

The Sheffield Nose - An Occupational Disease?*

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SUMMARY

We report a case of silver tattooing of the nasal mucosa in a silver polisher. The concern in such cases is mainly due to the suspicion of melanoma. The diagnosis was confirmed by using the Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) method, which revealed the presence of two types of silver isotopes, at 107 and 109 m/z.

Key words: occupational nose silver pigmentation

INTRODUCTION

Argyrosis, generalised or localised, is usually an occupational disease and similar isolated cases have been reported in the literature in patients who are not involved in silver-related professions. Sheffield has a fine tradition for metal-working and heavy industry, with cutlery manufacturing in particular, stretching back at least 200 years, but presentation of cases with mucosal pigmentation in the otorhinolaryngological clinics is rare. We present the first proven case of silver tattooing of the nasal mucosa in a silver polisher, which was initially thought to clinically resemble malignant melanoma.

CASE REPORT

A 57 year-old gentleman, a silver polisher by occupation, was seen in the clinic with a history of bleeding from the right nostril. On examination a brown-pigmented patch was seen on the nasal mucosa on the right side of the nasal septum in the

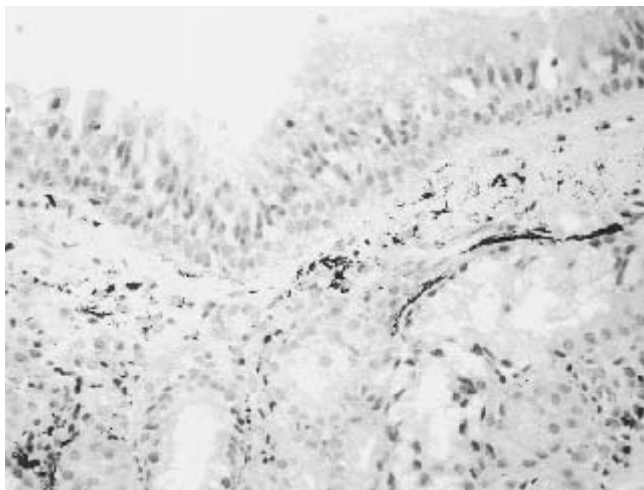
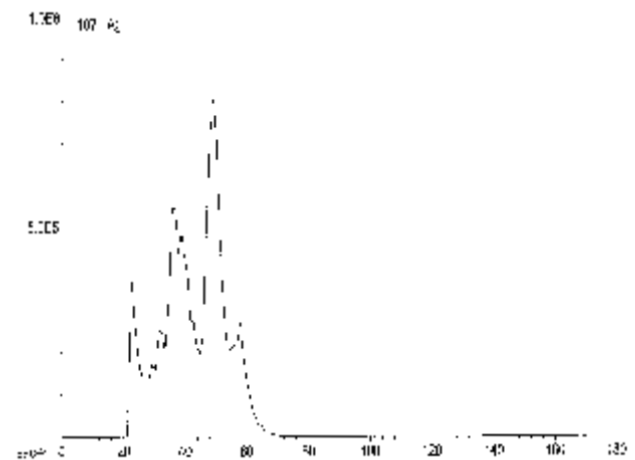


Figure 1. Histology shows normal mucosal pattern, apart from the presence of black pigment granules within phagocytic cells, mainly just beneath the surface epithelium.

Little's area. Due to the suspicion of melanoma the patient had an excision biopsy of the lesion done under general anaesthesia. Histology of the lesion was reported as showing normal nasal mucosa apart from the presence of black pigment granules within phagocytic cells, mainly just beneath the surface epithelium; this was thought to be like carbon or anthracotic pigment (Figure 1). Further analysis of the histological material using Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) confirmed the pigment to be silver. Two isotopes of silver, at 107 and 109 m/z, were con-



firmed to be present in the tissue samples (Figure 2).

Figure 2. The LA-ICP-MS shows time/intensity scans obtained from designated area of tissue, confirming the presence of silver isotopes at 107 and 109 m/z.

DISCUSSION

The occupational risk of generalised argyrosis has diminished due to reduced exposure following changes in manufacturing processes and individual hygiene practices. It has already been established by Zak et al. (1992) that melanocytes are present in the normal nasal mucosa mainly in the stroma. Hence, though uncommon, presentation of a pigmented lesion of the nasal

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mucosa is a cause for concern because of the possibility of a melanoma.

Silver tattooing of the nasal mucosa following silver nitrate cautery (Mayall et al., 1996) and inhalational contact with silver oxide (Stamberger, 1982) have been reported. Amalgam tattoos, of oral mucosa containing copper and silver, are commonly seen in dental practice (Mayall et al., 1992).

Workers doing silver-reclamation (Pifer et al., 1989) for over 20 years have been reported not to have generalised argyrosis but were noted to have pigmentation affecting conjunctival and nasal mucosa. Despite the suspicion no histological confirmation of the presence of silver in the mucosa was documented in that study. The same paper goes on to describe other reports of respiratory pathologies, with silver impregnation of alveolar walls and small pulmonary vessels, in silver polishers and finishers, but does not mention mucosal involvement in the nose or mouth in those cases.

A case of generalised argyrosis following recurrent use of silver painting of the tongue (Lee et al., 1994) has been reported. Reversible increased concentration of silver in serum and skin has been seen with use of anti-smoking chewing gum containing silver acetate (Jensen et al., 1988) without any manifest argyrosis.

We have presented a case of a silver polisher who did not have generalised argyrosis, or any respiratory symptoms, but developed localised mucosal argyrosis in the nose, due to implantation of the silver granules on to the nasal mucosa, either from the hand or air, a possible occupational hazard. A pigmented lesion of the nasal mucosa still needs to be treated with caution, like other pigmented lesions elsewhere, because of the possibility of melanoma.

So far in otorhinolaryngological literature the energy dispersive analysis of X-rays (EDAX) method has been commonly used for confirmation of presence of silver in the tissue. In our case a different method – Laser Ablation Inductively Coupled

Plasma Mass Spectrometry (LA-ICP-MS) – has been used for that purpose, which has identified the presence of two individual isotopes of silver in the tissue.

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