

Respiratory involvement in metal fume fever

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In the January 1990 issue of the European Respiratory Journal J-L. MALO and co-workers reported an interesting case of acute reaction to zinc inhalation [1]. This reaction comprised the classical signs and symptoms of metal fume fever (fever, malaise, dyspnoea, leucocytosis), but the patient also had transient diffuse nodular infiltrates on a chest X-ray and evidence of temporary ventilatory impairment following a challenge test. Because of the radiological findings and the functional changes, the authors suggested that such exposure to zinc may cause an acute lung reaction that is superimposed upon, but different from, metal fume fever.

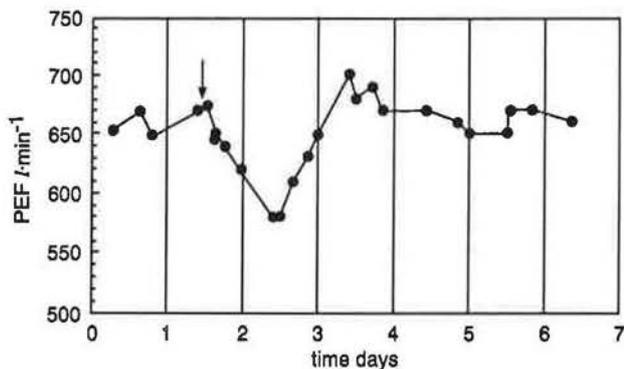


Fig. 1. - Time-course of self-recorded peak expiratory flow rate in a subject exposed to metal fumes (start of melting indicated by arrow). PEF: peak expiratory flow.

We recently made a diagnosis of metal fume fever in a 27 yr old, previously healthy, nonsmoking civil engineer in metallurgy, who reported a very suggestive clinical history of episodes of cough (with little sputum), some dyspnoea (but no noticeable wheezing) and mainly a sensation of flu with fever, malaise and muscle pains in the evenings following the melting of mainly copper, zinc and aluminium for making "shape memory alloys". Self-recorded peak flows showed a clear decrease in peak flow beginning during the melting and lasting until the next day (figure 1). The symptoms did not recur after the installation of an effective exhaust-ventilation system in the workplace.

Our case supports the findings of MALO *et al.* [1] in that the inhalation of metal fumes resulted in a demonstrable transient respiratory impairment together with symptoms of metal fume fever. We did not find X-ray abnormalities, but our patient was not seen during the acute illness. MALO *et al.* [1] rightly stated that textbooks on occupational lung diseases [2] do not describe pulmonary involvement in metal fume fever; they also acknowledged that radiological and functional changes were probably not systematically sought after in previous cases of this syndrome. However, there is good evidence of a pulmonary involvement even in the old literature on the subject. In one of the careful (and entertaining) reports of DRINKER and co-workers [3], who studied metal fume fever in the 1920's, clear-cut decreases in forced vital capacity (FVC) were shown in

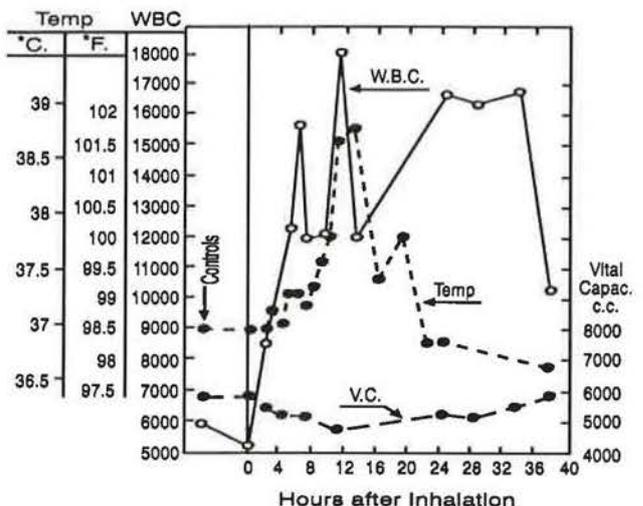
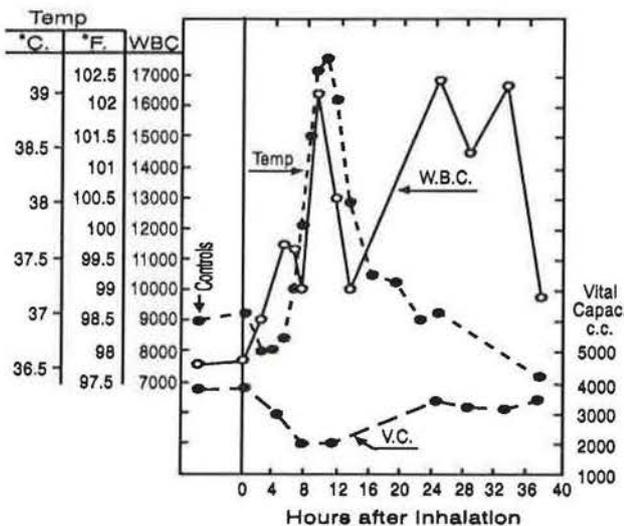


Fig. 2. - Time course of peripheral leucocyte counts, body temperature and vital capacity in two subjects experimentally exposed to zinc oxide. WBC: white blood cell count; VC: vital capacity. (Reproduced from ref. 3).

two volunteers who were experimentally exposed to zinc oxide fumes (fig. 2). In that study no X-ray changes were found, but the timing of taking of the radiographs may not have been adequate (3.5 h and 8 days after the exposure). However, a more recent paper [4] did describe X-ray changes similar to those reported by MALO *et al.* [1], in a subject who apparently had the same job as their patient. Our comments are not intended to diminish the relevance of the case report by MALO *et al.* [1] or to imply that metal fume fever is always accompanied by serious pulmonary involvement, but rather to indicate that such involvement is probably not so exceptional.

Finally we would like to concur with Malo and co-workers to stress that there is a need for further prospective surveys and clinical studies, using bronchoalveolar lavage whenever possible and justified, for this occupational disease which clearly has not disappeared. Indeed, our case showed that high technology products, such as shape memory alloys, are not necessarily produced according to high technology methods with regard to health and safety.

References

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Atteinte respiratoire dans la fièvre des fondeurs. B. Nemery, M. Demedts.

RÉSUMÉ: La fièvre des fondeurs est une réaction grippale aiguë et limitée dans le temps, qui survient quelques heures après l'inhalation de quantités excessives de fumées d'oxydes métalliques, en particulier l'oxyde de zinc. Quelques observations récentes, y compris un cas probable présenté ici, indiquent que ce syndrome peut être accompagné d'une perte de fonction ventilatoire importante, mais passagère, confirmant ainsi des descriptions faites il y a plus de 60 ans. *Eur Respir J*, 1991, 4, 764–765.