

First Confirmed Erionite Related Mesothelioma in North America

E.B. Ilgren^a F.D. Pooley^b J.C. Larragoitia^c
M. Talamantes^d G.L. Navarrete^e E. Krauss^f A.F. Breña^g

^aBryn Mawr, Penna., USA

^bMedical Microscopy Sciences, School of Medicine, Cardiff University, Cardiff, UK

^cSan Luis Potosí University, México

^dUCLA, Berkeley, CA, USA

^eCuernavaca, Morelos, México

^fNational University of Mexico, Mexico City, México

Ilgren et al. [1] described in this issue of the Journal a potential emerging Mexican mesothelioma epidemic due to fibrous zeolite exposure. A reconnaissance study was therefore conducted of two mesothelioma cases arising in a father and his son who originally came from a remote part of Mexico in the State of Zacatecas. Further investigation revealed that the small village from whence the father and son came was situated on a zeolite rich geological plain. Additional study of the valley in which the village was situated not only demonstrated geological and mineralogical similarities to the area in Turkey where the first erionite related mesotheliomas were recognized but the appearance of nine other cases “clustered” around the tiny ancestral village where the father and son were born. On the basis of these and other observations described by Ilgren et al. [1], we suggested that erionite, whilst not identified in the area, was almost certainly the causative agent. Over the last 6 months, we recognized two more cases of pleural mesothelioma in a small village in the northern part of the State of Jalisco. This neighbors the southern portion of the State of Zacatecas where the mesothelioma cluster was recognized and is also on the same zeolite rich geological plain. Thus, we once again

hypothesized that the two cases found in Jalisco could be due to erionite. Our suspicions have now been confirmed by lung burden analysis of one of the two cases wherein high ‘occupational’ levels (>one million fibers/gram lung dry weight) of fibrous erionite were identified, initially by EDAX and later confirmed by SAED, by Prof. Fred Pooley. This case represents the first erionite related mesothelioma seen in North America unrelated to Turkish erionite exposures. Its discovery further suggests, as Ilgren et al [1] proposed, that detailed follow up investigations are warranted to identify the source of and subsequently prevent further potential toxic fiber exposures.

To facilitate such investigations, a brief description is given of the two Jalisco cases and the potential sources of toxic dust exposure that may have caused their mesotheliomas. Thus, the two cases were both men, 50 and 60 years old at the time of diagnosis, and each having pleural mesothelioma. They each spent approximately the first 20 years of their lives in the village and their homes were built for the most part of local earth. Similarly, both were involved in agricultural tilling and storage of various vegetables such as corn and beans whilst they also raised a small amount of livestock including cattle,

chickens, and pigs. Some of these activities such as the tilling of soil were said to be somewhat dusty. Placement of vegetables into the storage areas within the house may also have created periodic dusty conditions. Since zeolite is mined in the State of Jalisco, zeolite containing materials used in agricultural products may also have been encountered to further preserve the vegetables, enrich the fertilizers and/or enhance animal nutrition (see Ilgren et al. [1] this issue for further discussion).

Future investigations should be aimed at, though not limited to, examining such materials and homes in the area for the presence of erionite. Consultation with the Department of Epidemiology of the State of Jalisco failed to reveal knowledge of a mesothelioma cluster in and around the small village where the two cases were noted. Failure to find such a cluster could be due to detection issues due to the lack of local diagnostic facilities (see Ilgren et al. [1] for discussion).

REFERENCE

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- 1 Ilgren EB, Breña MO, Larragoitia JC, Navarrete GL, Breña AF, Krauss E, Fehér G: A Reconnaissance Study of a Potential Emerging Mexican Mesothelioma Epidemic due to Fibrous Zeolite Exposure: Indoor Built Environ 2008; 17(6).

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