Septic Shock Due to Tuberculosis in Down Syndrome

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Both Immune dysfunction and deficiency, are known in Down syndrome. Tuberculosis commonly presents as insidious illness and septicemic shock is its rare presentation, mostly in immunocompromized patients. We report a 16 year old boy with Down syndrome presenting with septicemic shock due to tuberculosis.

Key words: *Immune deficiency, Trisomy 21, Tuberculosis.*

Tuberculosis commonly presents as insidious illness and septicemic shock is its rare presentation, mostly reported in HIV patients [1-3]. We report here a case of septicemic shock due to tuberculosis in a child with Down syndrome.

CASE REPORT

A 16 year old boy, known case of Down syndrome, was brought with history of fever and cough for 2 weeks, and cold extremities and breathing difficulty for last 12 hours. There was no history of diarrhea, vomiting or blood loss. Child was fully vaccinated for age and had a BCG scar. Capillary refill time was prolonged, heart rate was 160/min and blood pressure was 80/60 mm Hg (below 5th centile). Except for bilateral crepitations, systemic examination was normal. Child was managed on lines of septicemic shock. Normal saline bolus, antibiotics, vasopressor support, oxygen and packed red cell transfusion were given.

Hemogram revealed hemoglobin 8 g/dl, total leucocytes count (TLC) 8600 cells/cubic mm, platelet count-2,10,000/cubic mm. *X*-ray chest suggested patchy opacities with multiple cavitatory lesions in both lungs. Sonography of abdomen was normal. Echocardiogram revealed normal structural and functional cardiac condition. Blood culture was sterile. Widal test was negative. Sputum microscopy examination revealed acid fast bacilli (AFB) (*Mycobacterium tuberculosis*). Child was started on 4 drug antitubercular treatment (ATT). Hemodynamic improvement started on day 3 and vasopressor treatment was gradually withdrawn by day 6 of admission. Oxygen support was gradually withdrawn and weaned off on day 7 of admission. Category I Direct Observed Treatment Short course (DOTS) [4] was started and patient was discharged after 10 days of admission. Patient is on regular follow up and has clinically improved considerably. Follow up chest *X*-ray after 5 months revealed fibrocystic changes in the lungs suggestive of healing tuberculosis. Repeat sputum examinations (as per DOTS protocol) were negative for AFB.

DISCUSSION

There is an increased incidence of respiratory infections in children with Down syndrome. Although every arm of immune system shows evidence of dysfunction in these patients, particularly T cells (CD4+ and suppressor T cells) and NK cells show marked derangement of number and activity [5-9]. No data has so far shown difference in incidence of tuberculosis in this syndrome and general population [10].

Septicemic shock is commonly caused by pyogenic organisms. It is reported to be caused by tuberculosis in immunocompromized patients only [1-3]. We thus suspected some immunodeficiency or dysfunction in our case. This case was HIV negative and had normal total leukocyte count.

In the absence of adequate facilities, we were not able to exactly point out the immune defect in our patient. The possibility of immune dysfunction in Down's syndrome as a cause of shock in mycobacterial infection can be explored further, in view of similar presentation seen in cases of acquired immunodeficiency [2,3].

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Recurrent Thyroid Nodule: Spindle Epithelial Tumor with Thymus-like Differentiation (SETTLE)

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Thyroid nodules are uncommon in childhood and recurrent thyroid nodules even rarer. Spindle epithelial tumor with thymus-like differentiation (SETTLE), a rare and distinctive low-grade neoplasm is amongst the differential diagnosis of solitary thyroid nodule in children. We describe a boy who underwent completion thyroidectomy for SETTLE in the thyroid remnant four years after initial lobectomy was performed for the same diagnosis. Patients with SETTLE are to be closely followed as multifocality may manifest and be detected later.

Key words: *Cytokeratin, Spindle epithelial tumor with thymus-like differentiation (SETTLE), Thyroid.*

Thyroid nodules are uncommon in childhood particularly in iodine sufficient regions and recurrent nodules are even rarer. The prevalence of palpable thyroid nodules in childhood is about 1.5%. The differential diagnosis of solitary thyroid nodule in children are colloid nodule/ adenoma, thyroid cyst, lymphocytic thyroiditis, differentiated thyroid malignancy, medullary thyroid carcinoma and rarely spindle epithelial tumor with thymus-like differentiation [1]. Thyroid nodules are more often malignant in childhood than in adulthood [2].

Spindle epithelial tumor with thymus-like differentiation (SETTLE) is a rare and distinctive low-grade neoplasm of children and adolescents which usually presents as asymptomatic mass or nodule in the neck. Previously it has been described as thyroid spindle cell tumor with mucinous cysts, malignant teratoma and thymoma of the thyroid gland [3]. SETTLE is a tumor derived from ectopic thymus or branchial pouch remnants and was formally characterized as SETTLE by Chan and Rosai [4]. Histopathology and immunohistochemistry are the gold standard for confirming the diagnosis. There have been less than 30 reported cases of SETTLE in the available literature, and none of a multicentric/recurrent SETTLE [5,6]. We report a case of multicentric SETTLE in either of the lobes of thyroid in a young child.

CASE REPORT

A 9-year-old boy presented with progressively increasing swelling along right side of the neck for 6 months. He had