
Case Report

A Case of Dengue Fever with Thyroid Abscess

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Abstract:

Background: Dengue fever is a disease caused by a family of viruses that are transmitted by mosquitoes. Complications and unusual manifestations are increasingly being reported due to rising disease burden of the disease. Expanded dengue syndrome is a new entity added into World Health Organization (WHO) classification system to incorporate this wide spectrum of unusual manifestations. We report a case of expanded dengue syndrome with thyroid abscess.

Case presentation: A 27 years old man presented with fever, myalgias, arthralgias, retro-orbital pain and vomiting. Patient was diagnosed as a case of Dengue fever and managed conservatively. On 5 th day of illness patient became afebrile. and counts were in rising trend. On 6 th day of illness patient developed painful neck swelling accompanied by odynophagia.

Examination revealed acutely swollen, tender thyroid gland along with features of hyperthyroidism. Laboratory evaluation revealed stable hematocrit, leucocytosis and normal platelet. Thyroid profile showed increased free T3 and T4 and low TSH. USG Thyroid revealed enlarged isthmus, left thyroid lobe and ipsilateral level II and III lymph nodes. He was diagnosed as having sub acute thyroiditis and treated with oral prednisolone and propranolol. Patient had initial improvement with partial relief of pain and decrease in swelling. On 14 day patient developed fever, progressive odynophagia with acute pain and swelling neck, CT Neck was suggestive of acute suppurative thyroiditis with abscess left lobe (approximately 4.5 cm diameter) without any tracheal compression. USG guided aspiration of the abscess done and pus sent for culture and sensitivity which yielded staph aureus. He was started on broad spectrum antibiotics which was later on modified as per sensitivity. Aspiration was repeated, but patient continued to have symptoms with leucocytosis. Patient underwent left hemithyroidectomy. He had gradual recovery without any sequelae.

Conclusion: A secondary infection should always be suspected if clinical course is punctuated by new findings. Sub acute thyroiditis / Thyroid abscess may develop during the course of dengue fever and should be included as a manifestation of expanded dengue syndrome. It should be suspected in patients with dengue fever who develop painful thyroid swelling and clinical features of hyperthyroidism.

Keywords: Dengue fever, Expanded dengue syndrome, Thyroiditis, Thyroid abscess.

Background

Dengue fever is the most rapidly spreading mosquito borne viral disease in the world [2] and infection with dengue virus is asymptomatic in majority of the cases. The World Health Organization (WHO) has coined the term expanded dengue to describe cases which do not fall into either dengue shock syndrome or dengue hemorrhagic fever. This has incorporated several atypical findings of dengue. A wide spectrum of unusual manifestations of dengue infection affecting various organ systems including gastrointestinal, hepatic, neurological [4], pulmonary and renal systems has been described. The atypical manifestations noted in dengue can be multi systemic and multifaceted. Dengue as larger proportion of population is being affected, more unusual manifestations are being reported. We report a case of expanded dengue syndrome with

Thyroid abscess. To the best of our knowledge, this is the first case report of Thyroid abscess in a patient with dengue fever.

Case presentation

A 27 years old man presented with high grade fever accompanied by myalgias, arthralgias, headache, retro-orbital pain, rigors, chills, vomiting.

On 5 th day of illness patient became afebrile and counts were normalised. On 6 th day of illness patient developed painful neck swelling accompanied by odynophagia.

Physical examination was remarkable for tachycardia (pulse 110/min), fever (102.6°F), hoarse low intensity voice, fine tremors and thyroid swelling. Thyroid was swollen, warm and tender and patient had painful deglutition. There was no

cervical lymphadenopathy.

His serial complete blood counts showed stable hematocrit, progressively decreasing platelet count (nadir platelet of 69000 on day 5) and leukocyte count ($4,000/\text{mm}^3$ on day 2 to $3,100/\text{mm}^3$ on day 6). There was a sudden rise in leukocyte count from $3,100/\text{mm}^3$ to $12,100/\text{mm}^3$ with polymorphs of 77% , coinciding with onset of thyroid swelling (Figure (Figure1).1). Platelet count started improving after day 8 of illness. There was mild transaminitis which later normalised. During febrile phase dengue NS1 was positive. USG Thyroid revealed enlarged isthmus, left thyroid lobe and ipsilateral level II and III lymphnodes. Thyroid function tests showed high free T3 (220.9 ng/dl; reference range 75-195 ng/dl) and T4 (224.0 nM/L; reference range 60-140 nM/L), and low Thyroid Stimulating Hormone (TSH) (0.01 mU/L; reference range 0.5-4.5 mU/L).

Patient had no evidence of plasma leakage in the form of ascites, pleural effusion or hypoalbuminemia.

Fever was treated with paracetamol and tepid sponging. Thyroiditis was treated initially with 40 mg daily dose of oral prednisolone and pain improved initially in two days and decrease in swelling. On 14 day patient developed fever, progressive odynophagia with acute pain and swelling neck, CT Neck was suggestive of acute suppurative thyroiditis with abscess left lobe (approximately 4.5 cm diameter) without any tracheal compression. USG guided aspiration of the abscess done and pus sent for culture and sensitivity which yielded staph aureus. He was started on broad spectrum antibiotics which was later on modified as per sensitivity.

Aspiration was repeated, but patient continued to have symptoms with leucocytosis. Patient was taken up for left hemithyroidectomy after adequate preparation. He had gradual recovery without any sequelae. His thyroid function normalised and resumed his normal duties within a month.

Discussion

Large number of cases dengue has been encountered in recent time with more and more of atypical manifestations seen during epidemic. Patient described in this case report is one example and reinforces the concept of classifying these atypical presentations as separate entity called expanded dengue syndrome [3].

Our patient had an atypical manifestations of dengue infection sub acute thyroiditis with thyroid abscess.

Subacute thyroiditis is characterized by neck pain or discomfort, a tender diffuse goiter, and a predictable course of thyroid function evolution. Hyperthyroidism is typically the presentation followed by euthyroidism, hypothyroidism, and ultimately restoration of normal thyroid function. Subacute thyroiditis is presumed to be caused by a viral infection or a postviral inflammatory process. The majority of patients have a history of an upper respiratory infection prior to the onset of thyroiditis (typically two to eight weeks beforehand). Clusters of cases have been reported in association with Coxsackievirus, mumps, measles, adenovirus, and other viral infections [8]. Approximately one-half of patients have symptoms and signs of hyperthyroidism [9]. There are no

trials assessing optimal treatment of subacute thyroiditis. Patients are treated with acetylsalicylic acid (aspirin), a non-steroidal anti-inflammatory drug (e.g. Ibuprofen) or prednisolone [10]. Therapy for hyperthyroidism is often not needed as symptoms, if present, are mild and short-lived. Those few patients who have bothersome symptoms of hyperthyroidism, may benefit from treatment with a beta blocker.

Thyroid abscess is extremely rare, <1% of all thyroid diseases. The most common causative organism implicated is *S. aureus*. Our patient yielded staph aureus from aspirate. Other organisms include anaerobes of the oropharyngeal area or Gram-negative aerobes. Complications include tracheal or esophageal perforation, descending necrotizing mediastinitis, extension into the deep spaces of the neck, and death which was fortunately absent in our patient.

Thyroid abscess is rare due to total encapsulation of the gland with secluded anatomic position. It has an iodine-rich environment and extensive lymphatic drainage along with good blood flow from bilateral anatomizing superior and inferior arteries

Haematogenous spread from a distal site of infection is believed to be a common cause of thyroid infection

Thyroid abscess has not been previously reported. Only one case of subacute thyroiditis has been previously reported in association with dengue virus infection(11). Reports of suppurative abscesses elsewhere has been reported (12,13). Abscesses may be due to impaired immune mechanisms(14).

Drainage or partial or total thyroidectomy together with appropriate antimicrobial therapy is the treatment of choice in a case of thyroid abscess. If a pyriformis sinus tract is present, resection or obliteration of the tract is also recommended(16,17). Our patient had thyroid abscess which was not amenable to aspiration and required hemithyroidectomy.

Conclusion

Subacute thyroiditis with thyroid abscess may develop during the course of dengue fever and should be included as a manifestation of expanded dengue syndrome. It should be suspected in patients with dengue fever who develop painful thyroid swelling and clinical features of hyperthyroidism.

Abbreviations

DF: Dengue Fever; DHF: Dengue Hemorrhagic Fever; DSS: Dengue Shock syndrome; fT3: Free Tri-iodo-thyronine; fT4: Free Thyroxine; TSH: Thyroid Stimulating Hormone; NSAID: Non-Steroidal Anti-Inflammatory Drug.

Competing interests

The authors declare that they have no competing interests.

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