Case report

Talcum powder pica as the cause of interstitial lung disease

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Introduction

Cosmetic talc has been used as a dusting powder widely around the world and is generally not considered to be a hazard. Relatively, small quantities of talc particles are inhaled and are efficiently cleared by the tracheo-bronchial tree. However, pneumoconiosis can develop in talc miners and other workers who are exposed to high concentration via inhalation of talc dust over a prolonged period. We report here a rare case of a female patient who developed interstitial lung disease after she ingested talcum powder for a prolonged period of time. Talc pneumoconiosis due to chronic ingestion of talcum powder has not been reported before.

Case presentation

Our patient was a 48-year-old African-American female with no significant past medical history who presented to the emergency room with a 1 year history of progressive worsening dyspnea on exertion associated with dry cough. She also reported a 28-pound weight loss over a 1-year period. She denied any fever, recent travel or sick contact. Based upon some prior reports by Sandhu G. et al, the patient had been investigated and treated multiple times for presumptive atypical pneumonias, without any significant relief or a definitive diagnosis.1,2

On examination, she was not dyspneic at rest. Her blood pressure was 113/74 mmHg, pulse 108 beats/min, respiratory rate of 18 breaths/min and was saturating at 98% on room air. Auscultation of her chest revealed crackles in her both lung bases. The remainder of her physical examination was unremarkable. Pertinent laboratory results included mild anemia (hemoglobin of 9.2 g/dl). Computerized tomographic (CT) scan of the chest showed micro-modules and fibrosis, chronic hilar, mediastinal lymph and axillary lymphadenopathy. Lung biopsy was performed and showed evidence of foreign body with surrounding inflammation.

On further questioning, the patient accepted to have ingested cosmetic talcum powder (a handful of talcum powder almost everyday for the past 23 years). She attributed this habit to be ‘stress reliever’ for her.

Discussion

Pica is defined as a compulsive ingestion of non-nutritive substances or unusual food cravings. Talc (meaning pure) is hydrous magnesium silicate \([\text{Mg}_6\text{Si}_8\text{O}_{20}\text{(OH)}_4]\) and is widely used in cosmetics, dusting powder, crayon, ceramic, paper, plastics, rubber and paint industries. Medically talc is used in pleurodesis and also for filler for pills. Talc is mineralogically related to three of the five major asbestos group minerals specifically the serpentine chrysotile as well as the amphiboles anthophylite and tremolite (the other amphiboles being amosite and crocidolite). Talc deposits contain asbestos minerals and therefore in industrial and commercial use, such talc always contain varying amount of asbestos fibers.3 Cosmetic talcum powders sold in the USA are considerably less contaminated with asbestos and other minerals than commercial grades of talc.3

In people who are exposed to talc, a clinical syndrome may develop with pulmonary fibrosis resembling that produced by asbestos exposure. The effects may be due to contamination of asbestos,
but the fibrous form of talc itself may play a role as it has been shown that they can be taken up by tissue phagocytes and are potentially fibrogenic.\textsuperscript{4} Deposition of mineral dust in pulmonary parenchyma can elicit a variety of tissue reactions from formation of focal functionally insignificant dust macules to diffuse progressive massive fibrosis (PMF). PMF is a dose-related manifestation of dust accumulation and is an immunologic-mediated reaction.\textsuperscript{5} The inhalation of talc has been associated with at least three overlapping histological patterns including diffuse interstitial fibrosis, nodular fibrosis and foreign body granulomatosis.

Talcum powder pneumoconiosis was first described by Thorel in 1896. Inhalation of talc occurs during its extraction from mines, separation, milling, packing, loading and transportation. Mostly, it occurs in workers of soap, paper and leather industries. The other ways of acquiring this condition include eating talc-coated rice, medications and after therapeutic pleurodesis. Though very rare, talcosis has been reported in people with heavy chronic exposure to dusting powder for cosmetic usage, and this syndrome closely resembles talc miners pneumoconiosis. Clinically, talc pneumoconiosis has four forms namely talcosilicosis, talcosasbestosis, pure talcosis and an unnamed fourth form which occurs in IV drug abusers.\textsuperscript{6} Both the inhaled and injected forms lead to the formation of granulomas. These small foreign body granulomas composed of multinucleated cells containing birefringent crystals in the alveolar septa and air spaces tend to confluence forming large foci of consolidation leading on to progressive fibrosis of the lung. In some cases, pan acinar emphysema and bullae formation are also evident. The clinical presentation could range from asymptomatic to fulminant disease. The pulmonary function tests done in these patients may show a restrictive picture as in our patient, and a definite diagnosis is obtained with lung biopsy that could show the talc particles are birefringent, needle-shaped particles seen within the giant cells in the areas of fibrosis. Investigations like bronchio alveolar lavage (BAL) may show talc particles and talc bodies and can be useful for assessing talc exposure.\textsuperscript{7} Notable complications are respiratory failure, \textit{Cor pulmonale}, superinfections, spontaneous pneumothorax and malignancy.

Ingested talc in large amount can cause intestinal obstruction requiring surgical removal. Talc pneumoconiosis due to chronic ingestion of talcum powder is an extremely rare entity and never has been reported before. Our patient had been ingesting talcum powder on a regular basis for many years and thus exposed to inhalation leading to her clinical picture. The CT scan of these patients may show varied pictures like linear/reticular opacity, granulomas, diffuse micronodular pattern with centrilobular nodules, cysts, consolidation, ground glass appearance, honey combing and emphysema that can resemble \textit{α1} antitrypsin deficiency. The talc particles are also seen as small glistening crystals in the retinal vessels particularly in the small-end arterioles of the perifoveal arcade and are diagnosed with fundoscopy.\textsuperscript{8} There is no established treatment for talcosis. Patients should stop the exposure and any tobacco use. Though success with steroids has been reported previously,\textsuperscript{9} many authors believe that there are no benefits from steroids and other immunosuppressants.\textsuperscript{9} Associated complications should be appropriately treated. Most of the people with established talcosis have a poor outcome and experience progressive decline in lung functions. Lung transplant which is reserved as a last resort is considered as a viable option.
Conclusion

In summary, though a rare clinical entity, chronic ingestion of talcum powder can cause interstitial lung disease without associated gastrointestinal intestinal manifestations, and hence should be considered in the differential diagnosis during the evaluation.

Conflict of interest: None declared.

References


