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Asbestos-related diseases in entertainment workers

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Key words
Asbestos; occupational exposure; cinemas; theatres

Summary
Objectives: *To investigate asbestos exposure in 4 patients (3 cases of malignant mesothelioma and 1 case of pleural plaques) previously employed in the entertainment business.* **Methods:** *The patients were seen at the Occupational Health Unit of the "Clinica del Lavoro Luigi Devoto" in Milan (Italy). Information regarding exposure to asbestos (occupational, environmental, and familial) was collected through a standardized questionnaire administered to the patients by an occupational physician.* **Results and conclusion:** *The presence of asbestos in the building structures and its use were described by all patients. The presence of asbestos in public buildings used for entertainment such as cinemas and theatres was in fact confirmed by the Occupational Health Services of the Local Heath Unit. An occupational aetiology was recognised in all the cases mentioned above, thus leading to the identification of an atypical occupational sector at risk in the past for asbestos exposure.*

Riassunto
«Patologie asbesto-correlate in lavoratori dello spettacolo». **Obiettivi:** *verificare l'esposizione ad amianto in 4 pazienti (3 casi di mesotelioma maligno ed 1 di placche pleuriche) che avevano lavorato nel pubblico spettacolo.* **Metodi:** *I pazienti erano afferenti all'Unità Operativa di Medicina del Lavoro della "Clinica del Lavoro Luigi Devoto" di Milano (Italia). Informazioni inerenti l'eventuale esposizione ad amianto (occupazionale, ambientale o familiare) sono state raccolte attraverso un questionario standardizzato somministrato ai pazienti da medici del lavoro.* **Risultati e conclusioni:** *La presenza e l'utilizzo di amianto nell'ambiente di lavoro è stata descritta da tutti e 4 i casi ed è stata confermata dai Servizi PSAL. Per tutti questi casi si è posta diagnosi di malattia professionale avviando le pratiche per il riconoscimento assicurativo.*

Introduction

Occupational exposure to asbestos has been documented in most sectors of industry and its health effects are well known worldwide. Italy, like many other western countries, is currently suffering the asbestos-related diseases epidemic, considering the extensive use of asbestos in the years 1950-1980 in numerous jobs and the long latency period (around 40 years for malignant mesothelioma) from the beginning of exposure.

Three cases of pleural malignant mesothelioma (MM) and one case of pleural plaques are described that occurred in subjects who had worked

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exclusively in theatres or cinemas, where occupational asbestos exposure was apparently unthinkable. To our knowledge there has been no previous report of similar cases in the literature.

All these cases were seen at the Occupational Heath Unit of the "Clinica del Lavoro L. Devoto" in Milan (Italy); 3 cases were included in the Regional Mesothelioma Registry (the Lombardy Region has a total population of 9.1 million).

For each case information regarding exposure to asbestos was collected through a standardized questionnaire administered to the patient by an occupational physician; a detailed occupational history, data on lifestyle habits and a residential history were collected.

Case reports

Case 1

The subject, an opera singer since the age of 22, began suffering from dyspnoea at the age of 72. She had never smoked; her clinical history showed that she had suffered from right breast carcinoma at the age of 56, for which she underwent local surgery and radiotherapy successfully. A Computer Tomography (CT) of the chest showed left pleural effusion and thickenings. A video-thoracoscopy showed multiple pleural adherences. The thoracotomic biopsy resulted in the diagnosis of epithelial MM. She had worked in many theatres, both in Italy and abroad, but in fact spent 18 years of her career, 8 hours a day for 10 months a year, in the same theatre, where it was possible to confirm the presence of a large (more or less 17 x 12 metres) and heavy (more than 200 kilos) asbestos curtain, in addition to the fabric one, that was used to achieve better acoustic insulation. No other asbestos exposure was recorded in her free time (neither environmental nor familial).

Case 2

A fireman working in the same theatre as the opera singer from the age of 21 to 42. He had never smoked. At the age of 55 he suffered a tight chest trauma. He presented dyspnoea and chest pain at the age of 58. CT of the chest revealed right pleural effusion with a large nodular parietal mass, initially of unclear interpretation; no left pleural nor pericardial effusion were detected. During video-thoracoscopy the pleura appeared hyperaemic and the large nodular parietal mass looked whitish; it was confirmed following histological investigations to be an epithelial MM. The patient had worked in the theatre fire-team full-time, wearing asbestos overalls once every 2 weeks during fire drills; he reported finding many asbestos threads on his clothes after taking off the overalls. He also used asbestos gloves and covers every day when assisting scenery technicians during welding and grinding operations, ready to step in should there be a fire emergency. He reported, furthermore, that every morning he placed 8-12 asbestos covers on the balustrades where the spotlights had to be positioned; these covers were cut by the firemen themselves according to requirements. He also remembered that when the asbestos curtain was lowered on the stage, a great amount of dust arose. No other asbestos exposure was recorded in his free time (neither environmental nor familial).

Case 3

The subject, a theatre actor since his teens, developed symptoms of "unspecific pleural disease" at the age of 76; radiological (X-Ray and CT) investigations showed multiple bilateral nodular thickenings and plaques, partially calcified, affecting both the parietal and the diaphragmatic pleurae. He reported that in the theatres were he worked asbestos was used in the scenery, in the form of raw mineral contained in bags, to create artificial snow, sand, dust, webs, etc. No other asbestos exposure was recorded in his free time (neither environmental nor familial).

Case 4

The subject, a cinema cashier from the age of 15 to 30, for 10 hours a day. She had never smoked. In her clinical history she reported pleurisy at the age of 25, and had never suffered from tuberculosis. She began suffering from cough, dyspnoea and

chest pain at the age of 69. There was radiological evidence of large pleural effusion (2/3 of a hemithorax) with lung displacement to the opposite side, and bilateral pleural thickenings, the greatest of which was as thick as 1.7 cm. Moreover there was radiological evidence of pericardial effusion, while nothing that might lead to suspect a neoplasm was found in the abdomen. She underwent pleurectomy which macroscopically confirmed the large pleural thickenings and the histological investigations confirmed an epithelial MM. No asbestos exposure was recorded in her free time (neither environmental nor familial).

The cinema was located on the ground floor of a civil building, where asbestos had been sprayed on the ceiling as soundproofing to reduce the noise during film projections. The use of asbestos in the cinema was prescribed in that time, according to Italian law, for fire prevention in public places.

Discussion

Owing to its physical and chemical properties asbestos was widely used in the past in many industrial sectors and in the construction industry. In particular its property of sound absorption and heat insulation meant that asbestos was recommended for use in public buildings intended for recreational, cultural and sporting events, such as theatres, cinemas and gyms. The types of asbestos mostly used as insulation material in these buildings were chrysotile and crocidolite, often in friable form. Another use of asbestos in theatres and cinema was in the fire-resistant fabrics of curtains and upholstery, etc.

Following our description of the cases of asbestos-related diseases observed in entertainment workers investigated by the Occupational Heath Unit of the "Clinica del Lavoro L. Devoto" in Milan (Italy), for which an occupational asbestos aetiology was recognised in all cases, they were notified as occupational diseases to the National Institute for Insurance against Occupational Diseases and Accidents (INAIL).

Thanks to the work carried out by the Regional Mesothelioma Registry it was possible to obtain a detailed occupational, residential, familial, and leisure time history from the patients using a standardized questionnaire so as to identify all factors that might be responsible for an asbestos exposure.

Occupational exposure to asbestos in the entertainment business was already reported in a cinema projectionist (1) and in a juggler working in a circus (2) who whirled burning wooden clubs, bound together with an asbestos rope that he personally cut and tied up.

The Local Occupational Health Service carries out inspections in the workplaces suspected to be unsafe: therefore, in the last few years theatres and cinemas have been inspected and samples taken in order to detect asbestos presence. Recently in Italy many entertainment buildings were restructured, revealing the presence of large quantities of asbestos, particularly chrysotile and crocidolite, frequently used in the friable form at concentrations up to 85-100%. During the renovation and improvement of the theatre where the opera singer and the fireman worked, asbestos was also found around the lights immediately under the vault of the hall at the back of the last gallery.

In the past asbestos was widely used in Italy in public places designated for recreational and cultural activities such as theatres and cinemas, also because until 1975 it was permitted to smoke in these buildings.

Thanks to the collaboration between the Local Occupational Health Service and the Occupational Health Unit of the "Clinica del Lavoro", it has been possible to identify an occupational aetiology of these diseases that would have otherwise gone unrecognized.

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