

## Use of face masks during a plague epidemic

Sir,  
During the recent outbreak of pneumonic plague in India, we witnessed the unusual spectacle of numerous 'masked men' (and women) moving about in the streets and public places of Delhi – apparently to protect themselves from the plague. This was particularly evident in the hospitals, where medical and paramedical personnel, especially those manning the emergency services, were observed to be moving around with masks hanging round their necks, and in their pockets, which were taken out and used when a patient was examined.

Interestingly, a variety of face-masks were used by the general public, including masks made from paper, gauze of various weaves, plastic, synthetic material and cloth. Towels, sarees, lehngas and chunnis (scarf-like pieces of cloth) were also draped over the face to serve as impromptu masks. Enterprising businessmen exploited this mass (mask) hysteria by piecing together pieces of paper or fabric with cloth or elastic strips and selling them as face-masks, at an exorbitant price of Rupees 5 to 10 each.

We were curious about certain aspects of these face-masks: (a) whether there were any studies which objectively assessed the efficacy of face-masks in the prevention of infections in general, and pneumonic plague in particular, (b) which type of face-mask is optimally protective, and (c) how often should a face-mask be changed to prevent acquisition of infection.

We found an interesting divergence of opinion.<sup>1</sup> We were surprised to learn that there were no objective studies available on the efficacy of face-masks in the prevention of pneumonic plague. Manson's textbook<sup>2</sup> states that 'a mask of absorbent cotton wool (16 × 12 cm) enclosed in muslin, and retained in position by a many-tailed gauze bandage, together with goggles, rubber gloves and cotton uniform proved thoroughly effective'. No further details were forthcoming from the literature. Most of the studies of face-masks referred to their efficacy in preventing wound infection in the operating theatre, and among dental surgeons.<sup>3-5</sup> Salient features from the literature are summarised below.

- Most of the particles or organisms that penetrated the supposedly efficient filter masks were <5 µm in diameter and could reach the alveoli of the lungs. Thus, face-masks cannot replace effective chemoprophylaxis as a viable preventive option.
- Aerosols can remain suspended in air for about half an hour. Hence, crowded outpatient clinics or casualty are never free from airborne contamination. To be fully effective, face-masks should therefore be worn continuously over nose and mouth.
- In an environment replete with infectious aerosol, the risk of cross-contamination between the physician and his patient(s) is increased if one mask is worn for a prolonged period. In such a situation, the outer surface of the mask becomes a nidus for pathogenic organisms. The ideal time interval for changing masks is not known, however.

At the time of the most infectious phase of the recent outbreak of pneumonic plague none of the above-mentioned guidelines were observed, even by the most knowledgeable

physicians. On the basis of the above observations and experience, the following guidelines are recommended in epidemics of a highly infectious nature such as pneumonic plague: (a) proper face masks should be worn, continuously covering nostrils and mouth, (b) to decrease the entry of particles <5 µm in diameter, two face-masks (one over the other) can be worn (the protective efficacy of such multilayered masks should be investigated), (c) face masks should be changed at least every 30–40 minutes in relatively non-infectious areas, more frequently in more infectious areas. The discarded masks should be incinerated.

The general public should be advised to follow these rules when entering a highly infectious area (eg, hospital) or during continuous contact with a patient.

ALLADI MOHAN  
ANOOP MISRA

Department of Medicine,  
All-India Institute of Medical Sciences,  
New Delhi-110 029, India

Correspondence to Dr Misra

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## Finasteride-related cutaneous vasculitis

Sir,  
Finasteride is a 5- $\alpha$ -reductase inhibitor which is used in the treatment of benign prostatic hypertrophy.<sup>1</sup> We report a case of cutaneous leucocytoclastic vasculitis associated with finasteride therapy, an association not previously published.

### Case report

A 58-year-old man was commenced on finasteride for prostatism. Two weeks later he presented with an itchy, lumpy rash on both lower limbs and arms. There was no history of sore throats, arthralgia, fever, cough, sputum or of infection elsewhere. His only medication was finasteride 5 mg daily. He had no known allergies. He had suffered a myocardial infarction and a right-sided cerebrovascular accident four years earlier from which he had made a good recovery. There was no history of weight loss and his appetite was normal. Systems enquiry was unremarkable and there was no family history of connective tissue diseases.

On examination there were palpable purpuric nodules on both legs and arms with sparing of the buttocks. There was no joint swelling. His pulse was 60 beats/min regular, blood pressure was 120/80 mmHg and his

## Drug causes of cutaneous vasculitis

- NSAIDs: aspirin, phenacetin
- antibiotics: penicillin, tetracycline, clindamycin, erythromycin, sulphonamides
- antihypertensives: nifedipine, hydralazine, thiazides
- diuretics
- others: allopurinol, thiouracils, iodides, diazepam, levamisole

heart sounds were normal. There were no signs of cardiac failure or bacterial endocarditis. He had an old left hemiparesis. Fundi were normal and there was no foot drop. Full blood count, erythrocyte sedimentation rate, urea and electrolysis, liver function and chest X-ray were normal. Viral titres and blood cultures were negative. ASO titre, auto-antibodies, immunoglobulins, rheumatoid factor, ANCA, indirect immunofluorescence and complement were unremarkable. Cold agglutinins and cryoglobulins were not detected. A skin biopsy showed a leucocytoclastic vasculitis with fibrinoid necrosis in the smaller dermal blood vessels.

The finasteride was stopped and he was commenced on dapsone 50 mg bid and tubigrip compression. Over the next two weeks the rash settled and the dose of dapsone was reduced. There was no recurrence of the rash when the dapsone was stopped.

There are many causes of cutaneous vasculitis including infections, drugs, connective tissue diseases, dysproteinaemias, polyarteritis nodosa and giant cell arteritis. Drugs are a common and important cause.<sup>2</sup> In view of the temporal relationship, we feel the finasteride caused the vasculitis. The severity of the reaction precludes therapeutic rechallenge. There have been two cases of vasculitis secondary to finasteride reported to the CSM. Treatment includes removal of the underlying cause, if possible, bed rest and systemic therapy if appropriate. Dapsone has been shown to be of use.<sup>3</sup>

JT LEAR  
JPH BYRNE  
Department of Dermatology,  
North Staffs NHS Trust,  
Stoke on Trent ST4 7PA, UK

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