



CONTACT DERMATITIS AND OCCUPATIONAL DERMATOSES

BLUISH TO GRAY MACULES AND LONGITUDINAL MELANONYCHIA AS SIGNS OF MULTIPLE PRECIOUS HEAVY METALS POISONING IN THE RECYCLING PROCESS OF INFORMATION TECHNOLOGY INDUSTRY

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Background: In modern society, information technology (IT) is indispensable to our daily life. The recycling and refining of precious heavy metals is an important industry as it supplies material for IT use. Given its importance, the question of industrial safety and environmental protection should be a matter of grave concern.

Objective: To analysis of the pathway for heavy metal entering the body is based on the patient's work environment and clinical manifestation, followed by appropriate treatment.

Material and methods: Three men and one woman, aged 30, were all employees of the same plant where precious heavy metals were reconstituted and refined. All patients had multiple bluish to gray 1-2 millimeters macules or linear lesions scattered over fingers, forearms, and subungual longitudinal hyperpigmentation had been noted for more than 1 year. Ultrastructure analysis of the pigmented skin and nail plate were conducted by means of electron microscope, as well as the application of energy dispersive spectrometer (EDS) to confirm chemical components.

Results: The cutaneous manifestation may be caused by direct contact to chemicals during wet processing and mechanical injury during sand blasting. Skin biopsy revealed blackish masses and argyria-like fine particles over the whole layer of dermis. Electron microscope shows multiple blackish particles embedded in collagen fibers, macrophage and cutaneous nerve bundles with demyelination which is consistent with polyneuropathy. EDS reveals the presence of multiple precious heavy metals such as silver, gold, platinum and tantalum.





Conclusions: In patients who work in recycling and refining of precious heavy metals industry, cutaneous bluish to gray macules could be a warning sign of heavy metal intoxication. The lesions can be successfully removed by Q-switch Nd-YAG laser. It should be kept in mind that not only cutaneous manifestation but possible internal organ involvement must be considered.

