

CASE REPORT

*A suspected case of allergic contact dermatitis due to Methyl methacrylate*Sukanya Das¹, Swatantra Agarwal², Sujata Pandey³, Ravi Madan⁴**Abstract**

Contact dermatitis is an inflammatory process in skin caused by exogenous agents that directly and indirectly injure the skin. The wide range of chemicals and procedures are responsible for allergic contact dermatitis (ACD) in the dental profession. It is generally seen in dental personnel and their staff due to certain chemical exposure and many other dental materials. Most of these materials can be allergens, irritants or sometimes both. Hands may be the common site of sensitization as well as site of recurrent exposure to allergens in our environment. The main risk factor that predisposes to contact dermatitis of the hand is repeated exposure of the skin to water and moisture causing maceration of the stratum corneum and impairment of the skin barrier, thus rendering it more susceptible to irritants and potential allergens. Clinical patterns when combined with the clinical history can help to reach the diagnosis easily. The purpose of presenting this case report is to know the early intervention & prevention of suspected allergic contact dermatitis occurring due to methyl methacrylate.

Keywords: Contact Dermatitis, Drugs, Methyl methacrylate**Introduction**

Contact dermatitis is an inflammatory process in skin caused by exogenous agents that directly and indirectly injure the skin.¹ A wide range of chemicals and procedures are responsible for allergic contact dermatitis (ACD) in the dental profession. Groups of individuals affected by ACD may include dentists, technicians, dental nurses and patients. In dental personnel it is predominantly confined to hand.² However, patient may present with symptom varying from stomatitis, burning, tingling, cheilitis, oral lichenoid lesions to lip and facial swelling.³

The purpose of this case report is to diagnose, intervene and to prevent further exposure to the allergen

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Moradabad. drsukanyadas@gmail.com**Case Report**

I, postgraduate student in the department of Prosthodontics felt itching and burning sensation on tips of the thumb and fingers while doing my routine professional work. Later, desquamation & pigmented macule has developed. (**Figure 1**). On consultation with dermatologist anti histamines, antibiotics and certain ointments as shown in **table 1** were prescribed in order to prevent infection and control inflammation. Instruction was given to discontinue laboratory work for 3 weeks and continuing with the rest of the activities.

1. Tab Amoxyclav 625 (amoxicillin 500, clavulanic acid 125mg)	Twice daily for 5 days
2. Tab hydroxyzine hydrochloride (hydrochloride salt) 10 mg	Once a day for 15 days.
3. Topical application of Topinate cream (Clobetasol propionate 0.05%)	Four times a day till the lesions subside.
4. Moisturising cream	For every three hours

Gradual improvement was seen following the treatment regime given by dermatologist. On fifth day there was slight reduction in itching and burning sensation on the affected areas as well as inflammation (**Figure 2**). By the tenth day there was reduction in pigmentation, inflammation and swelling (**Figure 3**). On continuing the treatment for 21 days there was complete resolution of lesions. (**Figure 4**).



Figure 1: Desquamation & pigmented maculae.



Figure 2: After treatment of 5 days symptoms persisted.



Figure 3: Showing reduced inflammation and swelling after treatment of 15 days.

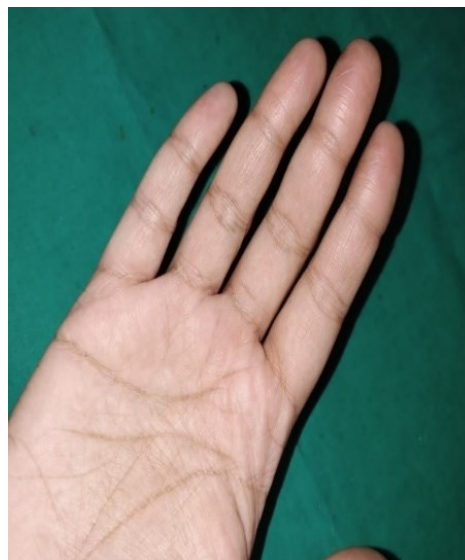


Figure 4: Complete resolution of lesions after treatment of 21 days.

Various dental materials can cause irritation and allergic reaction in our body such as acrylic resin, resin composite, metals, rubber gloves, eugenol, formaldehyde, local anesthesia, antiseptic and hygiene products etc.

Hand dermatitis is a challenging diagnosis that can be multifactorial. It is a common condition and the prevalence can be explained by the fact that our hands come into frequent contact with many products during our lifetime. The main risk factor that predisposes to contact dermatitis of

the hand is repeated exposure of the skin to water and moisture. This exposure causes maceration of the stratum corneum and impairment of the skin barrier, thus rendering it more susceptible to irritants and potential allergens.⁴

Methyl methacrylate is widely used in dentistry for their physical properties like flexibility, rigidity or brittleness and softness. It is a potential sensitizer that causes mild axonal degeneration of the digital nerves when it is handled with bare hands before polymerization.⁵

In this case report when the clinical pattern and clinical history was combined it was indicative of ACD. Clinical pattern presented was pincer grip which is likely due to direct handling/manipulation of material. It can be differentiated with other materials by seeing the clinical patterns shown by them. Patients allergic to latex gloves may present glove pattern which may affect dorsal surface of the hands and wrist. Sometimes dorsum of the forearm also be affected. Unlike apron pattern the glove pattern usually spares the interdigital spaces. Metal trimming at chair side or in laboratory can produce air borne type of pattern. It may affect eyelids, forehead, nasolabial fold, submental areas, neck and intermammary excluding the bridge & tip of the nose. This type of pattern may be produced by the allergens transmitted in the form of powder, drops or gas⁴ (figure 5). On correlating with the clinical history the conclusion was drawn that it can be due to handling of poly methyl methacrylate and not because of the use of latex gloves or any other material.

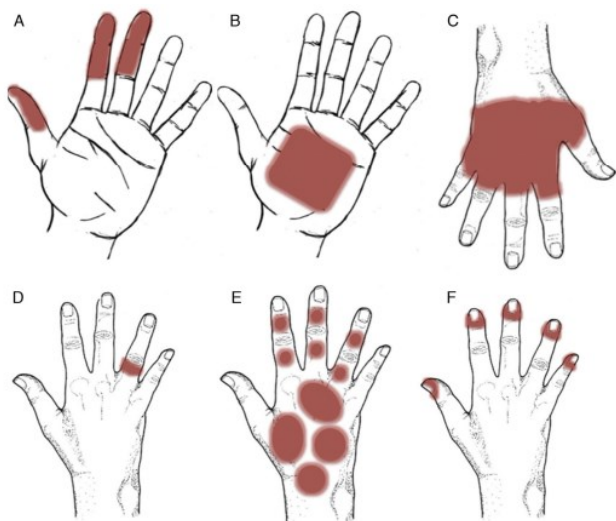


Figure 5 : Clinical patterns of allergic contact dermatitis affecting the hands. **A,** Pincer grip pattern. **B,** Palmar grasp pattern. **C,** Apron pattern. **D,** Ring pattern. **E,** Glove pattern. **F,** Periungual pattern.

The gold standard in the workup of a patient with possible ACD is patch testing. Patch testing elicits a delayed-type hypersensitivity reaction, a type IV allergic response. This type of reaction is not manifested clinically until several hours after exposure. A thorough family and past medical history is important; an extensive work history is also helpful. Work restrictions may be necessary, but working through the hazard control approach is preferred.⁶

The traditional approach to hand dermatitis is avoidance of exposure & decreasing inflammation. Topical corticosteroids are usually the first treatment considered. Starting with a potent topical steroid application once to twice daily helps to decrease dermatitis, but should be decreased and ultimately discontinued as soon as possible. Side effects of chronic use of topical steroids can include epidermal atrophy, which in turn can actually make the skin more susceptible to irritants and even allergens. Antibiotics & Anti histamines are prescribed in order to prevent infection and symptomatic relief.⁷

Conclusion

A wide variety of chemical materials is capable of causing ACD in both dental personnel and patients. Changes in dental practice over the past few years have resulted in greater frequency of glove-related dermatitis and acrylic monomer allergies. While common occupational allergens are known, novel and emerging allergens should also be considered.

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