



Postdengue weakness and altered sensorium

Santosh Vastrad¹, Menaka Ramprasad¹, PadmaKumar ArayamParambil Vijayan², Arpandev Bhattacharyya^{1*}

¹ Department of Diabetes and Endocrinology, Manipal Hospital, Bangalore, India

² Medical Intensive Care Unit, Manipal Hospital, Bangalore, India

ARTICLE INFO

Article Type:
Case Report

Article history:
Received: 17 Apr 2010
Revised: 9 May 2010
Accepted: 1 Jan 2011

Keywords:
Postdengue fever
Weakness
Altered sensorium
Hypopituitarism

ABSTRACT

Dengue fever, also known as breakbone fever, is an acute febrile infectious disease caused by the Dengue virus belonging to the arbovirus group. We report on a patient who presented with altered sensorium, giddiness, and repeated falls after discharge from the hospital following dengue fever. The patient had hypotension on admission and hyponatremia in his initial biochemistry screen.

Diagnosis of hypopituitarism was made and patient responded to appropriate treatment.

© 2010 Kowsar M.P.Co. All rights reserved.

► *Implication for health policy/practice/research/medical education:*
Following postdengue illness, hypopituitarism is a possibility.

► *Please cite this paper as:*

Santosh V, Menaka R, PadmaKumar AV, Bhattacharyya A. Postdengue weakness and altered sensorium. *Int J Endocrinol Metab.* 2010;8(4):215-7.

1. Introduction

Typical symptoms of dengue fever include febrile headache, petechial rash, and muscle and joint pains. In a small proportion of infected individuals, the disease progresses to life-threatening complications such as dengue hemorrhagic fever or shock (1). Falls are common symptoms in the population of patients who die from the disease, particularly among the elderly. Common causes of falls are visual, neurological, and musculoskeletal problems, with simple stumbles as the most common cause.

We report a case of an elderly man whose main symptom was repeated falls 2 weeks after discharge from a mild case of Dengue fever.

2. Case report

A 59-year-old man was admitted in our hospital with a history of fever, body aches, and loose stools for a week. He was otherwise healthy with no significant chronic medical problems. On examination he was febrile and toxic with mild dehydration. Investigations revealed thrombocytopenia (Platelet-40,000/mm³). The rest of the baseline investigations were within normal limits including serum electrolytes. IgM and IgG antibodies for dengue antigen were positive. USG abdomen revealed mild splenomegaly. Diagnosis of seropositive dengue fever was made and treated symptomatically. He responded to the treatment well and was discharged a week after

* *Corresponding author at:* Arpandev Bhattacharyya, Department of Diabetes and Endocrinology, Manipal Hospital, Bangalore, 98 Rustom Bagh, Airport Road, 560017, Bangalore, India. Tel: +91-8025023404, Fax: +91-8025266757

E-mail: arpan@diabetesendocrinology.in

admission.

Two weeks later he presented in the emergency room with disorientation, urinary incontinence, unsteady gait, and altered sensorium. He had continued to fall for 1 week before the second admission for no apparent reason, but his wife attributed them to weakness after a serious illness and hospital stay. On examination he was pale, dehydrated, with dry, coarse skin without icterus or cyanosis. He was conscious but disoriented to time and place. A clinical examination revealed bradycardia (50/min) and hypotension (90/60 mmHg). Systemic examination was normal. Pupils were equal and reactive to light. Baseline investigations revealed significant hyponatremia. Serum sodium was 105 mmol/L (normal 135-145). In view of hypotension and dehydration he was started on

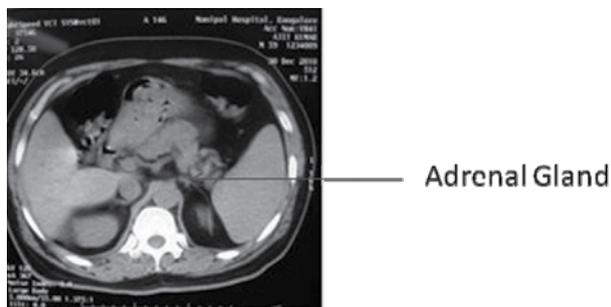


Figure 1. CT of abdomen showing normal adrenal gland

normal saline infusion and was admitted to the intensive care unit. To determine the cause of hyponatremia, a thyroid profile and cortisol test were ordered. A CT brain scan was normal. Penny dropped when his random serum cortisol report was available (4.8 mcg/dl). A second sample was collected at this point for cortisol and ACTH before starting the patient on intravenous hydrocortisone (dose of 100mg, 3 times a day). Again, his serum cortisol level (3.3 mcg/dl; normal 9-52 pg/ml) was low considering his stressful situation with low normal serum ACTH (22 pg/ml). A Synacthen test was not possible, an insulin-tolerance test was not considered given the patient's unstable physical state. Overall, for us, pituitary

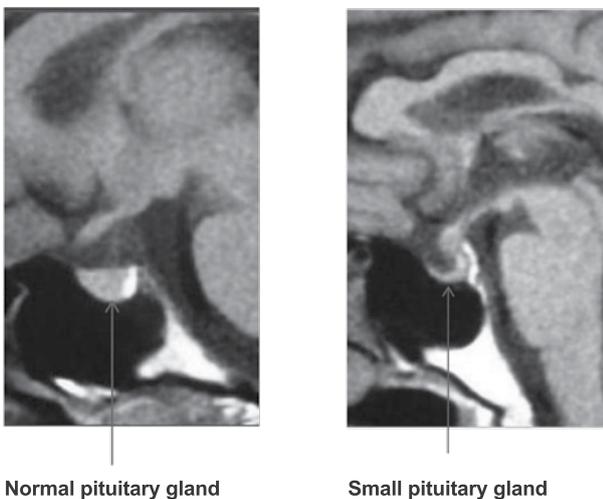


Figure 2. MRI Sagittal view of pituitary gland

functions pointed clearly to anterior hypopituitarism (TSH = 2.53 mU/ml (N = 0.3 to 5.5); FT4 = 0.39 ng/dl (N = 0.8 to 2.3); LH = 1.4 mU/ml (N = 1.4 to 11); free T = 0.025 ng/ml (N = 0.28 to 11)). An abdomen CT (Figure 1) did not reveal adrenal hemorrhage. An MRI of the pituitary gland was conducted to obtain a better visualization of the pituitary, which revealed that the gland was smaller than normal (Figures 2 and 3). The patient responded well to our treatment. He was started on thyroxine (50 mcg/day), and his cortisone-replacement therapy was changed from IV to oral hydrocortisone. Additionally, he received his first injection of testosterone (serum PSA was normal and this injection was performed as a routine protocol of testosterone replacement in our unit). The patient showed

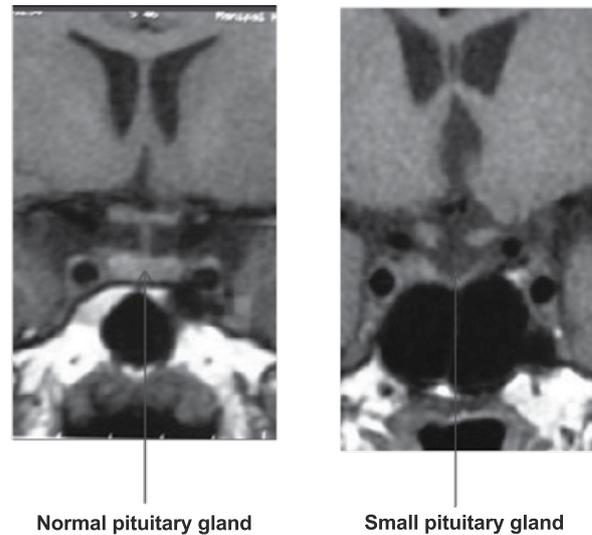


Figure 3. MRI Brain coronal view of pituitary gland

remarkable improvement in his sense of well-being and daily activities. His blood pressure as normal as serum sodium normalized. He was discharged on thyroxine 50 mcg/day, hydrocortisone 20 mg/day (10-5-5-0), and a monthly injection of testosterone enanthate (250 mg IM). The patient maintained normal daily activities with good biochemistry for follow up over the next 6 months. He was advised to continue the same medications with regular follow up and was also educated regarding the stressful dose of hydrocortisone.

3. Discussion

The WHO 1997 classification divided dengue into undifferentiated fever, dengue fever, and dengue hemorrhagic fever (1). Dengue hemorrhagic fever was subdivided further into four grades (I-IV), with the two most severe being classified as dengue shock syndrome (2). The WHO's 2009 classification divided dengue fever into two groups: uncomplicated and severe. This replaces the 1997 WHO classification, which was simplified as it was found to be too restrictive, although the older classification is still widely used.

Pituitary apoplexy is defined as a clinical syndrome that may include headache, visual deficits, ophthalmoplegia, or altered mental status. It may result from either infarction or hemorrhage of the pituitary gland. Prognosis is significantly improved with early diagnosis and surgical treatment (3). Pituitary apoplexy commonly occurs in the presence of pituitary tumor, but it can also occur in a normal pituitary gland (4). Common precipitating factors include coagulopathy, anticoagulant treatment, obstetric hemorrhage, diabetes mellitus, pituitary irradiation, and trauma. Male sex and characteristics of the adenoma itself (especially tumor size and tumor type) rather than patient's cardiovascular risk factors, such as diabetes and hypertension, seem to predispose to pituitary apoplexy; antithrombotic therapy may also be important (5). Hypopituitarism has also been observed following aortocoronary bypass in previous case studies (6, 7).

In 1937, Sheehan *et al.* concluded that pituitary necrosis was an infarction caused by ischemia rather than puerperal sepsis (8). The pituitary gland cannot regenerate, and necrotic cells are replaced by scars. Normal pituitary function can be supported until about 50% of the gland remains intact, whereas partial or complete hypopituitarism follows the loss of 75% and 90%, respectively, of the gland. The anterior pituitary is among the most common sites of hemorrhage in hemorrhagic fever, possibly because of its localization and vascularization. The anterior pituitary receives only 10%-20% of its blood supply from superior and inferior hypophyseal arteries, whereas the remaining 80%-90% comes from hypophyseal venous portal circulation (9). A study that conducted postmortem analyses after hemorrhagic fever with renal syndrome revealed hemorrhage in 50%-100% of the sample's cases (10). These data concur with first report of necrosis and hemorrhage in the pituitary in 60% of the fatalities in the hypotensive phase of hemorrhagic fever and in almost all who died in the oliguric phase. The atrophic changes in pituitary with consecutive hypopituitarism are similar to those described in sporadic patients. It is possible that hypopituitarism is more common than is recognized. Finally, fibrosis and pituitary atrophy can develop, resulting in hypopituitarism. A high prevalence of hypopituitarism was found in the study by Marko *et al.* in patients who had recovered from viral hemorrhagic fever with renal syndrome (10). It is likely that our patient de-

veloped pituitary infarct as a result of hypotension that was not so severe to develop hypocortisol crisis. Over days his Pituitary function deteriorated to the extent that he manifested with hypocortisolism and hypothyroidism. However, as expected pituitary infarction should have presented insidiously rather than subacutely which we cannot explain.

The potential for recovery following hypopituitarism is poor. Hypopituitarism is often undetected or diagnosed late, and this has severe implications on the patient's health and sense of well-being. These findings suggest that those patients who recover from hemorrhagic fever are at high risk of developing pituitary failure as late sequelae and should be systemically investigated and treated. Particular awareness of this condition must be raised among health care workers.

Financial support

There is no financial support.

Conflicts of interest

There is no Conflict of interest.

References

1. Ranjit S, Kissoon N. Dengue hemorrhagic fever and shock syndromes. *Pediatr Crit Care Med.* 2011;**12**(1):90-100.
2. Whitehorn J, Farrar J. Dengue. *Br Med Bull.* 2010;**95**:161-73.
3. Lee CC, Cho AS, Carter WA. Emergency department presentation of pituitary apoplexy. *Am J Emerg Med.* 2000;**18**(3):328-31.
4. Kleinschmidt-DeMasters BK, Lillehei KO. Pathological correlates of pituitary adenomas presenting with apoplexy. *Hum Pathol.* 1998;**29**(11):1255-65.
5. Bills DC, Meyer FB, Laws ER, Jr., Davis DH, Ebersold MJ, Scheithauer BW, et al. A retrospective analysis of pituitary apoplexy. *Neurosurgery.* 1993;**33**(4):602-8; discussion 8-9.
6. Bhattacharyya A, Tymms DJ, Naqvi N. Asymptomatic pituitary apoplexy after aortocoronary bypass surgery. *Int J Clin Pract.* 1999;**53**(5):394-5.
7. Menaka R, Sabeer TK, Joshi RR, Bhattacharyya A. Falling after CABG. *J Assoc Physicians India.* 2007;**55**:83-4.
8. Sheehan HL, Murdoch R. Post-partum Necrosis of the Anterior Pituitary; Pathological and Clinical Aspects. *BJOG: An BJOG.* 1938;**45**(3):456-87.
9. Hullinghorst RL, Steer A. Pathology of epidemic hemorrhagic fever. *Ann Intern Med.* 1953;**38**(1):77-101.
10. Stojanovic M, Pekic S, Cvijovic G, Miljic D, Doknic M, Nikolic-Djurovic M, et al. High risk of hypopituitarism in patients who recovered from hemorrhagic fever with renal syndrome. *J Clin Endocrinol Metab.* 2008;**93**(7):2722-8.