**CASE REPORT OF CT BRAIN FINDING IN NON-KETOTIC HYPERGLYCEMIC HEMIBALLISMUS-HEMICHOREA IN PATIENT WITH CHRONIC UNCONTROLLED DIABETES MELLITUS**

**BACKGROUND**

Non-Ketotic Hyperglycemic Hemiballismus-Hemichorea (NKHHH) is considered as one of the rare complications of diabetes. Presentation of hemiballismus-hemichorea (HB-HC) is often associated with neurological condition commonly found in stroke. Hence, basic imaging such as plain CT-brain is needed to exclude differentials. However, findings for NKHHH are often mis-looked even by the radiologist. Hence, here is a case of NKHHH with a typical CT-brain finding.

**CASE REPORT**

A 55-year-old woman with diabetes who presented with involuntary movements of right upper limb and right facial muscle twitching for the past two days. At emergency department, patient was alert, conscious and was slightly hypertensive with glucometer of 22mmol/L and blood ketone of 0.8mmol/L. Physical examination reveals patient has brief episodic abnormal, non-purposeful movement of right upper limb consistent with hemiballismus and hemichorea.  There was also a non-rhythmic twitching movement involving the right side of the face. Besides the involuntary and repetitive right-sided movements, the remaining neurological exams were unremarkable.

CT scan was done to rule out acute brain pathology and finding of hyperdense lesion in basal ganglia region contralateral to the affected side seen. Patient was treated as NKHHH which prompted insulin infusion and anti-choreic medication which shows gradual improvement.

**DISCUSSION**

HB-HC in uncontrolled diabetes is a rare complication. CT brain can be used to diagnose NKHHH and rule out other causes of HB-HC such as acute stroke. Initial CT brain might appear normal but would later demonstrate hyperdensity in the striatal region (caudate nuclei and putamen) contralateral to the body side affected by HB-HC. The exact underlying pathophysiology of NKHHH is not fully understood. Two of the popular hypotheses include hyperglycaemia-induced hyperviscosity leading to regional blood-brain barrier disruption causing metabolic damage and decreased gamma-aminobutyric acid (GABA) availability in the striatum caused by non-ketotic state.

**CONCLUSION**

HB-HC in the setting of non-ketotic hyperglycaemia is uncommon but treatable. The sudden onset of unilateral HB-HC in long-standing diabetes and typical hyperdensity over basal ganglia can justify the diagnosis of NKHHH which can prompt early treatment in emergency department.