

Gold Allergy in Ramathibodi Hospital

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ABSTRACT:

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Before the late 1980s, gold allergy was believed to be rare. In the last decade however, many reports have shown the prevalence of gold allergy in patch test studies ranging from 0.8 to 13.0%. The objective of this 2-year retrospective analysis was to determine the prevalence of allergic reactions to gold in the Ramathibodi Hospital patch test clinic. Gold was a common allergen causing contact dermatitis in our clinic. Of the 233 patients tested, 12 (5.15%) had a positive patch test to gold. All gold allergic patients were females. The clinical relevance and presentation of gold allergy will be reviewed and discussed.

Keywords: gold, allergy, allergic contact dermatitis

Patients		
Gold allergic (N = 12)		12
All tested (N = 233)		233

บทคัดย่อ:

เพ็ญพรรณ วัฒนไกร ผื่นแพ้สัมผัสจากทองในโรงพยาบาลรามธิบดี วารสารโรคผิวหนัง 2545; 18: 87-91.

หน่วยโรคผิวหนัง ภาควิชาอายุรศาสตร์ คณะแพทยศาสตร์โรงพยาบาลรามธิบดี มหาวิทยาลัยมหิดล

ก่อนปลายช่วง ค.ศ. 1980 การแพ้ทองถือว่าพบน้อย แต่ในช่วงสิบปีที่ผ่านมาได้มีรายงานความชุกของการแพ้ทองจากการทดสอบผื่นแพ้สัมผัสที่ผิวหนังระหว่าง 0.8 ถึง 13.0% วัตถุประสงค์ของการวิเคราะห์ย้อนหลัง 2 ปีนี้ เพื่อหาความชุกของการแพ้ทองในคลินิกทดสอบผื่นแพ้สัมผัสโรงพยาบาลรามธิบดี ผลพบว่าทองเป็นสาเหตุที่ก่อให้เกิดผื่นแพ้สัมผัสได้บ่อยในคลินิกโดยในจำนวนผู้ป่วยที่ทดสอบทั้งหมด 233 ราย พบ 12 ราย (5.15%) ให้ผลทดสอบแพ้ทองโดยทุกรายเป็นเพศหญิง ความสำคัญทางคลินิกและลักษณะทางคลินิกของผื่นแพ้ทองจะได้รวบรวมและนำเสนอไว้ในรายงานนี้

คำสำคัญ: ทอง, แพ้, ผื่นแพ้สัมผัส

Introduction

Before the late 1980s, gold allergy was believed to be rare, this was assumed based on the paucity of patch testing with gold salts and a perception that gold is an inert metal. However in the last decade many reports of selective patch testing have shown the prevalence of gold allergy ranging from 0.8 to 13%^{1,2}. This study presents the data on gold allergy in the Ramathibodi Hospital patch test clinic.

Material and methods

This was a retrospective analysis of the patch test results from our clinic in a 2-year period (February 2000 – January 2002). Gold was patch tested as gold sodium thiosulfate (0.5% in petrolatum), (Chemotechnique, Dormer Labs, Ontario, Canada) along with 29 other allergens in our standard screening tray. Patch tests were done routinely in patients presenting with possible contact dermatitis with the Finn Chamber (Epitest Ltd, Tunsula, Finland) method according to the recommendation of the International Contact Dermatitis Research Group.

Table 1 Gender in gold allergy

Patients	Female	Male
Gold allergic (N = 12)	12	0
All tested (N = 233)	184	49

Results

During 24 months, a total of 233 patients were patch tested. Twelve of the 233 patients (5.15%) had a positive patch test to gold. Clinical and demographic information shown in Tables 1,2. All of the twelve patients with allergic reaction to gold were females. However women accounted for 78.9% of the total subjects tested (Table 1). Nine of the 12 patients had their ears pierced. A history of reaction to jewelry was positive in 3 of the 12 gold-allergic patients. Only 1 of the 12 gold patch test positive patients gave a history of reaction to gold jewelry. No occupational gold exposure or dental gold was present in these 12 patients.

Only 3 of the 12 patients with a positive patch test to gold were considered to be clinically relevant. One patient had no other positive allergen. The 2 other patients were nurses and were also patch test positive to

thimerosal which was not relevant to their dermatitis.

All 3 admitted to frequently wear gold jewelry and presented with dermatitis on the face with some dermatitis on the eyelids, neck and/or ear lobes. These 3 patients were considered relevant to gold allergy because their dermatitis cleared after gold avoidance. Rechallenge with gold jewelry was done in 2 of the 3 patients with recurrence of the lesions. One patient denied rechallenge because she was afraid that her dermatitis would flare up.

The other 9 patients that were patch test positive to gold were not considered to be clinically relevant either because they had other relevant allergens (shown in Table 3); had no current contact to gold explaining their dermatitis; or did not try gold avoidance so the relevance was undetermined

Table 2 Primary location of dermatitis and clinical presentation in gold allergic patients

Location	Clinical presentation	No. patients positive to gold (N = 12)
Hands	chronic hand eczema	2
	dyshydrosis	1
Hands and feet	dyshydrosis	2
Scattered, generalized	generalized eczema	2
	nummular eczema and prurigo	2
	simplex/nodularis	
Face	Ill-defined patchy eczema on face, neck,	3
	eyelids, earlobes	

Table 3 Other positive contact allergens in the 12 gold-allergic patients

Allergen	No. in gold-allergic patients
Thimerosal	6
Neomycin	3
Nickel	2
Paraphenylenediamine	1
Cinnamic aldehyde	1
Carba mix	1

Table 4 Percent prevalence of gold allergy^{1,2}

Report	Patients Screened (N)	Positive to Gold (%)
Sweden, 1994	823	8.3
N. Ireland, 1995	278	4.6
England, 1996	100	13.0
Germany, 1997	872	5.1
Portugal, 1997	2,853	0.8
Scotland, 1997	373	2.1
NACDG, 1998	4,101	9.5
Singapore, 1998	345	6.4
Israel, 2000	406	8.4
Ramathibodi, 2002	233	5.15

Discussion and review³

These findings show that gold allergy is common than previously believed. In this 2-year period of patch testing the prevalence of gold allergy was 5.15%. Table 4 summarizes the prevalence of gold allergy in routine patch test screening series.^{1,2}

In 1987, Fowler reviewed various reports of gold allergy⁴ and suggested gold sodium thiosulfate (0.5 %

pet), also known as sodium thiosulfatoaurate, to be the best patch test allergen. Currently it is the most commonly used allergen to detect gold hypersensitivity worldwide. Gold sodium thiomalate (injectable therapeutic gold) may also be used. Gold leaf, gold scrapings and metallic gold may yield false-negative reactions in gold sensitive patients. Gold chloride and

potassium dicyanoaurate may cause irritant reactions and are not reliable patch test allergens.³

All three of our patients that had clinically relevant reactions to gold presented with dermatitis on the face, neck, ears and on the eyelids. Dermatitis on the neck and earlobes are considered to be sites in direct contact with gold necklaces and earrings. Gold may also cause dermatitis at sites beyond direct contact. The clinical presentation of facial and eyelid dermatitis is unique.⁵ Fowler⁶ reported 2 women with eyelid dermatitis and gold allergy in 1988. Ehrlich and Belsito⁷ later also noted this unusual presentation of gold allergy and reported that 7 of 17 patients (43.8%) with gold allergy had eyelid dermatitis. It is postulated that incidental contact with gold from the hands or fingers may allow the allergic reaction to develop on the more sensitive facial or eyelid skin; similar to the "ectopic dermatitis" caused by allergy to tosylamide formaldehyde resin in nail polish.^{2,3}

Women have a much higher prevalence of gold allergy than do men: like in nickel allergy, presumably because of their greater use of jewelry and more frequent ear piercing. Data from the NACDG on gold allergy show that of the gold allergic individuals, 90.2% were women which was significantly different from the 62.8% of women totally patch tested.^{2,3} NACDG also found nickel allergy present in about one third of those allergic to gold.² In our series only 2 of the 12 female, gold allergic patients had concomitant nickel allergy.

Many reports have reported that patients with dental gold are more likely to have positive patch tests to gold than those without dental gold.^{5,8} Gold allergy has been related to causing oral lesions, oral lichen planus and may also cause lichenoid lesions at sites of contact with dental gold.^{3,9} In our series none of the 12 gold allergic patients had dental gold.

In conclusion, gold is a common allergen. Gold allergy is common in females and in addition to dermatitis at sites of jewelry contact may cause facial and eyelid dermatitis. However the majority of patients with positive patch test to gold salts can tolerate most gold contact without clinical relevance. This may be because metallic gold is an inert metal and is relatively difficult to solubilize.

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