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CASCADE OF MANAGEMENT FAILURE IN OCCUPATIONAL LATEX ALLERGY: A CASE STUDY

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ABSTRACT

Occupational latex allergy is a common yet frequently neglected issue among healthcare workers. This study aims to highlight the issue of failure to diagnose work-relatedness, which leads to a series of cascading failure and suboptimal management of occupational latex allergy. This is the case whereby a nurse from a tertiary hospital in whom occupational latex allergy were identified, is being suboptimally managed medically and occupationally for many years. A series of cascading failure beginning from failure to recognise the work-relatedness nature of the condition, inevitably leading to failure of notification as occupational disease, hence failure to conduct appropriate investigation and intervention at the workplace, and ultimately failure to build a healthy workplace culture has been identified as important determinants leading to suboptimal management of occupational latex allergy. This report highlights the shortcomings among the patient, the treating physician, as well as the workplace manager with resultant series of cascading failure leading to failure of recognition and suboptimal management of occupational latex allergy.

Keywords: nurse, latex dermatitis, latex allergy, occupational disease, healthcare workers

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1.0 Medical History

A 28 year-old nurse with background family history of atopy, presented with complaint of bilateral hand skin lesions for the past 10 years. Chronologically, her skin problems started as far back as 2008, during her undergraduate training years in nursing school. Her debut of bilateral hands skin lesion appeared approximately a month into training, after a series of multiple episodes of direct contact with latex gloves. In the initial phase, the description of the lesions were erythematous, itchy and poorly-demarcated. It was soon followed by oozing and crusting of the lesions, later forming dry and rough patches on the skin. The lesions were noted to appear a few hours post-exposure to latex gloves. It was associated with appearance of similar lesions on other parts of her body, particularly on the extensor aspects of her limbs. There was no systemic involvement. She was undoubtedly symptom-free with no occurrence of skin rash when on her holiday breaks.

During the early years of her career as a registered nurse in 2010, she sought medical attention owing to her worsening skin condition at the workplace. She was seen in the dermatology outpatient department, whereby she underwent skin prick testing and skin patch testing for allergy. She was diagnosed with allergic contact dermatitis specifically towards latex and was prescribed topical emollients and steroid-based cream. The work-relatedness nature of latex allergy was not adequately explored by the treating physician; thus workplace assessment and intervention were not conducted. Specific health education on management of latex allergy as well as importance of complying to treatment follow-up was not provided. She defaulted her follow-up in 2012, and continued to self-treat herself with topical application of emollients and steroid-based medication after each episode of skin flares post-exposure to latex gloves. Although not specifically triggered by her condition, among occupational management interventions instituted within her department in 2016 includes the identification of workers with probable occupational-related skin problems, and subsequently the provision of one years' supply of nitrile gloves to those with known latex allergy. However, the nitrile glove supply was stopped since 2017. She did not receive any formal training with regards to latex allergy, nor was there any further follow-up done. Ever since the supply of latex gloves were stopped, she wore self-purchased plastic gloves underneath her latex gloves at the workplace.

2.0 Assessment of patient environment and lifestyle

This patient works as a registered nurse at a tertiary university hospital Emergency and Trauma Department. Her work schedule involves a rotating three-shift system with no specific rotation pattern. Her general tasks include assisting doctors, administering medication, provision of nursing care, vital signs monitoring, and performing certain procedures such as venepuncture, intravenous cannulation and Ryle's tube insertion. The task scope is dependent on the roles assigned, whether it is the role of team leader or a general role. She is exposed to powdered latex glove when providing nursing care and certain procedures such as venepuncture, intravenous cannulation, and wound dressing. The frequency of glove changing ranges between three to 20 times per shift, depending on the job role and job location. She experiences less exposure to latex gloves when given the job role as team leader, or during job placement in green zone and triage zone. She has no known exposure to latex at home or outside the current workplace.

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3.0 Patient belief and understanding of illness

3.1 Knowledge

Upon assessment, patient displays basic knowledge of latex allergy, and she is aware that her skin condition is aggravated by latex exposure. She is fully aware that wearing latex gloves will cause a flare-up of her skin condition. However, she lacks awareness with regards to work-related legislation; nor is she aware of her legal rights to be protected from occupational hazard at workplace, which includes provision of gloves with less hazard risk to her health such as latex-free gloves.

3.2 Belief

She believes that it is her sole responsibility to manage her own skin condition, and does not blame workplace management for their failure to supply latex-free or non-latex gloves at the workplace.

3.3 Practice

Due to poor knowledge and understanding of work-related latex allergy and legal rights, she failed to exercise her rights to proper intervention at the workplace.

4.0 Impact of illness

Due to lack of knowledge, belief and practice on latex allergy which attributes to the cascading failure in management, she has to bear the impact of latex allergy which significantly affects the quality of her work life. As an example, she had to undergo intense itch for several hours following exposure to latex at the workplace, which indirectly impacts her concentration at work. If it is left untreated, the lesion may progress to complications.

5.0 Discussion

The reported prevalence of latex allergy from 2009 to 2015 among healthcare workers ranges from 4% to 17.9% (Wu, McIntosh & Liu 2016). Latex dermatitis can be categorized into irritant and allergic type (Kelly & Sussman 2017). The latter can be further subdivided into immediate- and delayed-hypersensitivity (Kelly & Sussman 2017). Suspicion on latex allergy can be confirmed clinically via multiple tests, including specific IgE testing (skin prick test, intradermal test, radioallergosorbent test), delayed-hypersensitivity test (patch test), provocation or latex challenge test, basophil activation test and glove use test (Kelly & Sussman 2017; Hamilton, Peterson & Ownby 2002). However, the work-relatedness aspect of latex allergy is frequently neglected, which consequently leads to a cascade of management failure by the patient, the treating physician and the workplace manager. We present the case of a nurse with known latex allergy for seven years, and highlight the issue of failure to diagnose ‘work-relatedness’ which leads to suboptimal medical and occupational management of latex allergy

despite its widely known high prevalence among healthcare workers (Wu, McIntosh & Liu 2016).

This patient has occupational or work-related latex allergy as she fulfils at least four out of seven Mathias's Criteria of Occupational Causation of Contact Dermatitis (Mathias 1989). Figure 1 illustrates the cascade of management failure in occupational latex allergy that has been identified from this case study. This patient had sought treatment during the early years of her career, but defaulted follow-up and subsequently failed to seek medical attention when her skin condition worsened, due to lack of awareness and time constraint. The main issue identified in this case is failure to diagnose work-relatedness in the first place, which leads to a significant cascade of management failure. Work-relatedness of latex allergy, particularly among healthcare workers in the high-risk group category, must be explored thoroughly by the treating physician. The work-relatedness of latex allergy can be diagnosed by using Mathias's Criteria of Occupational Causation of Contact Dermatitis (Mathias 1989).

Failure to diagnose work-relatedness will result in failure to notify occupational disease in accordance to Occupational Safety and Health (Notification of Accident, Dangerous Occurrence, Occupational Poisoning, and Occupational Disease) Regulation 2004 (Malaysia 2004). Such notification is crucial to ensure proper occupational management, particularly workplace intervention, for the best interest of the workers and the organization. Without notification, specific workplace investigation and intervention for occupational latex allergy may not be carried out, and consequently the problems will persist if not worsen. All of these failures cumulatively demonstrate unhealthy workplace culture, which should be scrutinized in more detail by the healthcare sector top management team.

She defaulted clinic follow-up and self-treated her condition without proper medical consult. Although self-treatment is an increasingly important preventive approach, it is essential to maintain a mutual relationship with the healthcare provider (Grady & Gough 2014). Thus, this case should be referred again to the dermatologist for appropriate management and specific health education on latex allergy (Caballero & Quirce 2015). The attending physician must explore the work-relatedness nature of her condition according to Mathias's Criteria of Occupational Causation of Contact Dermatitis (Mathias 1989). If the diagnosis of work-relatedness is established, it should be documented and notified to Department of Safety and Health (DOSH) as stipulated by our country laws (Malaysia 2004). Referral to Occupational Health Clinic should also be initiated for workplace assessment and intervention (Caballero & Quirce 2015).

It is the job of the workplace manager, together with assistance from the Occupational Health Clinic, to identify similar problems among other healthcare workers by using the available screening tools and skin testing available (Wang et al., 2012). Healthcare workers diagnosed with latex allergy should be provided a sustained supply of nitrile gloves by the department at no added cost. They should also be given health education as part of their comprehensive management plan of latex allergy (Kelly & Sussman 2017; Caballero & Quirce 2015). Due to the importance of shared responsibility to ensure optimal health management at workplace (Malaysia, 1994), the workplace manager should also attend similar trainings. By doing so, a mutual understanding can be reached to optimize latex allergy management, such as latex avoidance measures which can significantly improve the patient's quality of life (Power, Gallagher & Meaney 2010).

Additionally, certain preventive measures must be taken into consideration by the manager, such as job role scheduling and workplace allocation. Although not specifically triggered by her particular case, the proactive initiatives instituted by her workplace to identify healthcare workers with similar skin problems and provide nitrile gloves were correct albeit not specific, comprehensive and sustainable. The higher direct cost of nitrile gloves in comparison to latex gloves may be one of the reason why nitrile gloves were discontinued, without taking into consideration the indirect cost related to impact of latex allergy, such as absenteeism. Lastly, a holistic management policy on latex allergy among healthcare workers should be developed (Fonacier et al. 2015; Bell, Watt & Straine 2005), by taking into account all of the above recommendations. A written policy is critical to ensure ongoing commitment among the stakeholders to provide sustained management of latex allergy among healthcare workers (Bell, Watt & Straine 2005). Once comprehensive management is put into place and applied accordingly, a healthy workplace culture can be built and nurtured by the whole organization.

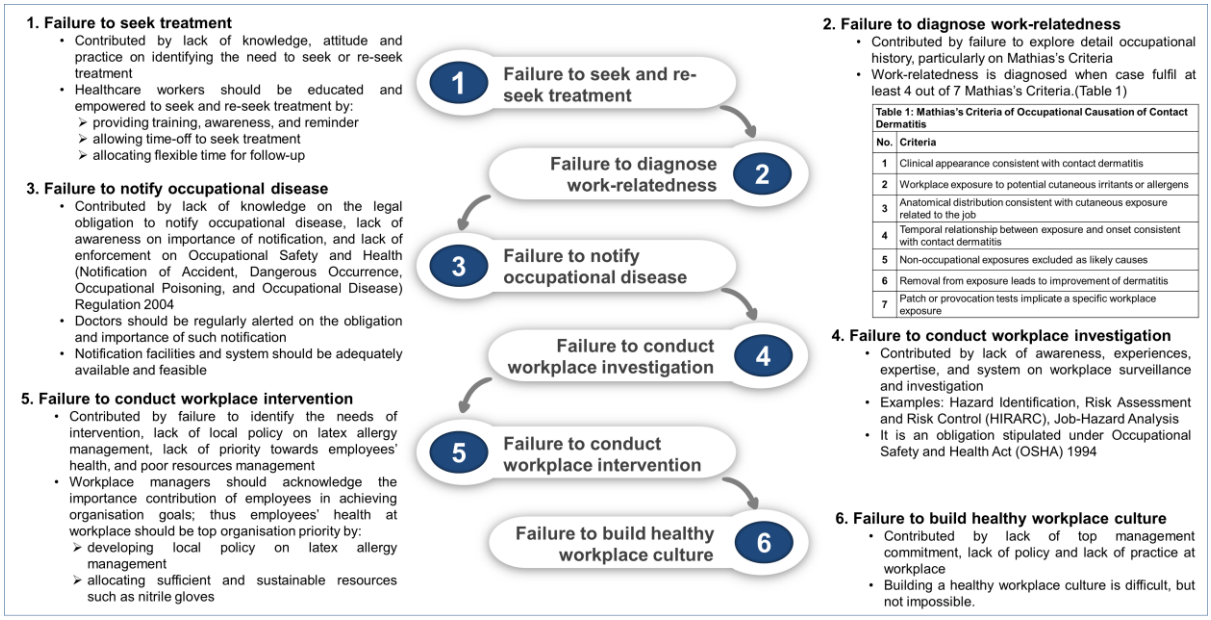

Figure 1: Cascade of Management Failure in Occupational Latex Allergy.

6.0 Conclusion and recommendation

Latex allergy is prevalent among healthcare workers; however, this case has not received optimal management. Failure to diagnose work-relatedness leads to subsequent cascading failure among the case, treating physician, and workplace manager and subsequently suboptimal management of occupational latex allergy. It is critically important for the treating physician and workplace manager to determine work-relatedness, and the patient should be empowered to recognise his/her legal rights at the workplace.

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Declaration

Authors declare no conflict of interest.

Authors' contribution

All authors substantially contributed to this case study. All authors have read and agreed to the published version of the manuscript. All authors agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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