Yellow nail syndrome

Alon Hershko, Boaz Hirshberg, Menachem Nahir, Gideon Friedman

Yellow nail syndrome was first described by Samman and White in 1964. Their original article summarised a series of 13 patients and referred to several other reports from 1927 and the early 1960s (box 1). Most of their patients suffered from ankle oedema and had slow rates of nail growth, ie, less than 0.2 mm per week compared to the normal 0.5–1.2 mm per week. Samman and White were also the first to suggest that an abnormality of lymphatic vessels may explain the pathogenesis of the syndrome. Two years later Emerson described the full triad of slow-growing yellow nails, lymphoedema, and pleural effusions, while in 1972 Hiller et al reported that the presence of two of the three symptoms was sufficient to establish the diagnosis. Over the years the features of yellow nail syndrome have been extensively studied, with special emphasis on the involvement of the respiratory tract which is the site of the most distressing symptoms. Recently, it has been proposed that the frequent association of rhinosinusitis with yellow nail syndrome may warrant its recognition as part of the syndrome.

Diagnosis

Yellow nail syndrome is a rare entity and its diagnosis is based on clinical criteria. Characteristically, laboratory findings are within normal limits. Emerson defined the syndrome as the presence of the complete triad of dystrophic yellow nails, lymphoedema and pleural effusions but today it is accepted that diagnosis can be made in the presence of just two of these symptoms (box 2). It is noteworthy that yellow nails are found in 89% of cases, lymphoedema in 80% and pleuropulmonary symptoms in 63%. Yellow nail syndrome may be a diagnostic challenge since all three symptoms are evident in only a minority of patients.

We treated a patient who suffered from long-standing lymphoedema and recurrent pleural effusions but no typical nail changes (box 3). Physical examination of the feet indeed revealed dystrophic nails which are probably not related directly to the syndrome because their colour and shape were not typical. The patient denied that his nails were ever yellow and insisted that they were not slow-growing. In the absence of yellow nails the syndrome is regarded as a diagnosis by exclusion. Therefore, the patient underwent a series of tests in order to exclude infectious, immune-mediated and neoplastic aetiologies of pleural effusion. The clinical findings and the negative laboratory studies supported the diagnosis of yellow nail syndrome.

Clinical features

NAIL ABNORMALITIES

Yellow nail syndrome has been shown to involve multiple organ systems (box 4). Historically, nail changes were the first to be recognised. The slow rate of nail growth may be accompanied by colour changes (pale yellow/green), onycholysis, and occasionally a distinct hump on the nail. As mentioned above, a minority of patients lack nail changes. Moreover, spontaneous clearing of the nail changes has been reported without resolution of the respiratory involvement. Reversal of nail discolouration has also been noted after treatment of breast cancer. These cases indicate that the nail changes may be reversible and do not necessarily correlate with other manifestations of the syndrome. They may also be alleviated by local measures; topical use of vitamin E has been shown to improve nail symptoms clinically, with a corresponding increase in nail growth rate. Likewise, local injections of triamcinolone acetonide has resulted in a partial response.

RESPIRATORY TRACT

Pleural effusion is usually the last clinical manifestation of yellow nail syndrome to appear. Usually it is clear, with a high content of protein, lactate dehydrogenase and white blood cells, predominantly lymphocytes, although
### Yellow nail syndrome: diagnosis

Two of the following criteria:
- slow-growing nails (<0.5 mm/week)
- pleural effusion
- lymphoedema

### Yellow nail syndrome: features

<table>
<thead>
<tr>
<th>Nails</th>
<th>Oedema</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>discoloration (pale yellow/green)</td>
<td>upper/lower limbs</td>
<td>chylous ascites</td>
</tr>
<tr>
<td>slow growth</td>
<td>eyelids</td>
<td>pericardial effusion</td>
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<tr>
<td>onycholysis</td>
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### Respiratory tract
- pleural effusion
- restrictive/obstructive defects
- bronchiectasis
- rhinosinusitis

Laboratory studies revealed haemoglobin 18.9 g/dl, haematocrit 60.8%. Pleural fluid contained 1200 ml of a clear fluid with 49 g/l protein, 23 g/l albumin, 381 U/l of lactate dehydrogenase and 7.9 mMol glucose. The fluid contained numerous lymphocytes, polymorphonuclears and mononuclears but no malignant cells, and cultures of the fluid were sterile. Ziehl–Nielson staining and mycobacterium cultures of the pleural effusion and of a gastric aspirate were negative. Spirometry tests showed obstruction of small and large airways with poor response to bronchodilators. Repeated punch biopsies of the lesions on the calf skin were consistent with stasis dermatitis and not Kaposi’s sarcoma, as suspected clinically.

### Lymphoedema

Lymphoedema is the initial symptom in one-third of cases. It usually affects the upper or lower limbs (one report describes lymphoedema of the eyelids). It is advisable to care for the limbs using bandages, elevation and intensive treatment of infections. Recently, total resolution of yellow nails and lymphoedema was observed following oral zinc supplementation for two years and this may prove to be a specific treatment.

### Association with other diseases

Yellow nail syndrome may be associated with a number of systemic diseases such as rheumatoid arthritis, acquired immunodeficiency syndrome (AIDS), tuberculosis, immunologic disorders, malignancies such as carcinomas of the breast and gall bladder, and mycosis fungoides. Yellow nail syndrome secondary to penicillamine use has also been described. There is some evidence that yellow nail syndrome may represent a premalignant disorder. Follow-up is especially important in patients whose diagnosis is made by exclusion.

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