Nailing the diagnosis: severe nail involvement in adult pulmonary Langerhans cell histiocytosis

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Received 29 June 2020
Revised 21 August 2020
Accepted 22 August 2020
Published Online First 21 October 2020

CASE PRESENTATION

A 36-year-old male ex-smoker was referred for the management of pulmonary Langerhans cell histiocytosis (LCH) confirmed by surgical biopsy (figure 1A). He had been treated with desmopressin for 5 years for diabetes insipidus. One year before admission, dyspnoea on exertion had appeared. At the same time, the patient developed painful nail abnormalities on all 10 fingers with subungual hyperkeratosis, purpuric striae, paronychial erythema, longitudinal grooving, splinter haemorrhages, onycholysis, lunula deformation (figure 1B), with no underlying bone involvement on hand X-ray examination. Nail samples were negative for bacteria and fungi. Maculopapular and crusted lesions in the axillary fold, the scalp and the external auditory canal were also present. A nail biopsy showed hyperplastic epidermis, surmounted by thick parakeratosis. The upper dermis was infiltrated by pale histiocytes with eosinophilic cytoplasm and reniform nuclei that positively stained for CD1a antigen, consistent with LCH (figure 1C).

Lung function testing displayed airflow obstruction and decreased diffusing capacity of carbon monoxide. Routine laboratory tests were normal, as was the anterior hypophysis endocrine evaluation. Brain MRI showed the loss of the posterior bright spot on the T1 sequence and a 3 mm nodular thickening of the pituitary stalk. No other LCH localisations were identified on ^{18}F-fluorodeoxyglucose positron emission tomography-CT.

Because of multisystem LCH with progressive lung involvement, after patient consent was obtained, cladribine was initiated for four monthly cycles associated with long-term infection prophylaxis, as previously described.[1] The treatment was well tolerated. At the 6-month evaluation, the nail abnormalities had resolved (figure 1D), and the pulmonary LCH had improved. At the last follow-up, 5 years after treatment, the patient had no respiratory symptoms, and nail involvement had not recurred. His only treatment was desmopressin for continued diabetes insipidus.

DISCUSSION

LCH is a rare myeloid neoplastic disorder of unknown aetiology driven by various pathogenic genomic alterations of the b-Raf and extracellular signal-regulated kinases pathways.[2] It may affect patients of all ages, with a wide clinical spectrum.

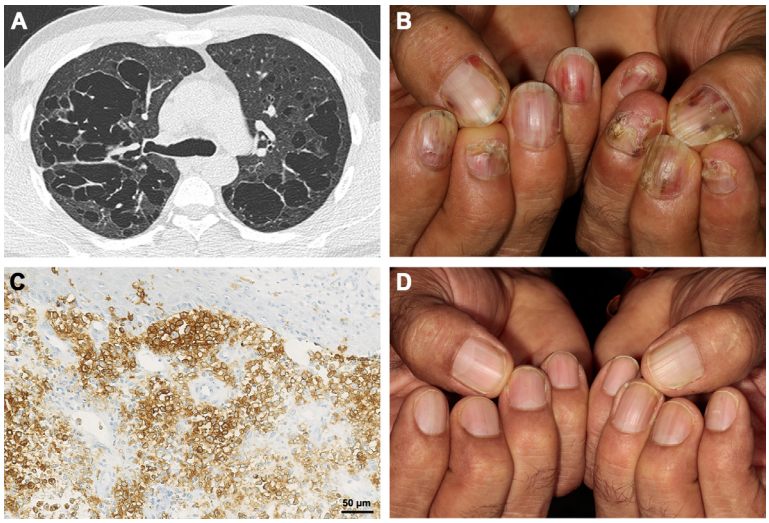

Figure 1 (A) High-resolution CT scan of the chest at the time the patient was referred. Lung window (widths of −600 to 1600 HU) transverse section at the level of the tracheal bifurcation showing bilateral, confluent, large cystic lesions, predominating in the right lung. (B) Photograph of patient's fingers before treatment, showing onychodystrophy, onycholysis and splinter haemorrhages. (C) Nail biopsy from the patient at the time he was referred. The upper dermis is infiltrated by histiocytes stained by an anti-CD1a antibody (clone O10, Dako), characteristic of LCH. Original magnification 250×. Scale bar: 50 µm. (D) Photograph of patient's fingers 6 months after cladribine treatment, showing resolution of the nail lesions.

To cite: Delaval L, Bouaziz J-D, Battistella M, *et al*. *Thorax* 2021;**76**:102–103.

Nail involvement is rarely reported in young children with severe multisystem LCH but is almost always associated with skin involvement. Very few reports have described nail involvement in adult LCH, with scant information on patient prognosis. Regardless, nail infection must be ruled out, and histological confirmation is needed.

Nail abnormalities are rarely encountered in diffuse cystic lung diseases.[3] Ungula or periungual fibromas may be observed in women with tuberous sclerosis-associated lymphangioleiomyomatosis.[3] Nail abnormalities may be present in the course of amyloidosis/light chain deposition disease, which are among the aetiologies of cystic lung diseases.[3] Cystic lung lesions may occasionally occur in patients with type 1 neurofibromatosis,[3] who may also have nail glomus tumours. However, other characteristic skin lesions (eg, café-au-lait macules, cutaneous neurofibromas) guide the diagnosis. In the present case, the presence of diabetes insipidus was highly suggestive of pulmonary LCH. To the best of our knowledge, this is the first report describing the outcome of nail involvement in adult pulmonary LCH. Cladribine was dramatically and sustainably effective on skin and nail LCH localisations and improved the patient's lung condition.

Contributors LD, J-DB, GL and AT managed the patient. MB analysed and interpreted histological findings. All authors contributed to writing the manuscript. All authors have approved the version of the manuscript submitted for publication.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient consent for publication Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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