

Eczema-Like Psoriasiform Skin Reaction Due to Brazilian Keratin Treatment, So Avoid this BKT by Taking Nutrients that Helps to Produce Keratin

**Monika Dnyaneshwar Dange¹, Khushbu Sanjay Pawar², Komal Machidranath Halwar³
Harshada Gajanan Kamalkar⁴, Prof. Manisha Ramesh Virkar⁵, Dr. Kavita Kulkarni⁶**
Students^{1,2,3,4}

Guide, M. Pharm Pharmaceutics⁵

Principal, PhD. M Pharm⁶

Department of Quality Assurance

Gajanan Maharaj College of Pharmacy Chh. Sambhajinagar, Maharashtra, India

Abstract: *The use of formaldehyde and the formaldehyde releasers in hair straightening formulation started in Rio de Janeiro in 2003 this is known as BKT. This Brazilian keratin treatment is common hair straightening method widely used by women in the world. The aim of this study was to analyze the Brazilian keratin treatment products contain the insupportable high levels of formaldehyde. This hair straightening products may lead to severe allergic contact dermatitis, by means of the responsible allergens such as formaldehyde and its releasers. The possible consequence of the absorption of formaldehyde by hair dressers or clients are still to be verified by the scientific community however this skin and scalp reactions observed in our cases suggest a drug reaction phenomenon and not only eczemas of irritant or allergic origin. In the BKT when hairs are heated by blow drying and hot ironing the eczema like psoriasiform skin reactions that develop afterwards might be underdiagnosed. So we can avoid this BKT treatment by increasing body keratin by eating biotin rich foods, food vit A etc.*

Keywords: BKT, formaldehyde, Eczema-like psoriasiform skin reaction, nutrients

I. INTRODUCTION

Formaldehyde is Toxic if inhaled, in contact with skin and if swallowed cause severe skin burns and eye damage, carcinogen. May also cause an allergic skin reaction. The use of formaldehyde in hair straightening formulation started in Rio de Janeiro, Brazil, in 2003. The technique is known as BKT, and although not recommended by the Brazilian Health Surveillance Agency (ANVISA) it became very popular in Brazil, the USA, Latin American, and other countries. Formaldehyde is not a hair straightening substance. The hair becomes straight because water breaks the hydrogen bonds of the keratin molecule as happens during a regular blow dry. The ingredients used in this are not based on formaldehyde or glutaraldehyde but on formaldehyde releasers such as methylene glycol and glycolic acid both substances can release formaldehyde. When heated such as during blow drying and hot ironing formaldehyde releasers that cause eczema like psoriasiform skin reaction that develops afterwards might be underdiagnosed. The women used this BKT to straighten hair and frizz-free enhancing color and shine and giving the hair a healthy appearance. By avoiding BKT treatment we can take nutrients that help to produce keratin in the body. That is Biotin, L-cysteine, Zinc, Vita-C, Vita-A etc

Potential side effects of BKT

Keratin used in beauty treatments is usually from the skin, hair, or nails or animals. While keratin is a natural protein, these products are made with several other added ingredients, including a chemical called formaldehyde. The American Cancer Society & warns that formaldehyde is a known carcinogen. This means that it may cause cancer or help cancer to grow. Formaldehyde may also trigger other health side effects. The Food and Drug Administration & warns that formaldehyde and related compounds involved. These side effects have been reported by both consumers who

received keratin treatments and stylists who provided them. The effects tend to happen during or shortly after a keratin treatment using products containing formaldehyde. It's still unclear whether keratin treatments containing formaldehyde have long-term health effects or what those effects might be. Keratin treatments may contribute to:

- eye irritation
- headaches
- dizziness
- sore throat

II. MATERIAL AND METHOD

Table 1. Patients' data

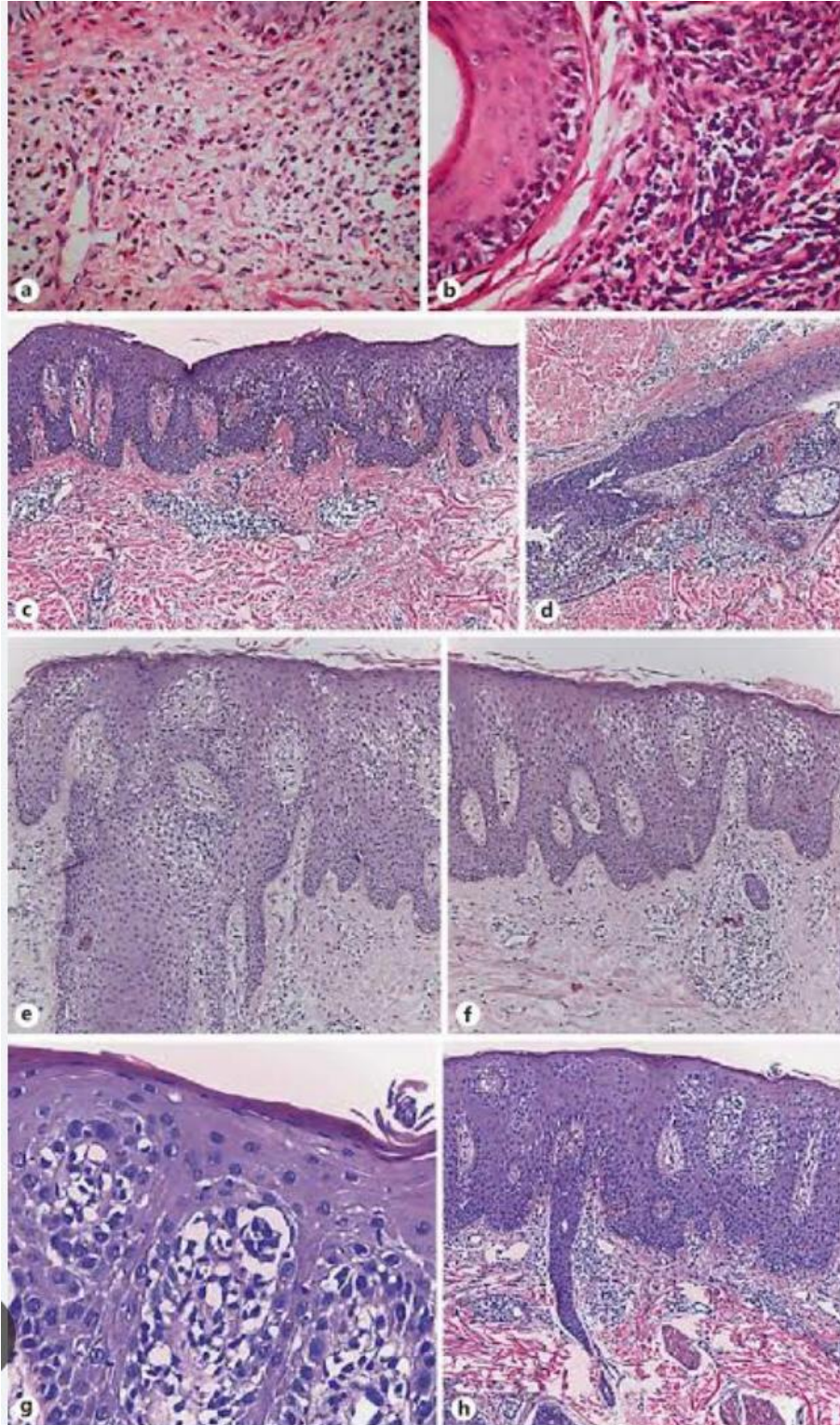
Patient No.	Age, years	Onset of skin lesions, days after BKT	Clinical findings	Dermatoscopic findings
1	22	7	psoriasiform patches on scalp, hair breakage, enlargement of cervical lymph nodes, erythematous scurfy patches with white thin scurf on the neck and upper trunk, with small scattered pustules	perifollicular and interfollicular erythema; white silver thick scurf
2	26	10	hypochromic scurf on the face, parietal and temporal areas, hair line, neck, and upper trunk	erythema; perifollicular scurf
3	31	7	erythematous scurfy patches on scalp and erythema and scurfy lesions on face and nape; the frontal area presented a violaceous plaque with lichenification	erythema; large lamellar peripilar scurf resembling the outer skin of an onion bulb
4	15	1	erythematous scurfy alopecic patches with small crusts and white silver lamellar scurf on scalp and retroauricular	erythema; white lamellar scurf with peripilar desquamation
5	15	1	erythematous patches with white psoriasiform lamellar scurfy plaques distributed on scalp, neck and postauricular	erythema; peripilar desquamation resembling the outer skin of an onion bulb; a few red dots
6	46	7	nonpruritic erythematous scurfy patches on fronto-temporal hairline and pre-auricular	erythema; perifollicular and interfollicular scurf
7	50	10	pruritic erythematous scurf lesions on scalp, face, neck, upper trunk, and arms	erythema; perifollicular and interfollicular scurf

might be.

Table 2. Histopathological findings of the scalp biopsies performed in 4 patients

	Patient No.			
	1	2	3	5
Orthokeratosis	yes	yes	yes	no
Parakeratosis	yes	yes	yes	yes
Hypergranulosis	no	no	no	no
Hypogranulosis	yes	no	yes	yes
Psoriasiform acanthosis	yes	yes	yes	yes
Espongiosis of the epidermis	no	yes	intense	no
Espongiosis of the follicle	yes	no	no	no
Dilated dermal blood vessels	yes	no	yes	yes
Suprapapillary thinning	no	no	yes	yes
Red cells extravasation	no	no	no	no
Elevated number of				
Neutrophils	yes	no	no	yes
Lymphocytes	yes	yes	yes	yes
Eosinophils	yes	no	no	no
Plasma cells	numerous	no	no	no
Necrotic keratinocytes	no	no	yes	no

higher concentrations than the recommended level [8] . In 2004, the International Agency for Research on Cancer (IARC) reclassified formaldehyde from a probable (Group 2A) to a known human carcinogen (Group 1). In 2012, the Committee for Risk Assessment of the European Chemicals Agency proposed a lower but still protective category, namely as a substance which is presumed to have carcinogenic potential for humans (Carc. 1B) [9] . Skin reactions developing after the use of BKT are assumed to be of contact allergic origin [10] . In our clinic, we observe many patients with a red scalp and skin and scurf due to BKT. So the aim of this study was to analyze and describe the types of skin reactions presented by these patients. Material and Methods We describe 7 patients with severe erythema and scurf on the scalp which developed shortly after BKT. The lesions were eczema like and psoriasiform, located mainly on the scalp. Some patients also developed eczema-like lesions and pustules on the face, neck, upper arms, and upper trunk. One patient developed cervical lymphadenopathy with no signs of infection. All patients were examined with a dermatoscope. Scalp biopsies were performed in 4 patients. None of the patients had a contact allergic test positive to formaldehyde, and none presented any allergies to nail polish. There was no evidence of bacteria or fungus infection in any of the patients observed. The case reports are summarized in table 1 . Table 2 summarizes the histopathological findings. Images of clinical and dermatoscopic aspects are given in figure 1 , and histopathological images are presented in figure 2 .





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III. DISCUSSION

Formaldehyde released from BKT may reach a patient's body by contact and/or inhalation. After a BKT, our patients presented with scalp lesions of psoriasiform nature, with erythema, lamellar scurf and skin lesions, with erythema and mild desquamation, and sometimes with sterile pustules. Lesions are normally nonpruritic, but one patient referred itching. The dermatoscopic features are similar to what is observed in seborrheic dermatitis, psoriasis and lichen

planopilaris, but unlike those of contact dermatitis where there is no peripilar inflammation. The patients exhibited erythema, perifollicular and interfollicular scurf. The peripilar desquamation resembled the outer skin of an onion bulb. This aspect can be found on the scalp as well as on the facial lesions and may be a clue to the diagnosis.

Keratin treatments won't make your hair break, but the flat-ironing might. No Nair treatment with technically contain formaldehyde (because - a little more chemistry you it's a gas). Results don't usually last more than two- or three-month biotin contain nut, beans, wholegrains, cauliflower and mushrooms. Vitamin A contain orange fruits and vegetables. a. Like pumpkin, sweet potatoes. b. Fruit vegetables c. Spinach, green peppers and squash.

Nutrients that help produce keratin Certain nutrients help the body produce keratin and may help improve the health of the skin, hair, nails, and other tissues. A person can help their body produce keratin by making sure they eat foods that contain these nutrients.

1. Biotin

Biotin plays an important role in keratin production and can support the healthy growth of hair and nails.

2. L-cysteine

L-cysteine is an amino acid and a component of keratin. Cysteines are also important for forming collagen, maintaining the skin's elasticity, and metabolizing biotin so the body can use it.

3. Zinc

Zinc is an important nutrient in skin health. It supports the reproduction of keratinocytes, the cells that produce keratin.

4. Vitamin C

Vitamin C supports the formation of keratinocytes and helps protect the skin from oxidative stress. It also helps form collagen in the skin barrier and may have an anti-aging effect on wrinkles,

5. Vitamin A

Vitamin A plays a role in the development of keratinocytes. It is essential for replacing skin cells and for the healthy function of the ears, eyes, and lining of the internal organs.

IV. CONCLUSION

Eczema-like Psoriasis form skin reaction due to Brazilian keratin treatment we can avoid this treatment by eating some nutrients that helps to produce keratin

Vitamin C boosts collagen production and improves scalp circulation. Vitamin -C protects hair follicles from the oxidative damage of free radicals.

Vitamin A plays a role in the development of keratinocytes. It is essential for replacing skin cells and for the healthy function of the ears, eyes, and lining of the internal organs.

Zinc helps build proteins like keratin, the building blocks of your hair. It's also a key player in cell division, which is crucial for hair growth.

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