CASE REPORT

Lichen scrofulosorum

Harshal S Joshi,^{1,2} Asha Zacharia,³ Anup Warriar¹

¹Department of Internal Medicine, Kerala Institute of Medical Sciences, Thiruvananthapuram, Kerala, India

²Department of Dermatology, Kerala Institute of Medical Sciences, Thiruvananthapuram, Kerala, India

³Department of Infectious Diseases and Internal Medicine, Kerala Institute of Medical Sciences, Thiruvananthapuram, Kerala, India

Correspondence to

Dr Harshal S Joshi,
drhsj83@rediffmail.com,
drhsj83@yahoo.com

SUMMARY

Tuberculosis is a common disease. The cutaneous form of tuberculosis known as tuberculid is an uncommon disease and is easily misdiagnosed. Lichen scrofulosorum is a rare form of tuberculid seen in children and young adults with or without other manifestations of tuberculosis. We report a case of a young adult with lichen scrofulosorum along with tuberculous lymphadenitis. The skin lesions responded promptly to antitubercular therapy with complete clearance of the lesions. Identification of the skin manifestation was especially important in this case because the lymph node biopsy was inconclusive, with tissue culture proving the diagnosis only after 4 weeks.

BACKGROUND

This case highlights the uncommon, easily misdiagnosed but readily treatable case of lichen scrofulosorum (LS). It is a reminder of an important clinical disease.

CASE PRESENTATION

A 22-year-old man presented with a 1-month history of bilateral cervical lymphadenopathy. The nodes were painless but gradually increasing in size. He also reported a low-grade fever, especially in the evenings, and poor appetite. He had noticed a few eruptive lesions on the trunk and both elbows over the previous 3 weeks.

An examination revealed normal vital signs, apart from the fever. The nodes were found to be matted and firm in consistency. There were grouped erythematous papules on the sides of the trunk and multiple discrete papules with crusting over the elbows (figures 1–3). Excision biopsy of the node revealed necrotic granulomatous reaction

Figure 2 Discrete papules with crusting over the elbows.

(described below). Tuberculin test and skin biopsy were planned in consensus with the dermatologist.

INVESTIGATIONS

1. Lymph node biopsy (figures 4 and 5): Loss of architecture with ill-defined areas of necrosis surrounded by epithelioid cells. Periphery showing a few reactive follicles with germinal centres. No definite granuloma was seen. Staining for acid-fast bacilli was negative.
2. Tuberculin skin test was strongly positive.
3. Skin biopsy (figures 6 and 7): microscopic examination showed mild irregular atrophy of the epidermis. Dermis had a few granulomas around the dermal appendage composed mostly of epithelioid cells with a few vacuolated cells amidst. Periodic acid-Schiff staining was negative. Staining for acid-fast bacilli was negative. The findings were consistent with LS.

Figure 1 Discrete papules with crusting over the elbows.

Figure 3 Grouped perifollicular erythematous papules over the trunk.

CrossMark

To cite: Joshi HS, Zacharia A, Warriar A. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2013-200858

Figure 4 Lymph node biopsy (details as described above).

Figure 6 Skin biopsy.

4. Other investigation results were as depicted in the table.
5. X-ray chest was normal.
6. Serum venereal disease research laboratory (VDRL) test was non-reactive.
7. HIV ELISA was non-reactive (table 1).

DIFFERENTIAL DIAGNOSIS

- Lichen scrofulosorum
- Lichen spinulosus

TREATMENT

Antitubercular therapy was started with conventional four first-line drugs (isoniazid, rifampin, pyrazinamide and ethambutol in daily dose regimen) for 2 months followed by two drugs (isoniazid and rifampin) for 4 months. His constitutional symptoms improved within 2 weeks of starting antitubercular therapy, and skin lesions subsided completely within 2 months. Three weeks after starting antitubercular therapy, the nodes were still present although markedly reduced in size. There was scanty discharge from the lymph node biopsy site. Mycobacterial culture was performed from the discharge; this grew *Mycobacterium tuberculosis* sensitive to all first-line drugs.

OUTCOME AND FOLLOW-UP

After 6 months of antituberculous therapy (ATT), his skin lesions had subsided completely (figure 8). His constitutional

symptoms had subsided completely and the cervical lymph nodes were impalpable.

DISCUSSION

The tuberculids are a form of cutaneous tuberculosis caused by hypersensitivity reactions to *M tuberculosis*. The concept of tuberculid was introduced by Darier¹ in 1896. In contrast to 'true' cutaneous tuberculosis, properties of the tuberculids were explained by a hypersensitivity response to mycobacteria or their fragments released from a different site of manifest or past tuberculous infection. Key features of tuberculids include a strongly positive tuberculin skin test, evidence of concomitant manifest or past tuberculosis and prompt response to ATT. They are classified into three types: (1) Papulonecrotic tuberculid, (2) erythema induratum of Bazin and (3) LS.

Papulonecrotic tuberculid and LS represent true hypersensitivity reactions rather than the result of a local cutaneous tuberculosis infection. LS is a rare tuberculid, initially described by Hebra² in 1860. LS is usually seen in children and young adults suffering from systemic tuberculosis, either pulmonary or extrapulmonary, and very rarely after BCG vaccination.³ Clinically, LS is characterised by tiny, skin coloured, perifollicular papules in groups having a smooth surface but occasionally spiny projections with fine scales may be seen. The lesions reveal non-caseating, epithelioid cell granulomas in upper dermis and around dermal appendages. Tubercle bacilli are almost never seen in the histology specimen, neither can they be cultured.

Figure 5 Lymph node biopsy (details as described above).

Figure 7 Skin biopsy.

Table 1 Investigations performed for the patient

Parameter	Normal range	Result
Total leucocyte count (per L)	4.0–11.0×10 ⁹	10.10×10 ⁹
Neutrophil (%)	40–70	74.8
Platelet count (per L)	150–400×10 ⁹	363×10 ⁹
Haemoglobin (g/L)	120–160	122
ESR (mm/h)	0–15	90
Total bilirubin (mmol/L)	3.4–17.1	3.7
ALT (IU/L)	0–41	40
AST (U/L)	0–38	32
ALP (U/L)	40–129	84
BUN (mmol/L)	2.2–7.1	3.8
Serum creatinine (mmol/L)	53–114.9	72

ALP, alkaline phosphatase; ALT, alanine aminotransferase; AST, aspartate aminotransferase; BUN, blood urea nitrogen.

However, rarely, antigen of *M tuberculosis* has been demonstrated in papulonecrotic tuberculid, another type of more frequently seen tuberculid.⁴ Diagnosis of LS mainly lies on histopathology, tuberculin skin testing and evidence of systemic tuberculosis in the body. Treatment of LS is the same as that for systemic tuberculosis.

In a study by Varshney *et al*,⁵ the overall incidence of cutaneous tuberculosis was 0.7% (131 of 18 720 outpatients). The most common variants seen were scrofuloderma (36.5%), lupus vulgaris (31%), tuberculosis verruca cutis (12.9%), LS (11.4%), papulonecrotic tuberculids (3.8%), erythema nodosum (2.2%) and erythema induratum of Bazin (1.5%). Cutaneous tuberculosis may also be a direct manifestation of underlying tuberculosis as seen in the case reported by Al Zayyani *et al*,⁶ in which chronic tuberculous epididymo-orchitis presented as scrotal ulcers. Among the three tuberculids, the incidence of LS was found to be lowest (2%) in a large study conducted in Hong Kong.⁷ Singhal *et al*⁸ studied 39 cases of LS, of which 72% had an underlying focus of tuberculosis while 28% had no identifiable focus of tuberculosis.

Figure 8 Photograph of elbow demonstrating clearance of lesions at follow-up.

Learning points

- ▶ The tuberculids are a form of cutaneous tuberculosis caused by hypersensitivity reactions to *Mycobacterium tuberculosis*.
- ▶ Mycobacteria are rarely seen or cultured from the skin lesions of tuberculids.
- ▶ Lichen scrofulosorum (LS) is a manifestation of present or passed systemic tuberculosis.
- ▶ Diagnosis of LS mainly lies on histopathology, positive tuberculin skin test and evidence of systemic tuberculosis in the body.
- ▶ Treatment of LS is the same as that for systemic tuberculosis.

Acknowledgements The authors would like to thank the Department of Pathology, Kerala Institute of Medical Sciences, Trivandrum, Kerala, India.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Darier MJ. Des "tuberculides" cutanées. *Arch Dermatol Syph* 1896;7:1431–6.
- 2 Hebra F. Lichen scrofulosorum. In: Fagge CH, Pye-Smoth PH, eds. *Diseases of the skin*. Vol 2. London: New Sydenham Society, 1868:58.
- 3 Kumaran MS, Dogra S, Kaur I, *et al*. Lichen scrofulosorum in a patient with lepromatous leprosy after BCG immunotherapy. *Lepr Rev* 2005;76:170–4.
- 4 Arora SK, Kumar B, Sehgal S. Development of a polymerase chain reaction dot-blotting system for detecting cutaneous tuberculosis. *Br J Dermatol* 2000;142:72–6.
- 5 Varshney A, Goyal T. Incidence of various clinico-morphological variants of cutaneous tuberculosis and HIV concurrence: a study from the Indian subcontinent. *Ann Saudi Med* 2011;31:134–9.
- 6 AlZayyani NR, Wani AM, AlMiamini W, *et al*. Chronic epididymo-orchitis and scrotal ulcers. *BMJ Case Rep* 2011;2011:pii:bcr0320102825.
- 7 Chang LY, Lo KK. Cutaneous tuberculosis in Hong Kong: a ten year retrospective study. *Int J Dermat* 1995;34:26–9.
- 8 Singhal A, Bhattacharya SN. Lichen scrofulosorum: a prospective study of 39 patients. *Int J Dermatol* 2005;44:489–93.

Copyright 2014 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit <http://group.bmj.com/group/rights-licensing/permissions>.
BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow