

Silicosis - time to review

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Abstract

Silicosis, the oldest occupational disease, is still in existence in this era though not many cases have been reported. So far only one case has been reported to the Ministry of Health since 1997, and 9 to the Ministry of Human Resources from 1989-1996, even though a diversity of workplaces and conditions prevail that will inevitably lead to new cases of silicosis. The present reported case was that of a 60 years old tomb stonecutter. He was admitted in the hospital for severe dyspnoea. An active surveillance was then carried out among his co-workers. Among the four that were screened one of them was diagnosed to have silicosis; he was asymptomatic. This shows the magnitude of the problem and that continuous active surveillance is essential to pick up new cases of silicosis. It is now time for us to review our strategies to prevent silicosis by creating awareness among the employers and employees, conduct health and hazard surveillance as well as improve educational efforts amongst our doctors.

Key words: silicosis, asymptomatic, active surveillance

Case Study 1

A sixty year old Chinese man, non-smoker, was admitted for severe dyspnoea. He gave history of cough for the past two years with dyspnoea on exertion, of increasing severity. On physical examination he was dyspnoeic with few scattered crackles in both the lung fields and increased resonance to percussion in the right upper lobe.

A differential diagnosis of pulmonary tuberculosis and malignancy was considered initially and a number of investigations were carried out. The ESR was found to be normal and the sputum for AFB was negative. Lung function tests were also found to be normal.

Chest radiography showed pneumothorax in the upper zone of the right lung with multiple discrete rounded opacities and reticular pattern in the upper lung fields. There was evidence of bilateral fibrotic masses around the mid zone and hilar regions, extending to the upper zones. Small nodular lesions in the hilar region with calcification of the lymph nodes were also noticed. The X-ray findings were those of progressive massive fibrosis.

The patient was treated symptomatically. Repeat chest X-ray showed resorption of the existing pneumothorax but he developed another pneumothorax on the left upper zone.

An occupational history was taken and he gave a history of working as a tombstone cutter for the past forty years. The chest physician from Hospital Alor Setar clinically diagnosed him as a case of silicosis.

The above case was then referred to the occupational health clinic and a detailed occupational history was taken.

He had been working as a tombstone cutter for the past forty years in a number of places in Penang and Kedah. He had never used any personal protective devices throughout his working life and had no severe complaints except for minor ailments like occasional cough. He was not aware of his illness and the precautions that had to be taken while working. A detailed history of his co-workers and workplace was then taken.

Case Study 2

Active surveillance was then carried out among the co-workers of the above case. There were only four workers and all of them were interviewed at their workplace. They were all ignorant about the health effects of silica dust and none of them had been using any personal protective equipment. They were then asked to come to the occupational health clinic to be screened.

All the four workers were screened for silicosis. They gave a history of working as tombstone cutters with varying years (10- 40 years) of exposure to silica dust. A detailed occupational history was taken followed by lung function tests and chest X-ray. All of them were asymptomatic except for occasional cough.

Among the four screened was a 63-year-old Chinese man who was diagnosed to have silicosis. He had been working as a tombstone cutter for the past forty years. He too was asymptomatic except for occasional cough. His chest X-ray showed diffuse bilateral calcification of the

hilar lymph nodes with soft tissue opacities in the left upper and both mid zones, suggestive of progressive massive fibrosis. He was also screened for tuberculosis and was found to be negative.

Discussion

Silicosis is a chronic nodular fibrosing disease and is caused by prolonged exposure to crystalline silica. It is incurable and irreversible and almost all cases of silicosis are due to occupational exposure to silica dust through rock mining, sandblasting and foundry. The disease can also progress even after the exposure has stopped leading to massive pulmonary fibrosis with fatal complications.

Silicosis, considered as one of the oldest occupational diseases, still exists today killing thousands of people throughout the world (Wagner, 1997). It has been reported that there were 500,000 cases of silicosis in China between 1991-1995, about 9,000 cases in Vietnam and in India a prevalence of 55% in one group of workers (WHO, 1996). In Malaysia, with the diversity of workplaces and workplace exposure, 9 cases were reported from 1989-1996 (unpublished data, Ministry of Human Resources), and only 1 case to the Ministry of Health since 1997 (unpublished data, Ministry of Health). Is it being under diagnosed or under reported?

It is a known fact that silicosis cases are usually asymptomatic until there are complications. Besides most of them are unaware of the hazards they are exposed to and its health effects. Hence an occupational history with a chest X-ray is relevant for a diagnosis.

At present both old and modern technologies are used in the workplaces and they continue to pose a health risk and allow the persistence of this disease. The continued occurrence of new cases of silicosis is also due partly to the diversity of settings in which hazardous exposures continue as well as the result of the failure in the past to educate employers and employees on prevention of the disease.

Silicosis and associated disorders are generally refractory to medical intervention but they are preventable. The occurrence of new cases is inevitable if the current working conditions prevail coupled with lack of awareness of the problem and its magnitude as well as lack of knowledge of available solutions. Besides there is a likelihood of the condition being missed if a proper occupational history is not taken as cases are often asymptomatic or present as cough or dyspnoea as in many other pulmonary diseases.

It is also a known fact that the rate at which the disease progresses is related to the length and level of exposure to silica and also on the airborne concentration of crystalline silica. This is evident in the above surveillance that was carried out where among the four that were screened; case number two had an intermittent exposure to silica dust for 40 years.

As under diagnosis and under reporting is common, active surveillance to identify silicosis is necessary. This is evident, as only one case has been reported to the Ministry of Health since 1997 when compared to the large number of workers exposed to silica dust under a wide variety of working conditions. Through active surveillance diagnosis can be made with an occupational history and chest X-ray for, according to Quebec's guidelines, chest X-ray is the only tool recommended to screen for silicosis.

Epidemiological surveillance is also recommended by the ILO/WHO International Programme on Global Elimination of Silicosis. This was launched in 1995 and it aims at global reduction and eventual elimination of silicosis (WHO, 1999).

Thus it is now time for us to look into active epidemiological surveillance of silicosis monitoring and evaluation of the results, developing action plans and strengthening our resources to diagnose and to eliminate silicosis. Besides there is also a need to create awareness among our doctors on the importance of an occupational history as silicosis is often missed if this is not taken. These cases also need to be reported to the Health Department and Department of Safety and Health.

Acknowledgements

We would like to thank the staff of Chest Clinic, Hospital Alor Setar and the State Occupational and Environmental Health for their assistance. We thank the Director General of Health for permission to publish this paper.

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