (left)	-	SS, SSC CSI (left), OTC
IHK	GH(+) PRL (+) TSH (+) ACTH (-) LH(-) FSH(-)	GH (-) PRL 30 % (+) TSH 30 % (+) Pit-1 Diffuse(+)	GH Diffuse (+) PRL Diffuse TSH+ LH (-) FSH (-) ACTH (-)	GH focal (+) FSH focal (+) LH focal (+) TSH:+ ACTH (-) PRL(-)	N/A	N/A
Treatment	TS surgery Octreotide CBG 1 mg/wk	TS surgery (2X) OCT 20 mg/6 wk CBG 1 mg/wk	TS surgery LAN 120 mg/4 wk CBG 1 mg/wk	TS surgery	TS surgery	TS surgery
Results	Partial remission	Partial remission	Partial remission	Complete remission	Complete remission	N/A

Conclusion

The delayed diagnosis of TSHoma usually cause inappropriate treatment of hyperthyroidism. Transsphenoidal surgery should be the first line treatment. If remission is not achieved medical therapy with SSAs and cabergoline and also radiotherapy should be the options.