



Argyria

Argyria is a condition characterised by bluish–grey to slate–grey staining of the skin and mucous membranes caused by deposition of silver particles in the skin. There are several sources of exposure to silver.

- Occupational exposure – mainly in workers involved in silver mining, silver refining, silverware and metal alloy manufacturing, metallic films on glass electroplating solutions, and photographic processing.
- Medication with silver salts – prolonged use of silver salts for the irrigation of urethral or nasal mucous membranes, in eye drops, wound dressing, and excessive use of an oral smoking remedy containing silver acetate.
- Colloidal silver dietary supplements – marketed widely as a treatment for arthritis, diabetes, cancer, herpetic infections and AIDS.
- Surgical and dental procedures – silver sutures used in abdominal surgery and silver dental fillings.

How does silver toxicity occur?

Silver enters the body either by mechanical impregnation of the skin by small silver particles or by ingestion of silver compounds. Most occupational argyria is due to the direct impregnation of silver salts from prolonged contact with skin. Silver taken orally or absorbed by mucous membranes is carried through blood bound to the plasma protein albumin. Some of this silver is carried as a salt and may be deposited in various tissues, with highest concentrations found in the skin, liver, spleen and adrenals. Most absorbed silver is excreted in faeces and some in the urine.

Recently there have been several reports of people getting argyria after using colloidal silver–based products as ‘cure–alls’. In several cases patients were manufacturing colloidal silver suspension at home using instructions downloaded from the Internet.

What are the clinical features of argyria?

Whether or not a person exposed to prolonged or high levels of silver develops argyria depends on many factors including the dose and form of exposure, the duration of exposure, and the route of exposure (ie: ingested, inhaled, skin contact). What is apparent is that the degree of hyperpigmentation in patients is directly correlated with the amount of silver present.

Generalised argyria usually begins with a grey–brown staining of the gums which later progresses to involve large areas of the skin.

- Over a period of months or years depending on the degree of exposure the skin turns a bluish–grey, metallic, to slate–grey colour.
- The hyperpigmentation is most pronounced in sun–exposed areas such as the face (particularly forehead and nose), neck, arms, and hands. Hence, the discolouration is thought to result from the presence of silver and silver–induced increase in melanin concentration.
- The fingernails, conjunctival membranes and mucous membranes may become hyperpigmented.
- In some cases, the entire skin turns a slate blue–grey colour.

Localised argyria can occur in the eye (ocular argyrosis) from the overuse of silver containing eyedrops or cosmetic makeup. Sometimes, this may be the first objective sign of generalised argyria. Other forms of localised argyria are the appearance of blue macules at sites of acupuncture needles and silver earring sites.

What is the treatment of argyria?

Argyria is a rare condition and unfamiliarity with this condition may lead to its misdiagnosis. The diagnosis of argyria is established by skin biopsy. Unfortunately, the pigmentation is permanent and basically untreatable. Treatments using depigmentary agents have been tried but are largely unsuccessful. Some reports have suggested using hydroquinone to reduce the number of silver granules in the upper dermis and around sweat glands. Other treatments used that claim to be successful include intense cleansing protocols designed specifically to eliminate silver and other environmental toxic agents, and laser surgery to eliminate skin discolouration.

To prevent further exposure stop ingestion or application of all silver containing remedies. Protective wear can be used to prevent occupational exposure. Sunscreens may be helpful in preventing further darkening and discolouration. [Cosmetic camouflage](#) may be useful in disguising the appearance.

Related information

References:

- Book: Textbook of Dermatology. Ed Rook A, Wilkinson DS, Ebling FJB, Champion RH, Burton JL. Fourth edition. Blackwell Scientific Publications.

On DermNet NZ:

- [Heavy metal toxicity](#)

Other websites:

- [Argyria](#) - emedicine dermatology, the online textbook
- [Heavy Metal Toxicity](#) - Life Extension:
- [Heavy Metal Handbook: A Guide for Healthcare Practitioners](#). Science Subcommittee of the Heavy Metals Remediation Committee of the Vashon-Maury Island Community Island Community Council, 2003.
- [Rosemary Jacobs index page](#) a personal story

Books about skin diseases:

See the [DermNet NZ bookstore](#)

Author: Vanessa Ngan, staff writer

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