

FILE NAME: Packings and Gaskets (PAG)

DATE: 1995

DOC#: PAG029

DOCUMENT DESCRIPTION: Journal Article - Ignored Occupational Risks of Asbestos Mesotheliomas

IGNORED OCCUPATIONAL RISKS OF ASBESTOS MESOTHELIOMAS

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«Rischi professionali sconosciuti di mesoteliomi da amianto». Vengono riportati 9 casi di mesoteliomi da amianto insorti in seguito ad esposizioni «ignorate» a questo minerale. In questi casi l'esposizione ad amianto è stata identificata in seguito ad un'approfondita indagine medica condotta nell'ospedale. Un tale tipo di indagine dovrebbe ridurre il numero di mesoteliomi dovuti a cause «sconosciute» o considerati spontanei. Viene sottolineato il ruolo degli ospedali come fonte primaria di informazione epidemiologica

Key words: mesotheliomas; asbestos; ignored exposures

INTRODUCTION

Mesothelioma of the pleura, peritoneum and pericardium is a rare tumour. Several decades ago, mesothelioma represented an exceptional finding, but since then its frequency has been steadily increasing and, nowadays, although rare, it can not be anymore considered exceptional.

Asbestos is known to be the major cause of mesothelioma, as has been demonstrated by numerous epidemiological and experimental data (1-2). The increase in the historical frequency of mesothelioma is correlated with the increase in the

diffusion of asbestos fibres in the occupational and general environment.

Since mesothelioma is rare, and because of the causal interrelationship between mesothelioma and asbestos, this neoplasia has been considered a "sentinel" pathological event of asbestos exposure. There is however a fraction of cases of observed mesotheliomas in which the exposure to the mineral is not evidenced: for these cases there is the tendency, by many, to consider a spontaneous origin. This is a mistake since an unproven (unknown) cause is not a synonym of spontaneous origin. In fact existing causes may remain unknown if they are not systematically, diligently and specifically researched.

The spontaneous origin of mesothelioma cannot be ruled out: experimental research has shown that there is no tumour produced in animals by means of carcinogens which cannot be also observed in control animals (spontaneously

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This investigation has been performed within the framework of the oncologic epidemiology programme of the Ramazzini Foundation of Oncology and Environmental Sciences and of the Bologna Institute of Oncology, supported by the Bologna Section of the Italian League for the Fight against Cancer

gaskets - Case 8

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arising), although at a lower frequency and
in old age, in the tested animal colony.
The problem is another one: it is that of
defining which percent of mesotheliomas
is due to environmental exogenous causes
(asbestos, other natural fibres, man-made
mineral fibres, etc.), and which percent
may be really spontaneous.

This type of information is not only
scientifically important, but provides a
more adequate basis for a correct ap-
proach to problems of public health such
as prevention and compensation.

The correlation between asbestos expo-
sure and mesotheliomas may be theoret-
ically established by 4 different types of in-
vestigations, herein listed in order of in-
creasing precision: crude population mor-
tality data, reviewed population mortality
data, retrospective mortality research in
known exposed populations, and oriented
research on individual clinical cases, diag-
nosed in general and specialized hospitals.
This last type of investigation, unfortu-
nately practised today so rarely within the
hospitals, can in fact dispose of the follow-
ing favourable circumstances for a precise
diagnosis (not always easy for mesothelio-
mas) and for establishing the asbestos-
mesothelioma correlation: 1) the collec-
tion of all the available past clinical do-
cumentation; 2) the possibility of perform-
ing all exams needed for a precise diag-
nosis; 3) the possibility of interdisciplinary
collaboration to optimize the final diag-
nosis; 4) the possibility of interviewing di-
rectly the patients, the members of their
families and their colleagues for pointing
to possible asbestos exposure; and 5) a
better opportunity to collect information
on the exposure scenario.

The interview with the patients, mem-
bers of the families and colleagues is of
crucial importance for establishing the

relationship between mesothelioma and
exposure to asbestos or other materials.

Over the last 10 years, such a type of
approach has been applied for all patients
with mesotheliomas diagnosed at the Bo-
logna Institute of Oncology. The series of
cases of mesotheliomas at our Institute is
particularly large, for two major reasons:
1) the cytopathological unit of our institu-
tion, being the largest in our country,
examines, routinely or for consulting pur-
poses, a large amount of serous effusions
of patients from our area and also nation-
wide; 2) patients with mesothelioma are
sent to our institution for "best" diagnosis,
characterization of the neoplasia and for
therapy planning. It must be underlined
that the cytological examination of serous
effusions in our series of mesotheliomas
has provided the first diagnostic indication
in 49.75% of our cases.

With this report we refer 9 paradigm-
atic examples of cases of mesotheliomas
whose relationship with asbestos has been
found after a thorough inquiry into the ex-
posure history. Without this inquiry, the
relationship with the causative agent
would have been lost, and these mesothe-
lioma cases would have been classified
epidemiologically (by desk epidemiolog-
ists) as "due to unknown causes" (at the
best), or spontaneous (at the worst).

THE CASE SERIES

Case 1

Pleural mesothelioma in a bank clerk,
64 years old at the time of the diagnosis
of the tumour. The patient worked for 31
years in a modern and apparently clean
office (figure 1), in one of the most im-
portant banks of the Province of Bologna.

The space between the ceiling and the underceiling, the latter made of metallic staves (figure 1) with gaps between the single staves (figure 2, 3) was heavily insulated with asbestos (figure 3). The asbestos fibres coming down between the staves were polluting the office environment, where the patient and the other clerks were working. The latency time of mesothelioma (time elapsed from the start of the exposure to the early manifestations of the tumors) was 35 years.



Figure 1

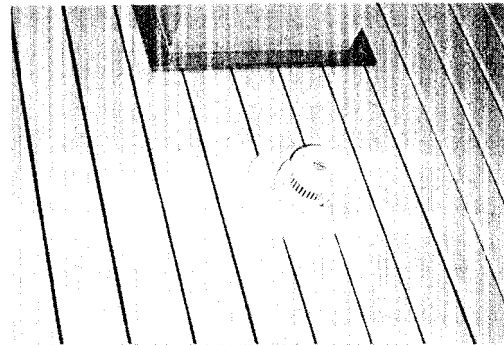


Figure 2

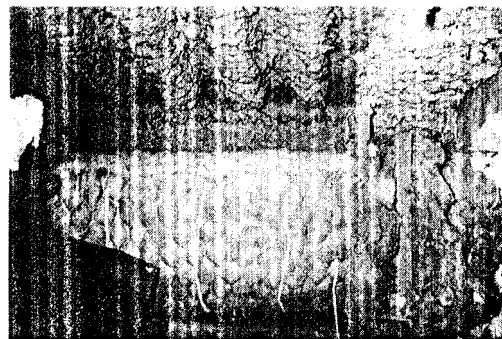


Figure 3

Case 2

Pleural mesothelioma in a barber, 57 years old at the time of the diagnosis of the tumour. The patient had worked for 34 years in a barber's shop located 300 metres from an asbestos cement factory. The workers of this asbestos cement factory were regular clients of the patient. These workers usually went to the barber's shop directly from work, before going home and having the opportunity to wash, to comb their hair and to change

their clothes. They had been heavily exposed to asbestos cement dust, hair and tiles, and tectonic mesothelioma.

Case 3

Pleural mesothelioma in a 67 years old man. The time of the tumour was 25 years in the boat and boat motor, with cement, with temperature crack and room where. Moreover, frequently more space made with adapt, cut time of the

Case 4

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their clothes. The patient had therefore been heavily exposed, for 34 years, to the asbestos contaminating the clothes, the hair and the body of many of these particular clients. The latency time of the mesothelioma was 34 years.

Case 3

Pleural mesothelioma in a fisherman, 67 years old at the time of the diagnosis of the tumour. The patient had worked for 25 years in a fishingboat. His main job in the boat was as a motor engineer. The boat motors were insulated with asbestos cement, which, in time, as an effect of temperature and vibration, tended to crack and crumble, polluting the engine room where the patient was working. Moreover, during navigation, the patient frequently had to repair the motor and, more specifically, to substitute gaskets made with asbestos, which he used to adapt, cutting them by hand. The latency time of the mesothelioma was 41 years.

Case 4

Pleural mesothelioma in a trader of exotic fishes and aquaria, 72 years old at the time of the diagnosis of the tumour. Twenty years before the diagnosis of the tumour, this trader had assisted for 2 years in the construction of aquaria, the bottom of which was made, at the time, with slates of asbestos cement. During the construction of the aquaria, these slates were cut with a special saw which retained, but not completely, the dust, part of which was therefore polluting the workplace. The latency time of the mesothelioma was 20 years.

Case 5

Pleural mesothelioma in a farmer, 64 years old at the time of the diagnosis of the tumour. This farmer, many years before the onset of the tumour, had worked directly with a building team on the construction of a cow stable on his own land. Slates of asbestos cement were used as building material. These slates were cut and shaped with saws, so generating heavy dust pollution.

Case 6

Pleural mesothelioma in a farmer and breeder, 61 years old at the time of the diagnosis of the tumour. The patient, 34 years before the diagnosis of the tumour, had worked directly with a building team on the construction of a cow stable and five mink stables on his own land. The construction of the six stables was performed over a period of three years, and the building of each stable took three months. For these stables, construction slates of asbestos cement were used and cut with saws to the required dimension. This procedure heavily polluted the workplace with asbestos dust. The latency time of the mesothelioma was 34 years.

Case 7

Pleural mesothelioma in a car workshop worker, 40 years old at the time of the diagnosis of the tumour. The patient had worked for 18 years in a car workshop, and his primary job was to fix the car brakes, which were heavily contaminated with asbestos dust. In the course of this job the patient used to clean the

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brakes with a jet of compressed air which diffused the asbestos in the workplace atmosphere. The latency time of the mesothelioma was 19 years.

Case 8

Pleural mesothelioma in a worker engaged in assembling dry-cleaning machines and flat-irons, 40 years old at the time of the diagnosis of the tumour. The patient had worked on the assembling of steam flat-irons whose reservoirs were insulated with glass fibres, and, for 14 years, on the installation of dry-cleaning machines, insulated with glass fibres and whose gaskets, made of asbestos, he adapted, cutting them by hand. The latency time of the mesothelioma was 25 years.

Case 9

Pleural mesothelioma in a worker engaged in the assembly of printing machines, 50 years old at the time of the diagnosis of the tumour. The patient was engaged in this occupation for 15 years. His activity included the assembling of asbestos slates, used as thermal insulation, on the sides of the machines. The slates were provided pre-shaped and holed (to allow the passage of mechanical connections and electrical cables), but the shapes and the holes were more precisely adapted during assembly, with a file. This procedure generated dust, which was easily inhaled by the worker, since the precision needed in this operation brought the worker himself within a short distance from the machine. The latency time of the mesothelioma was 27 years.

COMMENTS

For all the 9 referred cases of mesothelioma, the relationship of the tumours with asbestos exposure has been traced after a thorough inquiry, and particularly after diligent interviews with the patients and their relatives, by a trained medical doctor involved in the study of asbestos carcinogenesis since several years. There are good reasons to think that, without such a type of inquiry, these cases would have been considered, epidemiologically, independent from asbestos exposure.

These 9 cases are a sample of a large series of ours of asbestos mesotheliomas due to currently "ignored" occupational (and also non-occupational) asbestos exposure.

It is important, in our view, to focus more attention and to devote more investigations toward a better identification of possible exposure to asbestos in all cases of proved mesotheliomas. A more careful approach could, in fact, bring about:

- the discovery of yet unknown or not yet considered hazardous scenarios, and consequently the identification of new populations at risk of asbestos mesothelioma, and, therefore, the improvement of the epidemiological knowledge of asbestos diseases and also of preventive measures;

- more realistic information on the relative incidence of mesotheliomas due to unknown causes or considered spontaneous;

- a more precise risk assessment of the asbestos hazard in society at large;

- more precise criteria for the compensation of mesothelioma as an occupational disease.

The reported cases also point to the role of the hospital and the medical doctor in the epidemiology of occupational

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SUMMARY

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and environmental diseases, with particular reference to tumours, and highlight the need to better and more extensively use the hospitals as primary sources of epidemiological information. For many aspects this role cannot be covered by any other public health structure.

a thorough medical inquiry within the hospital. Such a type of inquiry would reduce the number of mesotheliomas due to unknown causes or considered spontaneous. The role of the hospitals as a primary source of epidemiological information is stressed.

SUMMARY

Nine cases of asbestos mesothelioma following usually ignored asbestos exposure were reported. In these cases the asbestos exposure has been traced following

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