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War journalism: an occupational exposure

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SUMMARY

Apart from the risk of accidents, war theatres present a hazard related to numerous long-lasting toxic agents. For 10 years, a >60-year-old male journalist worked in war theatres in the Far and Near East where he was exposed to asbestos and other toxic substances (metals, silica, clays, polycyclic aromatic hydrocarbons and other organic substances) contained in dust and smoke of destroyed buildings. More than 15 years later, he developed a mucoepidermoid carcinoma of the soft palate and, subsequently, a pleural malignant mesothelioma. The safety of war journalists should focus not only on preventing the risk of being killed, but also on providing protection from toxic and carcinogenic agents. Exposure to substances released during the destruction of buildings can also pose a carcinogenic risk for survivors.

BACKGROUND

In our modern society based largely on images, there is mounting pressure on reporters to transmit breaking news in real time from the places where important events are taking place. Journalists are required to intervene as soon as possible in war theatres to report attacks, destruction and devastation. War journalism has always been associated with heroic figures who risk their lives, but in war theatres there is an added risk related to numerous toxic agents whose long-lasting action leads to chronic disabling effects on health. These include, for example, carcinogenic agents such as Agent Orange, a mixture of phenoxy herbicides containing traces of tetrachlorodibenzo-p-dioxin, that was widely used in Vietnam,¹ depleted uranium (DU) used in munitions and associated with the Gulf War Syndrome,² and asbestos fibres resulting from the destruction of buildings.³ All of these substances have been associated with adverse effects on the military as well as on refugees and survivors. There is still a lack of knowledge concerning these risks and no measures of prevention have been undertaken. Therefore, war journalists are unavoidably and unwittingly exposed to heavily polluted environments.

CASE PRESENTATION

In February 2021, a >60-year-old male journalist was hospitalised for a massive right pneumothorax. He was a social drinker with a physically active lifestyle. At a young age he had been a heavy smoker (from 25 to 50 years of age, more than 20 cigarettes a day, 35 packs/year before quitting smoking) and had subsequently developed emphysematous chronic bronchitis. Starting from the early 1990s, he had worked as a war correspondent in the

Balkans, Iraq and Afghanistan for about 10 years. Since 2003, he had been working in an urban office. Family history was positive for cancers which affected both parents (lung cancer) and two sisters (breast cancer).

When questioned about his war experience, he stated that during each mission he had lived for many months among the rubble of bombed-out buildings, constructed mainly in the 1950s and 1960s with the extensive use of asbestos. The destruction of entire urban and industrial areas had created mountains of rubble where everything was covered in dust, and it was impossible to avoid breathing it. Referring to himself and his colleagues he is reported as saying, 'At times we felt like we were chewing that air, it was so thick and slimy'.

In 2017 he developed a mucoepidermoid carcinoma (MEC) of the soft palate and underwent surgery (partial maxillectomy and palate reconstruction). The diagnosis was confirmed by histochemical methods (diffuse p63, CK19 and CK14 phenotype, focally positive for Cam 5.2).

During the recent hospitalisation, after pleural drainage, persistent air loss and incomplete pulmonary re-expansion, a thoracoscopy and biopsies were performed. A multifocal malignant pleural mesothelioma (MM) with microfoci of initial infiltration was diagnosed. The patient underwent surgery (right apicoectomy for bullous dystrophy and chemical pleurodesis) and chemotherapeutic treatment (cisplatin and pemetrexed).

GLOBAL HEALTH PROBLEM LIST

The presence of two neoplasms of the respiratory tract in the same subject requires evaluating whether an environmental agent could be responsible for both, and whether this agent was present in the patient's workplace.

GLOBAL HEALTH PROBLEM ANALYSIS

Current knowledge on carcinogenesis suggests that the combined presence of both a germline genetic variant and a known environmental factor can modulate the risk of cancers more than either one alone. For example, the inherited loss-of-function mutations in the BAP1 onco-suppressor gene predispose to MM in asbestos-exposed individuals and other cancers⁴ including MEC in non-exposed patients.⁵ Therefore, there may also be a genetic link between the two types of neoplasia. The patient had a marked neoplastic familiarity, and this leads to the suspicion of a genetic predisposition. The fact that the neoplastic diseases manifested themselves more than 15 years after the patient's activity in war



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zones, led us to consider exposure to agents that act over periods of long latency.

First, we took into account fumes, dust and fibres resulting from the destruction of buildings. As the attack on the Twin Towers demonstrated, large quantities of dust are dispersed into the air, including very small particles (2.5 µm) belonging to the so-called respirable fraction. Such particles can penetrate the alveoli and are composed of an alkaline mixture of crushed concrete, gypsum, silica and fibres that is extremely harmful for the respiratory system.⁶ Silica dust exposure is associated with an increased risk of laryngeal and lung cancer in workers who had already developed silicosis,^{7, 8} although there is little evidence of the carcinogenic role of silica per se in the absence of silicosis.⁸ On the contrary, asbestos fibres exert a carcinogenic effect even in the absence of pneumoconiosis,⁹ and have been associated with single exposure to a household or neighbourhood/community asbestos source.¹⁰ Asbestos released into the air was a significant risk factor for workers engaged in debris removal after the destruction of the World Trade Center (WTC) in New York City (NYC) on 11 September 2001.¹¹ It is acknowledged that 1 fibre/mL per year of asbestos is sufficient to significantly increase the risk of MM.¹² The exposure of the patient in this case report might have been significantly worse than that experienced by workers engaged in removal of rubble at the WTC, considering both the great quantity of asbestos fibres and the long duration of exposure. In fact, large quantities of asbestos and asbestos-cement are used in the construction of buildings in Balkan and Asian countries. Previous evidence has shown that exposure to dust produced by collapsing buildings has inflammatory and cytotoxic effects on the pulmonary endothelium,¹³ and long-term exposure to asbestos fibres is the main aetiological cause of MM.¹⁴ A possible role of asbestos exposure has been hypothesised in a case of MEC.¹⁵

The patient also reported that several colleagues suffered from the Balkan syndrome, a complex chronic illness characterised by disorders mainly affecting the haematopoietic system and associated with exposure to DU, chemicals, desert dust, biological agents and vaccines.¹⁶ This syndrome has also been observed in soldiers deployed in Bosnia-Herzegovina and Kosovo in the late 1990s. The latter were exposed to North Atlantic Treaty Organization antitank missiles and bombs containing DU that might be linked to the development of neoplasms.¹⁷ However, a review of studies performed in Gulf War and Balkan veterans did not give consistent evidence of excess risks of neoplasms possibly related to exposure to DU¹⁸ and more recent studies on veterans deployed in Bosnia-Herzegovina and Kosovo did not show any increase in general mortality or in cancer.¹⁹ In the described case, the main carcinogens to which the workers had been exposed were silica and asbestos. Silica dust, or silicon dioxide, is commonly found in nature in crystalline form as quartz or cristobalite, as well as in amorphous form; both are contained in concrete. Crystalline silica is included in the International Agency for Research on Cancer Group 1 agents carcinogenic to humans, while amorphous silica is included in the Group 3, not classifiable as to its carcinogenicity to humans.⁹ Asbestos in all forms, including actinolite, amosite, anthophyllite, chrysotile, crocidolite and tremolite is included in Group 1 of human carcinogens,⁹ with a latency of induced MM that can be up to 50 years. The time elapsed from exposure in this patient was likely sufficient for the induction of neoplastic effects.

When evaluating occupational exposure as a cause of illness, it is necessary to take into account the habit of smoking. A recent meta-analysis confirms that tobacco smoke has an additive interaction with asbestos exposure in the genesis of lung cancer,²⁰ and

it can be assumed that the same is true for soft palate neoplasia. Conversely, it is well known that smoking has no relationship with MM.²¹

This case report has some weaknesses. The main one, from the point of view of occupational health, is the lack of data on the type of pollutants present in war theatres and their levels. The observations made after the WTC disaster²² certainly differ from the conditions that occur in other countries; however, they indicate the harmfulness of demolition products. Another limitation is the lack of genetic tests on the worker, which could have verified the hypothesis of a genetic predisposition to cancer that is suggested by the familiarity.

For the protection of subjects who work in areas in which, following demolitions, there is pollution from asbestos fibres and silica particles, respiratory personal protective equipment (namely, filtering face masks able to filter 99% of airborne particles) and decontamination of clothing are measures whose effectiveness has been proven over many decades of experience in air polluted workplaces.²³

In conclusion, this case underlines the need for a thorough assessment of the occupational hazards and risks for all workers engaged in war scenarios. Personal protective equipment should be supplied to reduce pathological health effects to a minimum. Moreover, regular check-ups should be introduced to provide early diagnosis and treatment.

This topic has a significant impact on public health because exposure to debris affects not only the military and professionals in the field, but also the civilian population. To date, the problem of cancer in refugees, displaced populations and war survivors has been posed exclusively from the point of view of the need for resources to diagnose and treat the disease,²⁴ but it has not been considered from a prevention perspective. Unfortunately, no long-term studies are available on the incidence of MM or other cancers in the population residing in conflict areas; however, studies in refugees observed that median age of onset of cancer was significantly lower, and disease progression was significantly

Patient's perspective

The work of journalists reporting events in areas of crisis has been influenced by changes in the global geopolitical scene that has moved regional conflict theatres from developing countries to geographic areas closer to the industrialised world and to the very heart of Europe.

Safety provisions for reporters have also been affected by changes in the geographical boundaries of regional conflicts: protective equipment adopted prior to those changes (eg, splinter and bulletproof vests, Kevlar helmets and armoured cars) is useless against the invisible and more insidious risks related to toxic or poisonous agents and radioactive or carcinogenic materials. None of the thousands of reporters who spent long periods in areas of conflict were aware of the dangers of being exposed to such risks that are just as hazardous as those posed by conventional weapons.

Following extensive bombing, the areas in which we operated were reduced to rubble and the air we breathed was full of dust from collapsed buildings. Had we been aware of the risks involved, we could have taken preventive measures such as adopting air filtering devices. Since this did not occur, there is a very real fear that because of unwitting exposure to toxic chemical/physical agents, many of us will manifest symptoms of a serious disease in the near future.

Learning points

- ▶ Several agents that can induce neoplasms of the respiratory system are present in war theatres.
- ▶ Journalists working in war theatres are exposed to asbestos, depleted uranium and other carcinogens.
- ▶ Therefore, the safety of war journalists should focus not only on preventing the risk of being killed, but also on providing protection from toxic and carcinogenic agents.

more frequent in refugees than in the host population.²⁵ This finding could be related to toxic exposure during the conflict. Studies on populations exposed to asbestos pollution in underdeveloped countries, where misinformation and social inequities dominate, are also very limited; however, in these areas the few epidemiological studies available show clear evidence of clusters of MM in association with environmental asbestos exposure.²⁶ Recent studies have shown that WTC survivors, that is, the population of local residents and workers present in the NYC disaster area on 11 September 2001 or in the days or weeks following, developed MM and other rare neoplasms.²⁷ War reporters are therefore only the tip of the iceberg. The harm caused by war destruction is much more serious and persistent than the damage that is immediately visible.

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