

METALS CAUSING CONTACT DERMATITIS IN VARANASI

K K Singh and Gurumohan Singh

Contact dermatitis due to jewellery was studied in 22 cases. All the patients showed positive patch tests with atleast one antigen. Nickel was the most common sensitizer followed in the order of frequency by copper, chromium, cobalt and silver. Female to male ratio was 1 : 3.66. Wrist was affected in the majority.

Key words : Jewellery, Patch testing, Contact hypersensitivity.

Gradual increase in the value of gold has led many people to use artificial jewellery. The frequency of contact dermatitis due to metals has greatly increased because of its regular use. The artificial jewellery contains copper, zinc, nickel, cobalt etc. Any of these metals may produce contact dermatitis as a result of sensitizations. Various studies have been conducted at Delhi¹ and Shimla² in India. In the present study, an attempt was made to find out the cause of contact dermatitis due to artificial jewellery in Varanasi.

Materials and Methods

Twenty two patients (18 females and 4 males) suspected to have contact dermatitis due to jewellery were selected for patch testing. The selected cases were having the involvement of ear lobes, neck, wrist, fingers, upper back and the area in contact with the spectacles, either singly or in combination. The test was performed with 9 metal antigens used in the form of antigen-impregnated-discs.³ Various antigens and their concentrations are shown in table I. Standard procedure was used for patch testing.⁴

Table I. Patch test results with various metals.

Antigens	Number of patients	
	Tested	Positive
Nickel sulphate 5%	22	13 (59.09%)
Potassium dichromate 0.25%	22	1 (4.54%)
Copper sulphate 5%	22	6 (27.27%)
Lead acetate 2%	22	Nil
Aluminium sulphate 2%	22	Nil
Zinc sulphate 2%	22	Nil
Cobalt chloride 2%	22	1 (4.54%)
Ferric chloride 2%	22	1 (4.54%)
Silver nitrate 2%	22	1 (4.54%)

Results

Fourteen patients (11 females and 3 males) were found to be sensitive to one or more metal antigens. The ratio of female to male cases, showing a positive reaction, was 1 : 3.66. Majority of the patients seen were in the age range 11-30 years. There was no case below 6 years.

The most common cause of contact dermatitis in this series was nickel (59.04%), followed in the order of frequency by copper, chromium, cobalt and silver. Many patients did not show any reaction (Table I).

The maximum number (7) of the patients showed involvement of the wrist followed in the descending order of frequency by neck (6), ears (5), area in contact with spectacles (2),

From the Department of Dermato-Venereology, Institute of Medical Sciences, Banaras Hindu University, Varanasi-221 005, India.

Address correspondence to: Dr. K K Singh, Department of Skin and STD, KMC, Manipal-576 119, (Karnataka), India.

upper back due to hook of the brassiere (2), and finger due to ring (1). The lesions had the features of subacute or chronic dermatitis.

Comments

Like other studies,^{1,2} nickel continues to be the commonest sensitizer, accounting for almost 60% of the total number of cases in the present series. Nearly all the studies in India including the present one show the female preponderance. Copper was the next commonest allergen observed in 27% of the total cases. Sensitivity to copper is also known.^{1,2} But the present high incidence has never been reported. The higher rate of hypersensitivity to copper in the present study may be attributed to the fact that artificial jewellery as well as the jewellery made of gold in this part of the country contain a large quantity of copper which is sufficient to cause contact dermatitis. All these patients, also had nickel hypersensitivity.

Cobalt is often found contaminating nickel and it may also produce allergic contact dermatitis as reported earlier.^{1,2} The present study shows one case of cobalt hypersensitivity combined with nickel in jewellery. One patient who was hypersensitive to chromium in the wrist watch, also had contact dermatitis due to

the same in the foot wear which is known to contain chromium as a tanning agent.⁵ Contact dermatitis due to chromium has been reported in India.^{1,2} The present series also shows one case of contact dermatitis due to silver.

Acknowledgement

The present study was conducted under the Department of Science and Technology project entitled "National survey of the causes of contact dermatitis in India.

References

1. Pasricha JS: Contact dermatitis due to wearing apparels in Delhi, in: Contact Dermatitis in India, 1st ed, Editors, Pasricha JS and Sethi NC: Lyka Lab Publications, Bombay, 1981; p 37.
2. Sharma NL and Sharma RC: Contact dermatitis to metals in Shimla, 1985; 51 : 148-150.
3. Pasricha JS: Antigen-impregnated-discs for patch tests, in; Contact Dermatitis in India, 1st ed, Editors, Pasricha JS and Sethi NC: Lyka Lab Publications, Bombay, 1981; p 19.
4. Fisher AA: Recording and evaluation of positive patch test reactions, in : Contact Dermatitis, 2nd ed, Lea and Febiger, Philadelphia, 1975; p 28.
5. Fisher AA: Shoe leather tanning agents, in; Contact Dermatitis, 2nd ed, Lea and Febiger, Philadelphia, 1975; p 155.