Occupational Acne: A Case Series

Dear Editor,

Occupational acne is induced by diverse environmental agents and is characterized by acutely emerging comedones, papules, and cysts over face and other parts of the body. Chloracne, a subset of occupational acne, which continues to be the most significant problem, occurs due to the absorption of aromatic hydrocarbons (chloracnegens) through systemic or topical routes of entry. A detailed history of exposure to chloracnegens and the characteristic clinical findings help in diagnosing such cases as well as help in differentiating from acne vulgaris.

A 32-year-old male [Figure 1a and b] and his 20-year-old co-worker [Figure 1c and d] presented with numerous comedones and papules over the face, chest, and back for the last 3 months. On enquiry, we got to know that there was exposure to a polyhalogenated compound (3 in 1 chemical which consisted of N-propyl bromide, trichloroethylene, and perchloroethylene) used to coat cupboards in the past 4 months in the same workplace, which led us to a diagnosis of chloracne. Examination of both cases revealed multiple open and closed comedones present over the face, chest, back, and abdomen with sparing of the retro auricular areas and nose [Figure 1a-d]. Biopsy from the face lesion revealed dilated infundibulum with keratotic material with an absence of sebaceous glands, which was consistent with chloracne [Figure 2a].

Figure 1: (a) Multiple comedones and papules over cheeks, temporal, and auricular region with relative sparing of the nose. Hyperpigmentation present over face (b) Multiple comedones and erythematous papules present over the back (c) Multiple comedones and papules over cheeks, with periocular papules and comedones (d) Multiple erythematous papules and few pustules over extensor aspect of bilateral forearms

The third case, a 30-year-old male, presented with numerous comedones, cysts, and papules over the face, chest, and back in the last 1 month. He gave history of exposure to oil paint spray for 1 month. Examination revealed multiple comedones, cysts, and papules over the face, chest, and back with sparing of the periorbital region [Figure 3a-c]. A provisional diagnosis of occupational acne was kept. Skin biopsy revealed a keratinous cyst with the absence of sebaceous glands, which was consistent with our diagnosis [Figure 2b]. The patient was started on. isotretinoin (0.5 mg/kg) thereafter and advised regarding cessation of exposure to the spray.

In the fourth case, a 20-year-old male presented with numerous comedones, cysts, and papules over the face, chest, and back for 2 months. He worked in a tea stall, but on detailed questioning, there was a history of exposure to fertilizer spray in his farm. He also gave the history of similar complaints in his brother who worked there, although his brother could not be examined. Clinical examination findings were similar to the above cases [Figure 3d]. A skin biopsy could not be done as the patient did not give consent for the same.

Occupational and environmental acne is a kind of acne venenata caused by a wide variety of chemical exposures as well as environmental, physical, and mechanical causes. The eruption could be minor, or it could be major, explosive, and widespread. Occupational and environmental acne is separated into oil acne, coal-tar acne, acne cosmetica, acne aestivalis, acne mechanica, tropical acne, and chloracne.[1] Chloracne is indeed an acneiform eruption triggered by exposure to polyhalogenated

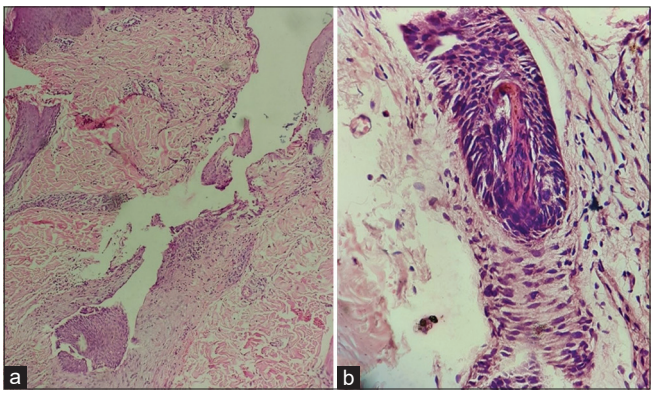

Figure 2: (a) A destroyed hair follicle with dilated infundibula with sparse lymphocytic infiltrate in perifollicular region and absence of sebaceous glands in the section (H and E, 10x) (b) A keratinous cyst with the absence of sebaceous glands (H and E, 40x)

Figure 3: (a) Multiple open and closed comedones and papules over face with few cyst-like lesions present over the nose. Sparing of the periorbital region (b) Multiple open and closed comedones and papules over face with few cyst-like lesions over the nose. Presence of papules and comedones on the pinna (c) Retro auricular comedones and papules (d) Multiple erythematous to hyperpigmented papules present over the cheeks, temples, and ears

aromatic hydrocarbons. The primary classes include dioxins, biphenyls, dibenzofurans, naphthalenes, and azobenzenes. Their chloracnegenic propensity is strongly linked to their ability to stimulate the enzyme aryl hydrocarbon hydroxylase.[2] Chloracnegens can be harmful to epidermal keratinocytes directly or indirectly through the perifollicular proinflammatory response.[2] Chloracne manifests in the form of several acneiform comedone-like cystic eruptions mostly affecting the face in the malar, temporal, mandibular, auricular areas, and genitalia, frequently appearing in age ranges not common for acne vulgaris.[3] The external dose of the chloracnegen needed to induce chloracne is much lower than that for inducing systemic toxicity.[4] Histopathological examination is required for a definitive diagnosis, which shows atrophy or lack of sebaceous glands, infundibular dilatation or cystic development of hair follicles, epidermal hyperplasia, and excess pigmentation of stratum corneum.[3] Inflammatory cells, solar elastosis, and weakening of follicular wall accompanied by cicatricial shrinkage can infrequently be also detected.[4] Because of a lack of understanding of the pathophysiology of the cutaneous lesions, treating chloracne is challenging. The traditional acne vulgaris treatment options are unsatisfactory, although reasonable spontaneous regression frequently occurs. Isotretinoin has been tried in patients without any obvious effect. The prognosis for mild cases of chloracne is good provided contact with the chloracnegen ceases.[5]

The case series aims to highlight the importance of occupational history in cases of acute onset acneiform eruption and the knowledge of compounds containing chloracnegens. Although the exact chemical exposure could be revealed in two cases, classical clinical presentation and history in the other two cases pointed toward the diagnosis of the same.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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