

Rubber Dust and Lung Disease

**Q** A 33-year-old man has recently experienced an attack of pleuritis and pericarditis. There is a history of a previous episode of pleuritis. The patient has been working in a rubber tire repair shop for 5 years and he is exposed to rubber tire dust. Could the inhalation of rubber tire dust produce pulmonary disease?

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**A** In my opinion there is no relationship between the inhalation of rubber tire dust and pericarditis or pleuritis. Dust particles arising from the braiding of cured rubber products such as tires may be a nuisance to the same degree as any other common dust that may be respired. Actually, there is very little dust produced in the wearing of a tire. Because of the heat produced in the rotating of a tire, most of the wear is dissipated as fumes. The dust that does occur is inert. I would presume that is with any other dust, if rubber dust is inhaled in sufficient quantity, pneumoconiosis could be produced. It is hard to imagine that any individual could come in contact with sufficient rubber tire dust to acquire lung disease. Actually, dust is not a particular problem in rubber tire manufacturing plants. The incidence of pneumoconiosis in the rubber industry is low.

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Test for Nicotine

**Q** What is the test for nicotine? Can this test be used to determine if nicotine is deposited on the tonsil tissue of the smoker?

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**A** The standard method for determining nicotine is that described by the Association of Official Agricultural Chemists in *Official Methods of Analysis*, 7th ed., Menasha, Wis: The Collegiate Press, George Banta Publishing Co., 1950, p 69. This method, designed for analysis of plant material, involves steam distillation of nicotine and related alkaloids from a strongly alkaline solution, collection in dilute acid, and precipitation of nicotine with silicotungstic acid. It is suitable for determination of relatively large quantities of the alkaloid. A micro procedure based on this method has been published by J. R. Spies (*Industr Engng Chem [Anal]* 9:46, 1937). A colorimetric method, based on the reaction between nicotine and cyanogen bromide with addition of beta naphthylamine has been described by Markwood (*J Ass Off Agric Chem* 23:792, 1940), and this has been applied to the determination of microgram quantities in blood by Wolf et al (*J Biol Chem* 175:825, 1948). The

Wolf procedure could probably best be adapted to the present purpose.

The detection of nicotine on tonsil tissue by such methods is likely to be difficult. The total nicotine in the main-stream smoke of one king size cigarette without filter may approach 2.75 mg and only a small fraction of the total smoke would be expected to deposit on the tonsil. Free nicotine base is very rapidly absorbed through the mucous membranes and would therefore be expected to disappear rapidly from any particulate matter deposited on the tonsil. The action of mucus and saliva would also be expected to remove such deposits from the surface.

One could try swabbing the tonsils of a heavy smoker periodically with cotton swabs, and subjecting the entire collection, swabs and all, to analytical procedures adapted from the methods referred to above. Saliva samples and unused swabs should be analyzed as controls. It is doubtful, however, whether any nicotine will be found in this way.

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Back Injury and Urinary Bladder Dysfunction

**Q** What is the proper management of a patient with an acute back injury and evidence of bladder dysfunction? The patient has saddle hypesthesia, urinary retention, and decreased anal reflex tone. Is this a surgical emergency?

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**A** The nature and level of the injury must be determined. If the neurological findings indicate damage to the conus medullaris or cauda equina, there are often confirmatory roentgenographic changes to establish the diagnosis of a fracture. However, a herniated disk or hematoma, for example, might produce damage to the nervous structures and not be visualized in regular roentgenograms. One is on much more certain ground if the presence or absence of a spinal block can be established. Thus, myelography should be carried out if regular roentgenograms fail to provide the answer. If a spinal block exists, surgical decompression is indicated. The sooner this is carried out, the better.

A catheter should be inserted into the bladder as soon as possible after the accident to prevent overdistention of the urinary bladder. This catheter should remain in place until it is determined definitely whether or not recovery of bladder function will take place. If no recovery occurs, and if the bladder remains flaccid, a surgical procedure such as a suprapubic cystostomy should be considered at a later date.

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