Case Report

Subungual Erythema in Lymph Node Tuberculosis with Erythema Nodosum

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Abstract
We encountered a case of tuberculous lymphadenitis with erythema nodosum presenting with an unusual manifestation as subungual erythema in all the digits. Relevant literature and the possible explanation for the subungual erythema have been discussed. ©

INTRODUCTION
Various kinds of tuberculo-protein hypersensitivity phenomena are encountered in tuberculosis patients either in association or in isolation of the active disease e.g. erythema nodosum, phlyctenular conjunctivitis, reactive polyarthritis, increased dermal tuberculin hypersensitivity, pleural effusion, pericardial effusion etc. However, co-existence of many of them together in one patient is very unusual. The present case elicited at least four such hypersensitivity phenomena namely erythema nodosum, reactive polyarthritis phlyctenular conjunctivitis and highly reactive tuberculin test in addition to a unique subungual erythema. All tuberculo-protein hypersensitivity phenomena are known to be reversible and subside either spontaneously or on taking specific treatment for tuberculosis.

CASE REPORT
A 16 years young girl presented with 2 months history of progressive painful swelling of around 2.5 centimeter diameter on left side of the neck, followed by low grade fever and reddish in coloration of fingernails in all digits. Nearly 20 days prior to the presentation she developed painful skin nodules over the front of right ankle and over both shins along with moderate pain in knees, ankles, elbows and wrist sparing distal smaller joints. For the same duration she had been having mild pain and itching in both eyes but without any discharge. No past history of diabetes mellitus, tuberculosis or joint pain could be elicited. Her family history was unremarkable.

Patient was moderately built and nourished with normal vital signs. Her eyes revealed redness in lateral scleral regions on either side. Detailed ophthalmologic examination revealed phlyctenular conjunctivitis in both eyes with normal fundus and anterior segments. A tender, soft, non-fluctuating and mobile cervical lymph node of 2.5 X 2.5 cm in size was seen just posterior to the middle third of sternocleidomastoid muscle on left side. Her both hands revealed subungual erythema in all the digits. The erythema extended to distal two-thirds of the nail bed and was well demarcated from the proximal position with incomplete involvement of lunula (Fig.1). The tenderness was also positive in all phalanges. Multiple painful reddish-blue skin nodules of 5-15mm size were observed over the shins and entire abdominal wall. The examination of respiratory, cardiovascular and central nervous was essentially normal. The knee, elbow, wrist, and ankle joints on either side were tender and were painful on movement; however, only knee joints were minimally swollen.

Complete hemogram and routine serum biochemistry were normal. Rheumatoid factor, LE (lupus erythematosis) cell phenomenon and CRP (C-reactive proteins) were negative. Blood culture was sterile and Widal test was negative. The erythrocytes sedimentation rate (ESR) was 47mm 1st hour by Mantoux test after 48 hours was highly positive with vesicle formation (Fig.2). Radiographs of chest, knees, elbows and ankle joints were normal. Abdominal ultrasonography revealed normal study. Fine needle aspiration cytology (FNAC) of the enlarged lymph node was suggestive of tuberculosis and stained positive for acid-fast bacilli (AFB). The shin nodule biopsy was compatible with that of erythema nodosum. Consequently, the diagnosis of cervical lymph node tuberculosis with erythema nodosum with phlyctenular conjunctivitis with subungual erythema was made.

The patient was started on tuberculosis
chemotherapy in the form of; isoniazid, rifampicin, pyrazinamide and ethambutol daily. The erythema nodosum, phlyctenular conjunctivitis and other constitutional symptoms disappeared within 2-3 weeks. The subungual erythematous spots gradually fainted to purple, then brownish and ultimately disappeared completely within 3 weeks. By 2 months, the patient became asymptomatic and lymph node regressed. Patient was changed onto continuation phase of i.e. isoniazid plus rifampicin for a period of 4 months, which was completed uneventfully.

**DISCUSSION**

In India erythema nodosum is the commonest paniculitis and nearly 70% are idiopathic. It has been reported to accompany primary tuberculous infection in 1-2% of British and 5-15% of Scandinavian cases. It is rare below the age of 7, with an increase in frequency up to puberty. It is common after puberty and 80-90% cases are females. Tuberculin conversion is said to precede the eruption by a few days to a few weeks in most cases, although erythema nodosum may also occur later in primary or even post primary tuberculosis. The rash is probably a manifestation of the Arthus phenomenon, as in erythema nodosum leprosum, where local deposits of immunoglobulins, complements and soluble mycobacterial antigens have been demonstrated. The characteristic feature of erythema nodosum is the presence of tender, dusky red, slightly nodular lesions on the anterior surfaces of the legs, although lesions are occasionally also found on anterior surfaces of thighs, the extensor surfaces of the forearms and rarely on the face and breast. The nodules are usually 5-20 mm in diameter, have ill defined margins and may become confluent. They usually resolve over a week or two, the red color fading to purple and then brown, brownish pigment often persisting for several weeks. Recurrent crops of lesions may occur. Fever may precede the eruptions by days or weeks and usually resolve with clearing of the lesion. Arthralgia is common in adults affecting the larger joints; wrists, elbows, knees or ankles and joints may some time be hot, swollen and tender mimicking acute rheumatic fever. The tuberculin test is always strongly positive, in fact negative tuberculin test suggests a non-tuberculous cause such as sarcoidosis. Histopathologically erythema nodosum is a common variety of panniculitis (non- suppurative inflammation of subcutaneous fat), which is a septal panniculitis without vasculitis. Another very similar entity is erythema induratum, a form of lobular panniculitis, which is often labelled ‘nodular vasculitis’ of unknown etiology.

The present case meticulously fits in to the foregoing classical description of erythema nodosum of tuberculous etiology. Over and above there were two additional remarkable findings in this case namely i) Subungual erythematous spots of fingernails and ii) phlyctenular conjunctivitis of both eyes. Subungual erythema observed in the fingernails in a case of tuberculosis with or without erythema nodosum has not been documented earlier and is a unique finding in the present case. We do not know exact etiopathogenesis of this unique manifestation. However, the temporal relationship between its onset alongwith other known tuberculo-protein hypersensitivity phenomena and manner of its resolutions similar to that of erythema nodosum after tuberculosis chemotherapy suggests that nail involvement may also be an expression of hypersensitivity phenomenon akin to erythema nodosum. However no biopsy specimen from subungual erythematous lesion could be taken to confirm this hypothesis.

The subungual erythema has also been described in various conditions as half-an-half nail phenomenon occurring mainly in those with chronic renal failure but also in healthy persons. Subungual erythema may also correspond to recent subungual hemorrhage after trauma or patient receiving anti coagulant therapy. Subungual
hemorrhage has also been observed in variety of systemic diseases e.g. enterococcal endocarditis, staphylococcal endocarditis etc. Drug induced color changes in the nails have been observed in patients receiving drugs such as clofazimine and a few cancer chemotherapeutic agents. The latter may be drug induced photo onycholysis as well. However, our patient had not received any drug before presenting to us. Moreover, clinical presentation and rapid resolution after tuberculosis chemotherapy in present case do not favor these alternatives. Thus, by exclusion we presume that subungual erythematous discoloration in the present case was due to delayed hypersensitivity immune response encountered in tuberculosis patients.

The second additional finding in the present case was encountered in the form phlyctenular conjunctivitis in both eyes. The phlyctenular conjunctivitis is a well-known phenomenon, which reflects hypersensitivity to tuberculo-proteins, again commonly encountered in children. This phenomenon also subsides by treating the underlying tuberculosis disease with appropriate anti TB chemotherapy. The other causes of poly arthritis such as rheumatoid arthritis, systemic lupus erythematosus (SLE), systemic sclerosis, Sjogren’s syndrome, tuberculous infective arthritis, sarcoidosis etc. were excluded with the help of relevant clinical, microbiological, serological and radiological investigations.

Apart from a unique finding of subungual erythema of fingernails, the conglomeration of several hypersensitivity phenomena of in a single patient is also an interesting coincidence.

REFERENCES