Erythema Nodosum Associated with Mycoplasma pneumoniae Infection

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Abstract

Erythema nodosum is a self-limited, autoimmune inflammatory disease of subcutaneous tissue. It is rarely seen in childhood. Erythema nodosum may occur as an isolated condition or in association with infectious (streptococcal pharyngitis, tuberculosis, Epstein-Barr virus infection, fungal infection) and non-infectious conditions (sarcoidosis, inflammatory bowel disease, connective tissue diseases, antibiotics, malignancies). Erythema nodosum associated with mycoplasma infection is uncommon. We report here the case of a 10-year-old patient with erythema nodosum associated with *Mycoplasma pneumoniae* infection. The patient had no symptoms of the respiratory system. *(J Pediatr Inf 2014; 8: 190-2)*

Keywords: Erythema nodosum, *mycoplasma pneumoniae, subcutan nodule*

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Introduction

Erythema nodosum is autoimmune inflammatory disease of subcutaneous tissue, which is rarely seen in childhood. The lesions are painful, hot and symmetrical erythematous nodules that occur in the subcutaneous fat tissue. In its etiology, primarily infectious diseases, sarcoidosis, inflammatory bowel diseases, collagen tissue diseases, some antibiotics and hypersensitivity reactions started by malignity have roles to play (1-5). While streptococci infections are at the top of the list, erythema nodosum can be accompanied by infectious diseases such as tuberculosis. Association of erythema nodosum and *Mycoplasma pneumonia* infection are reported to be rare case reports in the literature (1). In this case, a case of mycoplasma infection without respiratory tract involvement was reported with a diognosis of erythema nodosum.

Case Report

A 10-year old female case went to see the family GP 10 days ago with the complaints of fever, exhaustion, and sore through. The case was orally given amoxicillin-clavulanate. On the second day of the treatment, she was admitted to our center with pains on the leg and painful rashes spreading onto the front side of the leg which were initially reddening and then gradually stiffening. She had no peculiarity in her family history. In the physical examination, weight; 32.7 kg (25-50P), height: 139 cm (50-75P), cardiac pulse: 92/min, respiratory rate: 28/min, blood pressure: 94/60 mmHg and body temperature: 36.7 C. The patient was conscious, fully cooperating and had many nodular lesions on the front side of bilateral leg and on the extensor side offront arm with different sizes, symmetrically placed, the biggest one 6x5 cm round, with increasing heat on the surface. Other system inspections were normal. These symptoms helped us to diagnose the case as erythema nodosum. Laboratory examinations were performed with regards to advanced examinations and differential diagnosis. Following results were obtained; Complete blood count Hb: 12.6 g/dL, Htc: 38.2%, white blood cell: 14,700/mm^3, erythrocyte count: 4,300,000/mm^3, blood platelets: 340,000/mm^3. 75% leukocytes with polymorphic nuclei, 13% lymphocyte, 10% monosit, 2% eosinophil were found in the peripheral smear; no atypical cell was observed.Erythrocyte sedimentation rate was: 100 mm/h and CRP 9.39

mg/dL. It was found in the blood biochemistry; aspartate aminotransferase: 19 mg/dL, alanine aminotransferaz: 14 mg/dL, gamma glutamic transferase: 42, total bilirubin 0.4 mg/dL, direct bilirubin 0.2 mg/dL, prothrombin time: 12.2 sn, INR: 1.1. Routine urine test was normal, and it was found that blood calcium was 9.2 mg/dL and calcium in 24-hour urine was 125 mg/day. ASO 710 IU/mL, romatoid factor and anti-nuclear antibody were negative; there was no bacterial isolation in the throat culture. The patient was initially given 20 mg/kg/day ibuprofen, hot medical dressing was applied onto the lesions. No pathology was found in the chest radiography. Tuberculin skin test and Quantiferon tests were negative. Salmonella agglutination tests were found as negative. No pathology was found in the abdominal ultrasonography of the patient. There was no reproduction in the blood and urine cultures. In the viral serology, parvovirus was B19 IgM-IgG negative, anti-HAV IgM-IgG negative, anti-HBc IgM negative; anti-HBc, anti HBs negative; anti-HCV negative; monospot negative; EBV-VCA IgM negative; anti EBNA positive; EBV-VCA IgG/EA positive; anti-CMV IgM negative; anti-CMV IgG positive. The anti-Mycoplasma pneumonia IgM antibody with regards to potential mycoplasma was found as positive.

The patient who was given clarithromycin treatment on the 3rd day dramatically started to respond to the treatment. Rashes and high fever started to recede. It was found in the control examination that the lesions completely disaapeared and did not recur.

Discussion

Erythema nodosums aretumorous on the skin, painful, red, hot skin nodules frequently seating on the front side of tibia. The nodules that are initially light red and later change to bluish purple in a few days' time and eventually turn to yellowish green do not ulcerate and eventually heal without any scars. The classic histopathologicalappearance is acute septal panniculitis without vasculitis of the subcutaneous fat lobules (5-8). It is commonly accepted thathistopathological appearance occurs as a result of over-sensitivity in the late type originating mostly after 3-6 weeks against various antigenic warnings. The diagnosis is mostly given based on clinical symptoms and biopsy is rarely performed.

Erythema nodosum is common usually in adults, especially in women. It is reported that in childhood, it is rare in children under 2 and most common in the 8-10 years old age group. While the prepuberty the male-female rate is equal in childhood, it is more common in females during the adolescent period. Erythema nodosum period is reported to be 3-6 weeks in adults; this period is shorter in children.

While the most frequent cause of erythema nodosum in children in America and Europe is group A betahemolytic streptococcus (AGBHS), it is tuberculosis, AGBHS and mycotic infections in other countries in other parts of the world. Apart from the infection diseases, systemic diseases such as sarcoidosis, Behcet disease, inflammatory bowel disease, leukemia and lymphoma; and during the development of erythema nodosum, the drugs start the immunologic reaction as an antigenic stimulant. In studies in which the causes of erythema nodosum are considered in childhood, while streptococcal infection top the list in etiology, tuberculosis, Epstein-Barr virus infection and inflammatory bowel disease are also among the common causes of the disease. No reproduction occurred in the throat culture of our patient; the chest radiography taken due to definitive diagnosis were normal; sarcoidosis was not considered in the patient who did not have any other pathological symptoms except erythema nodosum nodules and who did not have hyperkalemia, hypercalciuria and uveitis in the eye examination. Rheumatoid factor andantinuclear antibody tests required regarding the autoimmune diseases were negative. No symptoms or clinical outcomes were encountered to indicate inflammatory bowel disease.

When the causes of erythema nodosumare examined, it is clearly seen that mycoplasma infections are among the rare causes. While persistent dry cough was common in 75-100% of the mycoplasma-infected cases, in 3-10% of these cases (9) pneumonia developed. Besides, mycoplasma infection may be present with many extrapulmonary clinical tables. Extrapulmonary manifestations are common in 20-25% of the mycoplasma-infected cases. While extrapulmonary symptoms are visible without pneumonia, they can be visible before, during and after pneumonia as well (10). Hematologicsystem, neurologicsystem, musculoskeletal system, gastrointestinal system, heart, kidney and skin involvement can be considered among the extrapulmonary systems. Exanthematous skin rash is the most common form of clinical manifestation in mycoplasma infection skin involvement which is respectively followed by urticarial, erythema nodosum and Stevens-Johnson syndrome. Mycoplasma infection was found in 0.8-9% of the erythema nodosum cases (1, 8). Skin involvement together with mycoplasma infection presented differently in the different members of the same family was reported in the literature. Firstly, the mother in the family was found to haveerythema nodosum; afterwards, itwas present as anaphylactoid-purpura in the female and then as acute urticarial in the male family member (11). In a case report in Japan, secondary to the mycoplasma infection, firstly erythema nodosum and afterwards, in the case of ongoing clinical table, erythema multiforme and Henoch-schönlein purpu-

ra were reported in the same patient (12). No other skin symptom was found in our cases admitted with the complaint of erythema nodosum table, dramatic response was received with clarithromycin and full recovery was achieved. Once again, interestingly enough, despite the detection of mycoplasma infection, including non-productive and persistent cough, no respiratory system symptom was found. Bacterial growth in the throat culture was considered because of the patient's use of antibiotics before admission, but with the clinical course and response to the treatment, the table was evaluated in relation to *M. pneumonia*.

Conclusion

Although erythema nodosumis a disease which is with good prognosis and self-limited, its etiology should be found and treated. The causes such asstreptococcal tonsillarpharyngitis, tuberculosis, salmonella gastroenteritis, systemic inflammatory diseases and malignity are the first one to come to mind in its etiology. However, in the definitive diagnosis of patients with erythema nodosum, even if the patients do not have any respiratory symptom, commonly encountered mycoplasma infection should also be kept in mind.

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