# Amenorrhea with myxedema: A hidden clue

Sir,

Menstrual disturbances are common in thyroid dysfunction with menorrhagia in hypothyroidism and oligomenorrhea in hyperthyroidism. Primary hypothyroidism (PH) indicates thyroid gland dysfunction where as hypothalamic pituitary abnormality results in central hypothyroidism (CH). Myxedematous features coupled with elevated thyrotropin are seen in PH differentiating it from CH. In an obvious case of hypothyroidism, amenorrhea rather than menorrhagia and normal thyrotropin levels indicates CH.[1] We report a young woman with secondary amenorrhea, myxedema, normal thyrotropin and abnormal neuroimaging.

A 30-year-old woman presented with 3-year history of irregular menses progressing to secondary amenorrhea for the past 1 year along with easy fatigability and weight gain. She delivered two children and there was no history of peripartum complications or lactational failure. She denied seizures, headache, vomiting, visual defects, polyuria and loss of axillary or pubic hair. Screening for hypothyroidism with thyrotropin was normal on two occasions.

Examination revealed normotension, obesity, bradycardia, hypothermia, pallor, dry skin, pretibial edema, dull expression-less face with puffy lips and no goiter [Figure 1a]. Rest of the systemic examination was normal except for delayed relaxation of deep tendon jerks. Biochemistry showed dyslipidemia and elevated creatinine phosphokinase. Hormonal profile revealed free triiodothyronine −2.9 pmol/L (normal 3.1-6.8), free thyroxine −0.34 ng/dL (normal 0.7-1.15), thyrotropin −3.2 mIU/L (normal 0.3-4.5), prolactin −14 ng/ml (normal 0-15), LH 0.6 IU/L (normal 0-7), FSH 2.5 IU/L (normal 2-10), estradiol 26 pg/mL (normal 25-120). Peak cortisol and GH after hypoglycemia were 22.4 μg/dL and 7.16 ng/mL, respectively. MRI showed flat pituitary gland with empty sella [Figure 1b]. She was diagnosed as central hypothyroidism and hypogonadism with primary empty sella and treated with levothyroxine, estrogen + progesterone, calcium and vitamin D supplements.

Our case posed a diagnostic dilemma with florid manifestations of hypothyroidism but normal thyrotropin repeatedly. Myxedema is classically described in cases of PH and rarely with central hypothyroidism. Screening with isolated thyrotropin lead to delayed diagnosis, as patients of CH have normal or low thyrotropin. Delayed presentation of the primary empty sella with CH and hypogonadism is another unusual finding in our case. She had no history to suggest Sheehan's syndrome or secondary empty sella. Primary empty sella is seen mostly in females and endocrinal disturbances are seen in about 10-35% of patients.[2] Dynamic testing of pituitary hormones resulted in unmasking of hitherto unreported abnormalities in these patients.

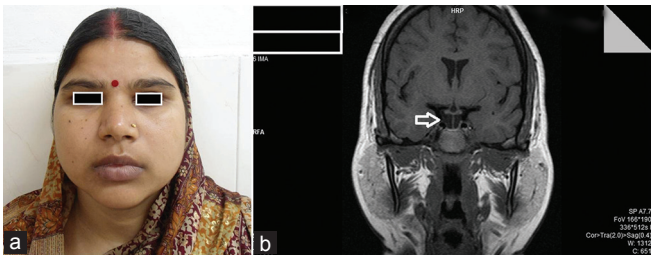


**Figure 1: (a)** Clinical photograph showing myxedematous facies **(b)** Pituitary MRI showing empty sella in coronal section

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