Papulonecrotic tuberculide: a forgotten cutaneous manifestation of tuberculosis

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CASE REPORT

A 30-year-old Chinese man presented with a 2-month history of enlarging neck masses and a widespread rash. He had first noticed the swellings 10 years ago when a diagnosis of tuberculosis was made. The lymphadenopathy improved after anti-tuberculous therapy but never completely regressed. Seven years later, a skin eruption developed over his limbs and trunk. He described recurring crops of asymptomatic reddish papules which discharged a yellowish fluid and subsequently healed with scarring and hyperpigmentation. There was no pruritus or tenderness and no pulmonary symptoms.

Clinical examination revealed a non-tender, 10 cm, firm and ovoid mass with overlying erythema in the right anterior triangle of his neck (*Figure 1*) with several smaller lumps on the other side. There was a widespread eruption on his trunk and limbs, sparing the face, palms, sole and scalp (*Figure 2*). Recent lesions consisted of 1cm erythematous papules with a scaly collarette (*Figure 3*). Older lesions had left atrophic scarring and hyperpigmentation. A clinical diagnosis of papulonecrotic tuberculide was made.

An X-ray of the chest was normal. Serum immunoglobulins (IgG, A and M) were moderately elevated. Erythrocyte sedimentation rate and C-reactive protein level were normal. Syphilis serology was negative. A Heaf test was strongly positive (*Figure 4*).

Fine needle aspirations of the neck mass were negative for microscopic identification of acid-fast bacilli and for malignancy. On the other hand, a lymph node biopsy on the left side revealed fragments of connective tissue showing granulomatous inflammation and non-caseating necrosis. Occasional acid-fast bacilli were seen with a Ziehl-Neelsen stain. Skin biopsies were taken of recent, established and old lesions. The histological features of the established lesion were diagnostic, showing a florid, acute on chronic, perivascular and periappendiceal inflammmatory infiltrate involving both the superficial and deep dermis. There was also evidence of lobular panniculitis with fibrinoid necrosis of medium-sized arterial vessels, venulitis and extensive endothelial cell swelling. Histological features of the other two skin specimens were non-specific. No organisms were identified with special stains.

Anti-tuberculous therapy with rifampicin, isoniazid and pyrazinamide was started and 2 weeks after treatment, the patient reported a complete cessation in the development of new skin lesions. His skin remains in remission after 6 weeks of treatment.

Papulonecrotic tuberculide (PNT) is an unusual cutaneous manifestation of tuberculosis (TB) rarely seen in the western world. It is more frequently encountered in countries with a high prevalence of TB. However, with increasing notification of TB in England and Wales (Department of Health, 1996), PNT may present more frequently in this country. The authors wish to emphasize its characteristic clinical and histological picture to aid rapid diagnosis.

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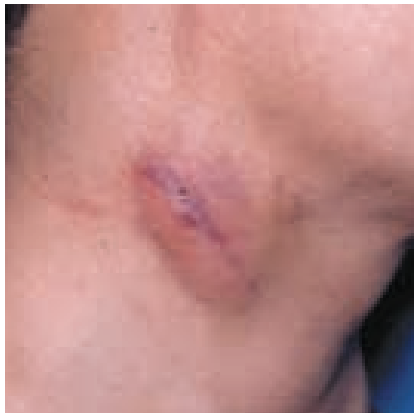

Figure 1. Mass in right anterior triangle of neck.

DISCUSSION

PNT belongs to group of skin eruptions with a tuberculous aetiology. Evidence for a tuberculous aetiology rested mainly on indirect evidence including previous or concomitant foci

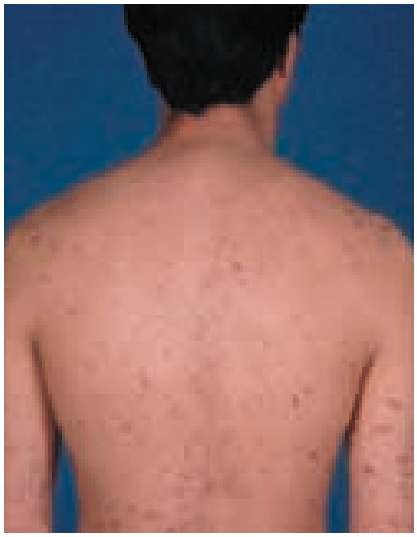

Figure 2. Eruption on trunk and limbs, sparing face, palms, soles and scalp.

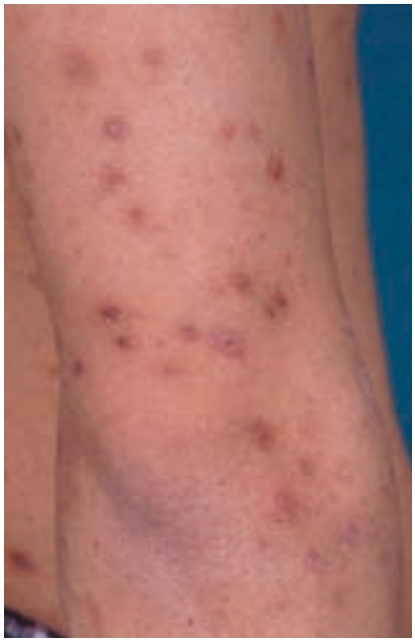

Figure 3. Close up of recent and old lesions.

of TB, a strongly positive tuberculin skin test, tuberculoid histological features and a response to anti-tuberculous therapy. These features are rarely found in all cases. Mycobacteria are never isolated from cutaneous lesions by either microscopy, bacterial culture or guinea pig inoculation (Chuang et al, 1997). However, in recent years, the polymerase chain reaction (PCR) technique has demonstrated mycobacterial DNA in the lesions of PNT but not in normal appearing skin (Degitz, 1996). This offers good evidence for the tuberculous origin of these lesions. PNT has also been reported after bacille Calmette-Guérin (BCG) vaccination.

It is generally accepted that the condition is caused by an immunological host response to haematogenously disseminated bacterial antigens (Kullavanijaya et al, 1991). An Arthus type reaction is initiated which leads to primary vessel damage followed by a type IV hypersensitivity reaction (Kullavanijaya et al, 1991; Jordaan et al, 1994). There is a range of histological findings which are related to the degree of vasculitis and the timing of the biopsy (*Figures 5* and *6*).

PNT has been defined as a symmetrical eruption of papules usually affecting the extensor aspects of the extremities and lower trunk (*Figure 2*). It has also been reported on the glans penis (Nakamura et al, 1989). The disseminate lesions are dusky red, symptomless and may be capped early by a pustule. Often a misdiagnosis of acne causes delay. Careful examination reveals lack of follicular involvement. They last only a few weeks but appear in successive crops over months or years (Iden et al, 1978). There is central necrosis of the papule and subsequent healing occurs by scar formation.

In some cases, open ulcers remain for several months. Lymph node involvement occurs in 27% of cases and 40% will have evidence of TB elsewhere (Jordaan et al, 1994). It is most common in young adults, although cases in children have been reported (Jordaan et al, 1996). The skin lesions in childhood PNT are similar in distribution and morphology to the adult form. It is thought that phlyctenular conjunctivitis is associated with PNT in children (Jordaan et al, 1996).

Tuberculides are subdivided into nodular and papular varieties. The nodular tuberculides are conditions which affect the deep dermis or the subcutaneous tissue; erythema induratum (of Bazin) is the archetypal nodular tuberculide. The papular tuberculides affect the dermis more superficially and are further subdivided into two groups in which PNT and lichen scrofulosorum are typical examples.

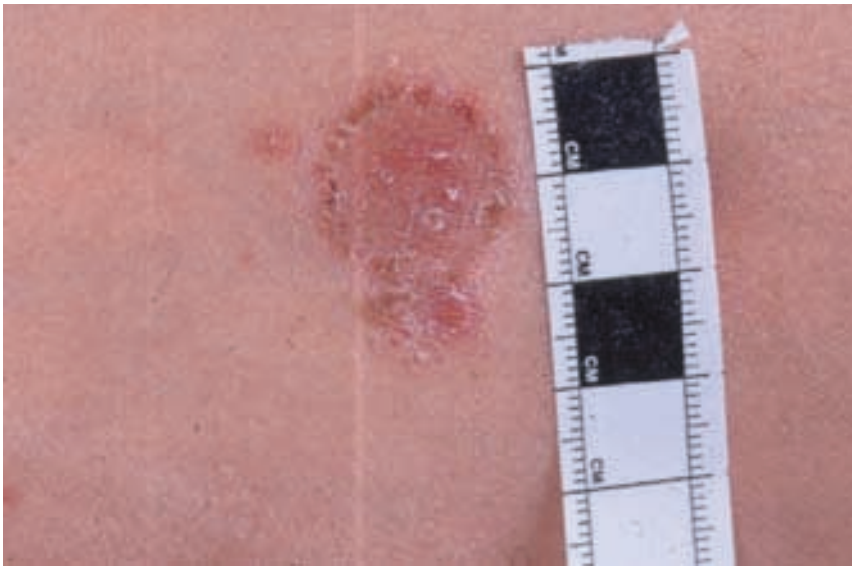

Figure 4. Strongly positive Heaf test.

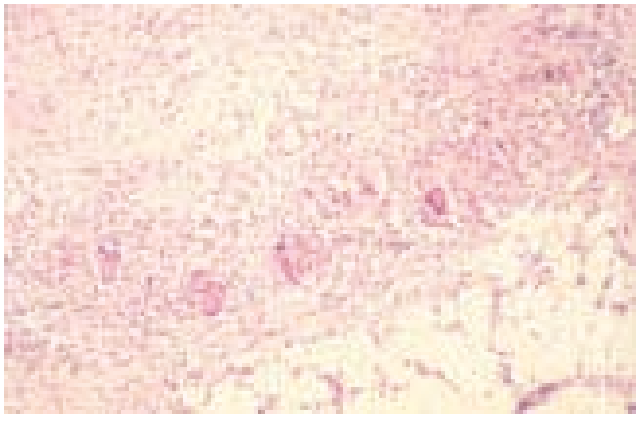

Figure 5. Example of papulonecrotic tuberculide (haemotoxylin and eosin x750), showing typical features. There are deep dermal palisading histiocytes and epithelioid giant cells but no frank caseating granuloma. A lymphocytic infiltrate is also seen, occasionally involving blood vessels where thrombosis with fibrinoid necrosis can be seen. No acid-fast bacilli were identified with special stains.

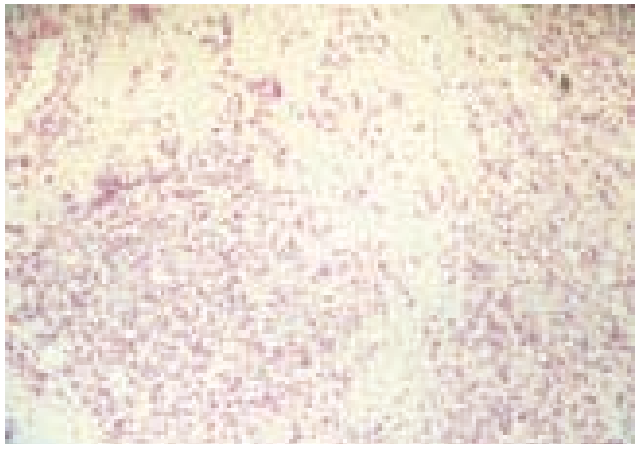

Figure 6. Current case (haemotoxylin and eosin x750). A loose granulomatous infiltrate is present in the deep dermis consisting of histiocytes and epithelioid cells with no caseation. There is perivascular involvement. No acid-fast bacilli were identified with special stains.

In PNT there are widespread, symmetrical crops of red papules which ulcerate and heal with atrophic scarring; historically there have been many clinical variants within this group which have little relevance now. The lesions of lichen scrofulosorum, in contrast, are localized groups of perifollicular papules with a lichenoid appearance (i.e. smaller and flatter) which resolve slowly without scarring; a variant of this with darker lesions and affecting an older age group is called lichenoid tuberculide. In addition, a rarer condition called acne scrofulosorum, with features of both groups, has been described, but it is uncertain whether it is a distinct entity or a variant of one of the others.

The differential diagnosis includes miliary TB with cutaneous involvement, however, bacilli are readily shown in such cases. Other differential diagnoses include pityriasis lichenoides et varioliformis acuta, papulopustular syphilid, bacterial endocarditis, scabies and even infected atopic dermatitis (Joordan et al, 1994).

Most studies report a marked improvement following anti-tuberculous therapy (Yoshikawa et al, 1985; Wilson-Jones and Winkelmann, 1986; Joordan et al, 1994) with lesions generally responding after 3–12 weeks of treatment (Wilson-Jones and Winkelmann, 1986). However, recurrences have been associated with single-drug regimens (Wilson-Jones and Winkelmann, 1986; Kullavanijaya et al, 1991). Recurrence occurred in three patients out of four treated with either isoniazid alone or with isoniazid combined with para-aminosalicylic acid (Wilson-Jones and Winkelmann, 1986). It is suggested that combination therapy with several anti-tuberculous drugs be used for at least 6 months (Jordaan et al, 1994).

CONCLUSIONS

PNT is a long forgotten manifestation of TB which is on the rise again. It has characteristic clinical and histological features and diagnosis may be aided by PCR techniques. Appropriate treatment often leads to remarkable improvement and should be instituted without delay. HM

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IN THE PUBLIC'S VIEW...

Millennium madness in the NHS

In the words of a letter in the *Guardian*, the millennium is a celebration of twice the cube of the number of our fingers since what has been decided was not the birth year of somebody who probably lived. It is of less human consequence than an ordinary new year, which has an external significance (in yearly cycles of birth, death, and rebirth) that is entirely absent from the millennium.

The way this last year of the old millennium has gone, with bombs on Serbia, ethnic slaughter in Kosovo, gun-toting schoolchildren in Denver and a BBC travel correspondent shot on her doorstep in London, the millennium would seem anyway to be better a time of quiet contemplation than enthusiastic celebration. Many people can't even spell it (it has two double consonants).

Nonetheless, there will be drunkenness and debauchery, patched up by NHS workers so valued by the government that official Department of Health advice to trusts is to:

'draw on [the] tradition of public service and commitment to the NHS as part of your action to make sure you maintain services'.

Another snippet from HSC 1999/097 is that:

'Non-pay awards which show people how much you appreciate their effort and commitment are very important signals'.

One of these signals is that: 'Within normal resources...decent hot food' should be provided.

Leaders who can so misread the mood of a workforce (even if the millennium is all nonsense) obviously need a different sort of signal: the raising of two fingers while you slope off to the Millennium dome (£746 million and counting) might be an effective one.

But of all the idiotic millennial phenomena the most idiotic is the millennium baby. At obstetric units all over the country, local and national press and broadcast media will be vying with one another to find the baby born a picosecond into the first day of January. It was bad enough in April, the newspapers full of advice on when to conceive and offering weekends away in plush hotels to hopeful couples, although too much free champagne might have defeated the object.

Given the fair chance that much of the NHS workforce will prefer working down the local pub for £1000 to eating hot food within normal resources, and the probably lesser chance that the computer millennium bug will fuse all obstetric unit doors irretrievably locked on the stroke of midnight, I venture to suggest that any mother choosing to deliver at this time needs to think again.

More seriously, wanting to have a millennium baby is not an indication for medical intervention. I have doubts enough about women's 'right' to demand caesarean births; I have no doubts at all that there is no right for medical treatment on such trivial grounds as wanting a baby at a particular time. And if we'd had twelve fingers, there would still be a few years to go. HM

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