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Case Series

Occupational acne: a case series

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ABSTRACT

Occupational acne a type of acne venenata, is caused by both the action of physical environmental factors and professional contact with chemicals. It can affect both those who have pre-existing seborrhea and acne that gets worse after chemotherapy and those who do not have a positive history of these conditions. Previously, occupational acne was believed to be one of the most common environmental skin conditions, second only to contact dermatitis. Although specific risk factors are not required, oil acne and cystic acne may be influenced by a predisposition to seborrhea and a history of hepatic alteration. From an etiological perspective, there are two types of occupational acne: petroleum-derived acne and acne resulting from coal tar products. In Skin and VD department OPD, Patna Medical College and Hospital we got three cases of occupational acne in February 2024. We came to the conclusion that these were occupational acne on the basis of detailed enquiry about previous chemical exposure and histopathological examinations. These patients were advised to immediate cessation of chemical exposure and managed by appropriate antibiotics, isotretinoin and face hygiene. All patients recovered satisfactory without any complications in 10-12 weeks.

Keywords: Chloracne, Coal tar acne, Occupational acne, Oil acne

INTRODUCTION

Environmental and occupational acne is a dermatological condition linked to exposure to industrial pollutants. It is proposed that a variety of physical, chemical, and environmental factors, including petrol, coal tar and derivatives, polyhalogenated hydrocarbons, and others, may contribute to the development of occupational acne. Workers in the chemical, mechanical, and electrical industries are particularly vulnerable.^{1,2} Coal tar acne, oil acne and chloracne are some of the different types of occupational acne. Chloracne is an acneiform eruption which is linked to the exposure with chlorinated hydrocarbons and its clinical signs might be severe.^{3,4} It may also develop as a result of environmental, industrial, or agricultural contamination, as well as from consuming

contaminated food.² The most prevalent kind of acne in the workplace is oil acne. Most persons who are exposed to oil circuit breakers have oil acne. Grease oil and oil circuit breakers, which are used to lubricate machinery and contain a significant amount of insoluble mineral oil, are to blame. Coal tar acne is brought on by keratin products and coal tar combination obstructing sebaceous glands. In research looking into the prevalence of dermatosis at work in Greece, workers exposed to coal tar had a 23% detection rate for coal-tar acne.⁵ Herxheimer originally defined chloracne in 1899. One of the more sensitive signs of systemic poisoning brought on by exposure to specific halogenated aromatic hydrocarbons known as chloracnegen is thought to be occupational acne. While occupational exposure accounts for the bulk of cases of chloracnegen intoxication, non-occupational contact to

industrial wastes and contaminated foods can also result in chloracne intoxication.⁶ Open and closed comedones, non-inflammatory nodules, and cystic lesions are the most prevalent clinical features.⁷ Histopathological analysis reveals epidermal proliferation and the replacement of sebaceous and follicular glands with keratinized epidermal cells.⁸ When it comes to occupational acne, people who work in high-risk environments should avoid contact. If there is any contact, the chemical agent needs to be taken out. Treatment options include topical or oral retinoic acids, oral or topical antibiotics and face hygiene.⁹ Characteristic clinical findings help in diagnosing such cases as well as help in differentiating from acne vulgaris. In Skin and VD department OPD, Patna Medical College and Hospital we got three cases of occupational acne in February 2024.



Figure 1: Patient having many closed and open comedones, papules and small cysts over his face.



Figure 2: Patient having numerous comedones, cysts and papules over her face.



Figure 3: Patient having small cysts, closed and open comedones, and some inflammatory papules over his face.

CASE SERIES

Case 1

An 18 years old boy came to Skin and VD department OPD, Patna Medical College and Hospital on 10th February 2024 having many closed and open comedones, papules and small cysts over his face for last 15 days as shown in figure 1. On detailed questioning, he gave history of exposure to fertilizer spray in his farm approximately 35 days back. We kept chloracne as a provisional diagnosis. We did skin biopsy; epidermal hyperplasia and keratinous cyst with absence of sebaceous glands were found which supported our diagnosis.

Immediate cessation of exposure was done. The patient was advised capsule Isotretinoin 10 mg twice daily orally, ointment Clindamycin to apply locally twice daily and face hygiene with face wash. He was advised to review after 14 days. After 14 days on follow up, we noticed decreasing number of comedones, papules and small cysts. Again after 14 days on follow up, we noticed decreased number of lesions and finally patient recovered successfully in 10 weeks.

Case 2

A 20 years old female patient came to Skin and VD department OPD, Patna Medical College and Hospital on 16th February 2024 with complain of numerous comedones, cysts and papules over her face for last 1 month as shown in figure 2. On detailed enquiry, we got information that she was a fast-food worker and worked in Mc Donald for last 6 months. Thus, we suspected oil mist exposure induced acne. A skin biopsy could not be done as the patient refused for it. The patient was advised for immediate cessation of exposure. She was treated with capsule Isotretinoin, ointment Clindamycin and face hygiene same as in case 1. The patient showed improvement and finally recovered successfully in 12 weeks.

Case 3

A 28 years old male patient came to Skin and VD department OPD, Patna Medical College and Hospital on 24th February 2024 with complain of small cysts, closed and open comedones, and some inflammatory papules over his face for last 2 months as shown in fig-3. On enquiry, he gave history of exposure to oil paint spray for previous 3 months. We kept oil acne type occupational acne as a provisional diagnosis. On skin biopsy, we got epidermal hyperplasia and keratinous cyst with absence of sebaceous glands, which was consistent with our diagnosis. Immediate cessation of exposure was advised. The patient was treated with capsule Isotretinoin, ointment Clindamycin and face hygiene same as in case 1 and case 2. The patient showed improvement and finally recovered successfully in 12 weeks.

DISCUSSION

Occupational acne, occurs as a result of occupational exposure to follicular occlusive compounds such as chlorinated hydrocarbons, oil mist, coal tar derivatives. It is characterized by especially comedones on exposure sites, but inflammatory papules, pustules and cysts may be seen. Chloracne is the main example of occupational acne. It is characterized by multiple cysts, papules and nodules on malar, retroauricular, mandibular, axillary regions, hip and scrotum 2-4 weeks after exposure.¹⁰ In our first case, there was exposure to fertilizer spray which contained chlorinated hydrocarbons, so it was suspected to be chloracne, and the lesions appeared 20 days after the exposure.

Histopathological examination showed epidermal hyperplasia and keratinous cyst with absence of sebaceous glands. These findings supported our diagnosis chloracne type occupational acne. In second case, patient was exposed to oil mist. We kept oil acne type occupational acne as our diagnosis. In third case, the patient was exposed to oil spray and histopathological examination showed epidermal hyperplasia and keratinous cyst with absence of sebaceous glands. These findings favoured our diagnosis oil acne type occupational acne. Immediate cessation of exposure was advised in all the three cases and all the patients showed improvement with capsule isotretinoin, ointment clindamycin and face hygiene with face wash. These patients were successfully recovered in 10-12 weeks.

CONCLUSION

Occupational acne contributes a significant part of patients attending outdoor of dermatology department. It should be differentiated from other types of acne on the basis of previous history of exposure to variety of physical, chemical, and environmental factors, including petrol, oil, coal tar and its derivatives, polyhalogenated hydrocarbons, and others. The most common clinical finding is the comedones, and it is also seen as papule, pustule, and cystic lesions. Histopathological examination shows epidermal hyperplasia, while follicular and sebaceous glands are replaced by keratinized epidermal cells. The first step of management is immediate cessation of exposure. Topical or oral retinoic acids and oral or topical antibiotics are used in treatment. Patients generally show improvement and recover successfully after treatment.

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