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Myoedema: A Presenting Symptom of Hypothyroid Myopathy.

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ABSTRACT:The incidence of Hypothyroidism is rising in our country. However, in this era of exhaustive investigations, where clinical signs often get overlooked, Myoedema is one such clinical sign, that very conclusively guides the clinician towards the diagnosis of Hypothyroidism. This case report highlights the importance of eliciting Myoedema to corroborate the diagnosis of Hypothyroidism.

KEYWORDS : Hypothyroidism; Myoedema.

I. INTRODUCTION

Hypothyroidism is a relatively common endocrine disorder with a characteristic clinical picture, which may be associated with a variety of clinical features of Myopathy, Mononeuropathy and Sensorimotor axonal polyneuropathy [14, 12,8,10.] .The clinical evidence of Hypothyroid Myopathy has been reported in 20-88% of patients[14, 11, 12, 13, 15]; the symptoms being proximal weakness, cramps, painful muscles, myoedema on percussion, delay in deep tendon reflexes and development of muscle hypertrophy [12, 13, 10]. Severity of Myopathy generally correlates with the duration and the degree of thyroid hormone deficiency [11, 15]. Serum Creatine Kinase (CK) elevation is usually observed even in the absence of overt muscle weakness [11,10 .]

CASE REPORT

31 year old male came with complaints of giddiness since 8 days. He noticed a gradual change in voice over one year. He complained of easy fatigability and difficulty in getting up from squatting position. All the above complaints progressed gradually over an year. There was no history of prolonged fever prior to these symptoms or indulging in any vigorous muscular activity or any history of being on any prolonged medication.Examination revealed normal vital parameters with no signs of malnutrition, oedema feet or puffiness of face. The grade of power in proximal muscles was 4/5 and in the distal muscle was 5/5. All the deep tendon reflexes were grossly delayed. On tapping biceps muscle gently there was slow and sustained contraction of muscle lasting for few seconds which is a classical sign of Myoedema. All the other systems including the Nervous system, especially higher functions were normal. Investigation revealed : Haemoglobin of 11.5gm/dl, the total count was 5500/cmm, platelet 2.18lakh/cmm.The Liver and Renal Function Tests were normal. Serum calcium and Vitamin D3 was normal. CPK was elevated 670 IU/L (Normal range 20-170IU/L). Serum cholesterol was 303mg/dl, serum triglyceride 143 mg/dl.MRI brain showed ischemic changes in both peritrigonal areas on T2 flair images which was not significant. Electrocardiogram was normal. Echocardiography showed mild pericardial effusion. Thyroid function test was done in view of clinical symptom and sign of Myoedema. It was suggestive of hypothyroidism with serum T3 80ng/100ml (70 - 200ng/100ml), T4 2.9µg/100ml (5-13µg/100ml), TSH 75µIU/ml (0.3-5µIU/ml).In view of above investigation diagnosis of hypothyroidism was made and patient was started on L–Thyroxine 100µgm per day. Patient showed remarkable symptomatic improvement with disappearance of Myoedema within a month and a marked fall in the CPK level. The Thyroid function test were repeated at two monthly intervals, which showed gradual fall in TSH levels. After 6 months Thyroid function tests became normal and there was complete resolution of proximal muscle weakness and normalisation of voice. Raised serum CPK, low T4 and high TSH, and their reversibility with L-thyroxine treatment supported the diagnosis of Hypothyroid Myopathy.

DISSCUSSION

Muscle weakness, aches and cramps, stiffness and delayed tendon jerk relaxation are usual features of Hypothyroid Myopathy (30–80%),while muscle hypertrophy, myoedema and wasting are occasionally seen.([1&2])Delayed relaxation of tendon jerks and proximal muscle weakness correlate with biochemical severity of hypothyroidism (serum T4 <20 ng/ml).(3). Acute myoedema are, however, distinctly rare. ([2 &4])Musculoskeletal symptoms are very common in hypothyroidism, and they may improve or disappear with correction of the hypothyroid state. [[5]] . The elevation of serum creatine phospho kinase (CK) was reported in 80% of the patients with hypothyroidism even with the absence of muscle involvement [4, 8,9,10.] Elevation of CPK *levels was detected in our patient as well. With the thyroid hormone replacement therapy the serum levels of*

CPK decreased in parallel to the clinical improvement in 3 months. Myoedema is one of classical signs of Hypothyroid Myopathy, which is uncommon and hence overlooked by clinicians in most instances. It is a phenomenon of mounding of muscle tissue occurring after a light pressure stimuli. It is produced by flicking across along the contours of bulk of arm involving biceps belly with the thumb and index fingers.(fig.1) This causes a visible and palpable non-tender, firm, localized ridge in the muscle immediately under the point of tactile stimulus.(fig. 2) The swelling reaches its maximal size after 1-2 seconds and gradually subsides over some 5-10 seconds,(fig.3) following which the muscle resumes its normal smooth contour with no palpable localized hardening.(fig.4) The swelling does not spread elsewhere along the muscle. The magnitude as well as the duration of this phenomenon is quite variable, depending upon the thickness of the muscle and the overlying soft tissues [6] and the intensity of the blow delivered. Myoedema is entirely reversible by thyroid hormone replacement and it does not have any harmful effects. Myoedema is due to prolonged muscle contraction caused by delayed calcium reuptake by sarcoplasmic reticulum, following local calcium ion release brought out by percussion or pressure. The muscle involvement in hypothyroidism is caused by alterations in muscle fibres from fast twitching type II to slow twitching type I fibres, deposition of glycosaminoglycans, poor contractility of actin–myosin units, low myosin ATPase activity, and low ATP turnover in skeletal muscle. [7] In the past, Myoedema was considered an insensitive and non-specific finding, occurring also in states of malnutrition, hypovitaminosis, and hypoalbuminemia, in addition to hypothyroidism. However, in conditions suspicious of overt hypothyroidism, elicitation of Myoedema significantly increases the probability of Hypothyroid Myopathy. Hence, it's special clinical significance and the need for its validation in appropriate settings.

II. CONCLUSION

Myoedema is uncommon feature of Hypothyroid Myopathy and Serum CPK levels - can be used as a marker of Hypothyroid Myopathy; which effectively responds to L-Thyroxine Therapy.

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REFERENCES:

[1] Ramsey I. Muscular abnormalities of hypothyroidism. In: Thyroid disease and muscle dysfunction. London: William Heinemann, 1974; pp 126–171.
[2] McArdle B. Metabolic and endocrine myopathies. In: Walton JN, Ed, Disorders of voluntary muscle. Edinburgh: Churchill Livingstone, 1974; p 750.
[3] Khaleeli AA, Griffith DG, Edwards RHT. The clinical presentation of hypothyroid myopathy and its relationship to Abnormalities in structure and function of skeletal muscle.Clin Endocrinology 1983; 19:365–76.
[4] Lochmuller H, Reimers CD, Fischer P, Heuss D, Muller-Hocker J, Pongratz DE. Exercise induced myalgia in Hypothyroidism. Clin Invest 1993; 71:999–1001.
[5] Cakir M, Samanci N, Balci N, Balci MK. Musculoskeletal manifestations in patients with thyroid disease. Clin Endocrinol. 2003; 59:162–7.
[6] Jones MP, Parkes WE. Myoedema. Clin Sci. 1955; 14:97–100.
[7] Wiles CM, Young A, Jones DA, Edwards RH. Muscle relaxation rate, fibre-type composition and energy turnover in hyper- and hypo-thyroid patients. Clin Sci. 1979; 57:375–84.
[8] Krupsky M, Flatau E, Yarom R Musculoskeletal symptoms as a presenting sign of long standing hypothroidism. Isr J Med Sci (1987) 23:1110-1113
[9] Kung AWC, Ma JTC, Yu YL Myopathy in acute hypothyroidism. Postgraduate Medical Journal (1987) 63; 661-663
[10] Scott KR, Simmons Z, Boyer P. Hypothyroid myopathy with a strikingly elevated serum creatine kinase levels. Muscle and Nerve (2002) 26:141-14 4
[11] 11.Evans R, Itaru W Central changes in hypothyroid myopathy: a case report. Muscle and Nerve (1990) 13:952-956
[12] Klein I, Levey G Unusual manifestations of hypothyroidism. Arch Intern Med (1984)144:123-128
[13] Ono S, Inouye K, and Mannen T Myopathology of hypothyroid myopathy. J Neurological Sciences (1987) 77:237-248
[14] Ruurd FD, Bosch J, Laman DM Neuromuscular findings in thyroid dysfunction: a prospective clinical and electrodiagnostic study. J Neurol Neurosurg Psychiatry (2000) 68:750-755
[15] 15.Torres CF, Moxley RT Hypothyroid neuropathy and myopathy: clinical and electrodiagnostic

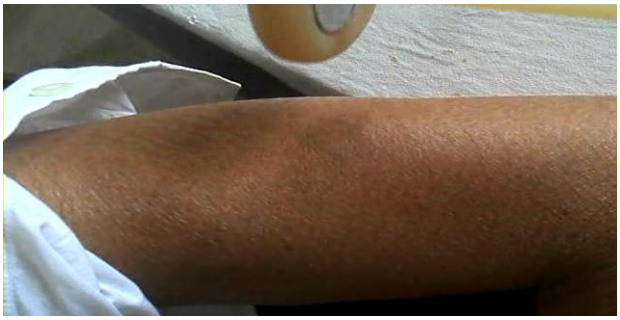

Figure 1 Resting phase

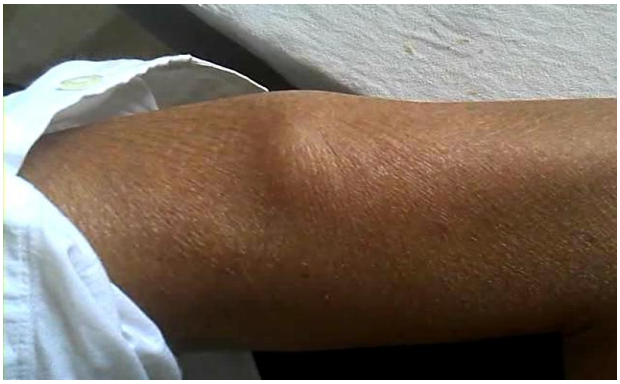

Figure 2 After flicking on biceps muscle belly

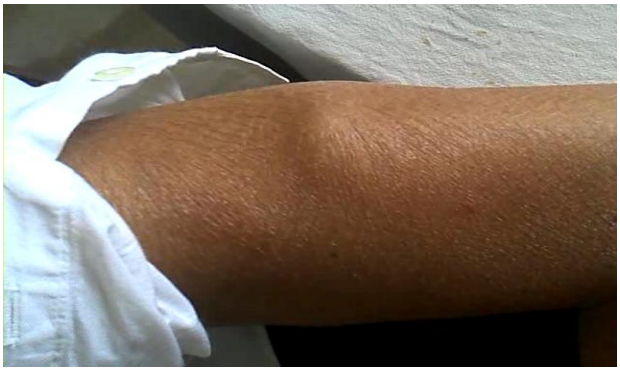

Figure 3 Mounding phase

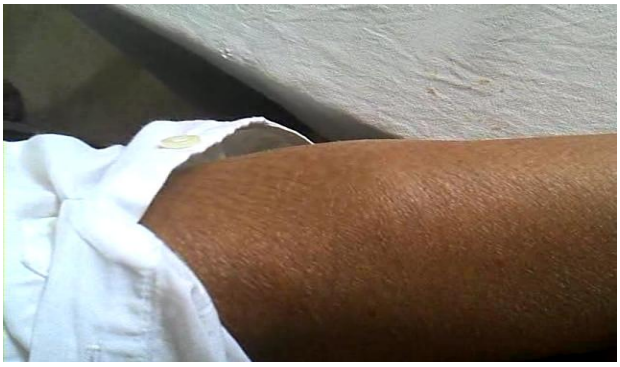

Figure 4 Back to resting phase