

Paraphenylenediamine Dye Allergic Contact Dermatitis of Mustache Region Manifesting as Prurigo Nodularis–Like Lesions

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PRECÍS

Paraphenylenediamine is a potent skin sensitizer, which is uniformly present in hair dyes and henna tattoos. Paraphenylenediamine in hair dyes is well known to cause severe immediate reactions over the face; however, a long-term dermatologic reaction to paraphenylenediamine is hitherto unknown. In the present report, a case of prurigo nodularis–like lesions of the lower face resulting from application of hair dye to the moustache is described.

DISCUSSION

A 40-year-old man accessed our dermatology clinic with complaints of itchy eruption over his face. The lesions started appearing over his lower face 3 months back, and were diagnosed as perioral dermatitis by another dermatologist at that time. He was prescribed oral azithromycin for a week and topical 0.1% tacrolimus, which he had been applying until visiting us. Topical tacrolimus was used to transiently relieve his symptoms. Physical examination revealed symmetrically distributed, discrete, crusted and eroded, lichenified papulonodules over his mandibular areas, moustache area, chin, and some encroachment onto the upper and lower lips (Fig. 1). He denied any photosensitivity and topical applications except for the regular use of hair dye for his moustache. He was asked to withhold the use of hair dye and was prescribed topical corticosteroids, after which the lesions resolved completely. Patch testing was performed with the kits (with aluminum chambers and allergens incorporated in petrolatum) procured from Systopic Pharmaceutical Ltd, India; Indian standard series and the cosmetic series. The test revealed 1% paraphenylenediamine (PPD) sensitivity, International Contact Dermatitis Research Group scoring system grade ++ (severe contact dermatitis) at 72 hours and 7 days. On the other hand, the photopatch test too revealed grade ++ dermatitis only, and the dermatitis to PPD was not aggravated by ultraviolet light. The



Figure 1. Discrete, crusted and eroded, lichenified papulonodules over the lower aspect of the face.

reaction was treated with topical corticosteroids. Two weeks later, he was patch tested with the hair dye that he had been using, which again yielded a ++ International Contact Dermatitis Research Group score. Accordingly, a diagnosis of allergic contact dermatitis to PPD was made. Subsequently, the patient has not used the dye again and has not experienced any recurrence. It is an ongoing challenge for clinicians to meticulously explore the exposure of patients with eczema to possible new allergens. Dyes and fragrances, in particular, are of increasing significance not only because of their known ingredients but also because of new allergenic compounds. Paraphenylenediamine, recently detected as an allergen, is increasingly being considered as a contact sensitizer. Paraphenylenediamine is a frequent component of and sensitizer in permanent hair dye products and temporary henna tattoos.¹ Other ingredients too have been implicated in allergic contact dermatitis. The hair dye used in the present case contained many other ingredients, which would have been interesting to assess; however, the special hair dye series was not available. Allergic contact dermatitis due to hair dyes frequently manifests as acute dermatitis with severe facial edema. There is only a single report so far, which documented hair dye as a possible etiologic agent in a chronic dermatological condition, lichen simplex chronicus.² Prurigo nodularis–like chronic lesions due to parthenium³ and nifuroxazide⁴ have been described; however, there is no evidence of prurigo nodularis–like morphological lesions due to PPD in the world literature. Besides, an atypical moustache PPD dye allergic contact dermatitis with distant site involvement is on record.⁵

PEARL

In a patient presenting with atypical lesions over the face, either acute or chronic, it is important to take cognizance of allergic contact dermatitis.

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Benzophenones: Erratum

Heurung AR, Raju SI, Warshaw EM. Benzophenones. *Dermatitis* 2014;25:3–10

Page 5 (in table), second row, fourth column under photoallergic contact dermatitis for benzophenone-2, authors' reference numbers should be as follows:

Shaw³⁷-1

Page 5 (in table), third row, third column under allergic contact dermatitis for benzophenone-3, authors' reference numbers should be as follows:

Torres²⁴-1

Bilsland²⁵-2

Szczurko³²-1

Rademacher²⁶-1

Darvay²⁷-8

Crouch²⁸-1

Nedorost³¹-1

Kiec-Swierczynska³⁵-1

Bryden¹⁸-9

Rodriguez³⁶-2

Hughes¹⁴-3

Scalf¹⁹-3

Travassos¹⁷-5

Sasseville²¹-1

EMCPPTS¹²-6

Greenspoon¹³-17

Page 5 (in table), third row, fourth column under photoallergic contact dermatitis for benzophenone-3, authors' reference numbers should be as follows:

Szczurko³²-35

Horn³⁹-1

Darvay²⁷-14

Crouch²⁸-3

Nedorost³¹-1

Kiec-Swierczynska³⁵-1

Bryden¹⁸-27

Rodriguez³⁶-22

Scalf¹⁹-5

Cardoso³⁴-3

Shaw³⁷-1

Victor²⁹-3

EMCPPTS¹²-37

Greenspoon¹³-12

Page 5 (in table), fourth row, third column under allergic contact dermatitis for benzophenone-4, authors' reference numbers should be as follows:

Ramsay⁸-1
 Bryden¹⁸-18
 Hughes¹⁴-13
 Scalf¹⁹-6
 Travassos¹⁷-7
 Sasseville²¹-1
 Greenspoon¹³-3

Page 5 (in table), fourth row, fourth column under photoallergic contact dermatitis for benzophenone-4, authors' reference numbers should be as follows:

Bryden¹⁸-7
 Rodriguez³⁶-2
 Scalf¹⁹-8
 Cardoso³⁴-3
 Victor²⁹-3
 EMCPTS¹²-3

Page 6 (below table): The table legend should include "Abbreviations: pet. = in petrolatum; NR = no reactions"

Page 7 (in table), third row, third column: under allergic contact dermatitis for benzophenone-8, authors' reference numbers should be as follows:

Pariser²⁰-1
 Sasseville²¹-1

Page 7 (in table), fifth row, third column under allergic contact dermatitis for benzophenone-10, authors' reference numbers should be as follows:

Millard²²-2
 English²³-6
 Torres²⁴-1
 Bilslund²⁵-6
 Rademacher²⁶-1
 Darvay²⁷-13
 Crouch²⁸-3
 Hughes¹⁴-1

Page 7 (in table), fifth row, fourth column under photoallergic contact dermatitis for benzophenone-10, authors' reference numbers should be as follows:

Burry³⁰-1
 Torres²⁴-1
 Szczurko³²-1
 Darvay²⁷-9
 Kiec-Swierczynska³⁵-1
 Rodriguez³⁶-2
 Cardoso³⁴-1

Page 8

-first paragraph, at bottom, after "cross-sectional surveys," references should read "17,18" instead of "18,31"

-first paragraph, last sentence, references should read "14,19" instead of "14,17".

-second paragraph, second sentence after "...allergic contact dermatitis to benzophenone-8 have been published." References cited should be "20,21" instead of "17,18"

-second paragraph, middle of last sentence, after "benzophenone-10 have been reported," references should read "14, 22-28"

-second paragraph, end of last sentence, cited references should read "12, 29" instead of "12,26"

Under PHOTOALLERGIC CONTACT DERMATITIS:

- first sentence, reference citation should read “30” instead of “27”.
- third sentence, after “..conducted in the United States,” references should read “19, 29, 31” instead of “16, 27, 28”
- third sentence, after “..been even greater,” references should read “12,18, 27,32” instead of “11,12,29”
- sixth sentence, after “..moisturizer as the allergen source,” references should read “32” instead of “30”.
- last sentence, after “..reading on the beach,” reference cited should be “33” instead of “31”
- second column, first line, after “and abroad,” references should read “12,18,34” instead of “27,30,32”
- second column, first paragraph, last sentence, references should read “19” instead of “16”
- second column, second paragraph, first line, after “..1983 to 1998,” references should read “27” instead of “25”
- second column, second paragraph, last sentence, references should read “24, 30, 35, 36” instead of “22, 28, 31–34”.
- second column, third paragraph, first sentence, reference cited should be “37” instead of “16”

Under PATCH TESTS

- After “..benzophenone-8 up to 3%.”, reference cited should be “38” instead of “35”.

Under CROSS-REACTIONS

- First sentence, no reference should be cited, instead of citing “19, 37”.
- Second sentence after “..benzophenone-8 could not be determined.”, reference cited should be “21” instead of “36”

Page 9

- First paragraph, second sentence, after “..benzophenone-3 when it is irradiated with sunlight,” reference cited should be “39” instead of “37”
- first paragraph, third sentence, “Parsol 1789” should read “Parsol 1789 (Nutritional Products, LLC, Heerlen, Netherlands).”
- first paragraph, after “...cholesterol-lowering agent fenofibrate.”, reference cited should be “40” instead of “38”.

Under BENZOPHENONES AND SYSTEMIC REACTIONS

- first paragraph, fourth sentence, after “..milk after topical application”, reference cited should be “41” instead of “39”.
- first paragraph, seventh sentence, after “..benzophenone-3 in both cases” references cited should be “5, 42” instead of “5, 40”.
- first paragraph, ninth sentence, after “..dose-dependent estrogenic activity” reference cited should be “43” instead of “41”.
- first paragraph, eleventh sentence, after “Kerdivel et al” reference cited should be “44” instead of “42”.
- first paragraph, second to last sentence, after “..an endometriosis diagnosis” reference cited should be “45” instead of “43”.

Under SUMMARY

- second column, middle of paragraph – please completely delete the sentence “ This expanded use has undoubtedly.....with 2009–1010 NACDG data.” So should read “...various cosmetic. Benzophenone-3 is the most common sunscreen contact and photocontact allergen in North America. (new ref 46, 47 here)”
- second column, second to last sentence after “..ACDS Core Screening Series.”, reference cited should be “48” instead of “46”.

Under REFERENCES

Correct order of reference citations is as follows:

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