

Quiz Section

Answer to Quiz No 4 (PMR Vol 4 No 04 December 2009)

1. *What is the diagnosis?*

Ans: Changes in basal ganglia secondary to Non-ketotic hyperglycemia, as a result of diabetes mellitus

The plain CT scan images show subtle hyperdense lesions in right basal ganglia region with well-defined margins and no perifocal edema. The CT attenuation value of the lesion is 44 HU. The lesion is unilateral and non-enhancing on post-contrast study. These findings are suggestive of changes in basal ganglia secondary to non-ketotic hyperglycemia, as a result of diabetes mellitus. Her Blood sugar level (Random) was 490 mg/dl on that day. Urine examination does not reveal any ketone bodies. This unilateral hyperdensity in basal ganglia is secondary to hyperviscosity of blood in the region supplied by lenticulostriate branches of middle cerebral artery and arteries of Circle of Willis. Usually the lesion is unilateral and does not have hemorrhage or calcification, on GRE images of MRI Brain does not reveal any signal blooming. The patient presents with stroke-like illness with hemiballismus / hemichorea (involuntary movements) on opposite

side, as in this female aged seventy years who had diabetes mellitus. The treatment consists of trial of haloperidol or like drugs for involuntary movements; low dose insulin and supportive management. The condition is usually known to subside within six months. The hyperdensity in basal ganglia also resolves after treatment.

References

1. Max Wintermark et al, Unilateral Putaminal CT, MR and Diffusion abnormalities secondary to Non-ketotic Hyperglycemia in the setting of acute neurologic symptoms mimicking stroke, *AJNR*, 2004; 25:975-976.
2. Sheng-Feng Sung, Chieh-Hsiang Lu, Focal Neurological symptoms as the presenting manifestations of Non-ketotic Hyperglycemia: Report of two cases, *J Intern Med Taiwan* 2007, 18: 206-211.
3. N. Shobha et al, Diabetic nonketotic hyperosmolar state: Interesting imaging observations in two patients with involuntary movements and seizures, *Neurology India*, 2006; 54(4) : 440- 441

