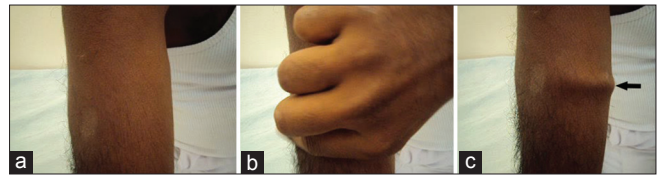


# Myoedema: A clinical pointer to hypothyroid myopathy

Sir,

I want to bring to your notice the significance of eliciting the forgotten sign of myoedema in reaffirming the clinical diagnosis of hypothyroid myopathy in daily practice. A 42-year-old man was referred to department of endocrinology with the suspicion of hypothyroidism. He had insidious onset history of significant weight gain associated with severe muscle pain, fatigability, and proximal myopathy. His skin was dry, and his mental and motor responses were slow. The ankle jerk was, however, equivocal. A classical myoedema was elicited in him, which increased his likelihood of having hypothyroid myopathy. His biochemical investigations confirmed overt primary hypothyroidism (TSH >150 mIU/l), and his serum creatine phosphokinase (CPK) was elevated at 886 IU/L (Normal range 20-170). Treatment with thyroxine replacement was initiated, and myoedema disappeared within a week of starting the same. Following 2 months of thyroxine replacement, his serum CPK showed a remarkable reduction.

Musculoskeletal symptoms are very common in hypothyroidism, and they may improve or disappear with correction of the hypothyroid state.<sup>[1]</sup> 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. [Figure 1a and 1b] This causes a visible and palpable non-tender, firm, localized ridge in the muscle immediately under the point of tactile stimulus. [Figure 1c] The swelling reaches its maximal size after 1-2 seconds and gradually subsides over some 5-10 seconds, following which the muscle resumes its normal smooth contour with no palpable localized hardening. 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<sup>[2]</sup> and the intensity of the blow delivered. Myoedema is entirely reversible by thyroid hormone replacement, and it does not have any harmful effects.



**Figure 1:** (a) Resting phase. (b) Flicking across the biceps belly with thumb and index fingers. (c) Mounding phase

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 fibers from fast twitching type II to slow twitching type I fibers, deposition of glycosaminoglycans, poor contractility of actin-myosin units, low myosin ATPase activity, and low ATP turnover in skeletal muscle.<sup>[3]</sup> 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, its' special clinical significance and the need for its validation in appropriate settings.

**Vignesh G, Karthik Balachandran, Sadishkumar Kamalanathan, Abdoul Hamide**

*Department of Endocrinology, Jawaharlal Institute of Post-graduate Medical Education and Research, Puducherry, India*

**Corresponding Author:** Dr. Sadishkumar Kamalanathan, Assistant Professor of Endocrinology, 557, Fourth floor, Inpatient Division, Superspecialty Block, Dhanvantri nagar, IPMER, Puducherry - 605 006, India.  
E-mail: sadishkk@gmail.com

## REFERENCES

1. Cakir M, Samanci N, Balci N, Balci MK. Musculoskeletal manifestations in patients with thyroid disease. *Clin Endocrinol* 2003;59:162-7.
2. Jones MP, Parkes WE. Myoidema. *Clin Sci* 1955;14:97-100.
3. 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.

### Access this article online

#### Quick Response Code:



**Website:**  
www.ijem.in

**DOI:**  
10.4103/2230-8210.109672