



Dermatological Emergencies In Family Medicine: Recognition, Management, And Referral Considerations

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Abstract

Numerous people with skin disorders who have real dermatologic crises show up at the emergency room. Family doctors need to be able to identify potentially fatal dermatological disorders quickly since they could be the first to encounter patients with these illnesses. The purpose of this review is to provide guidance for early recognition, help identify distinct symptoms, and enable early diagnosis of emerging dermatological conditions. Necrotizing fasciitis, Stevens-Johnson syndrome, toxic epidermal necrolysis, Rocky Mountain spotted fever, and other possible emergencies that might manifest as dermatological symptoms are examples of these conditions. In this article we will be discussing the dermatological emergencies present at primary care settings and encountered by family physician, recognition and management of those emergencies, referral considerations, role of family medicine in dermatological emergencies and other topics.

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Introduction

Understanding dermatological emergencies is crucial for family medicine practitioners in order to recognize, manage, and appropriately refer patients with urgent skin conditions. These emergencies can range from severe allergic reactions and infections to life-threatening conditions like toxic epidermal necrolysis and Stevens-Johnson syndrome. Family medicine practitioners play a key role in the early recognition and management of dermatological emergencies [1].

In emergency outpatient departments worldwide, 8%–20% of patients are treated for dermatological problems [2]. The risk of a patient developing acute skin failure has grown due to factors such as longer lifespans that lead to immunosuppression, organ transplants, the use of many medications, cancers, and the careless use of medications, including homeopathic and ayurvedic. The anatomical and physiological function of the skin is impaired in patients with acute skin failure, making it impossible for the skin to maintain a vital body temperature, prevent percutaneous loss of fluids, electrolytes, and proteins that could cause an imbalance, and prevent foreign material from entering the body [3]. This lays forth the need to have a dermatology critical care unit (ICU) that is particularly built for treating dermatological crises. A dermatological emergency is characterized by a cutaneous disease that necessitates hospitalization, intensive treatment, early and fast diagnosis, and monitoring in order to reduce related mortality and morbidity [4].

Primary cutaneous crises, in which the skin is the primary focus, and secondary cutaneous emergencies, in which the skin is damaged due to a systemic medical or surgical involvement, are the two main categories of dermatological emergencies. However, the final condition in both situations that sends the patient to the (emergency department) ER is acute skin failure. The most frequent dermatological emergency is acute skin failure, which necessitates an intensive care unit and a multidisciplinary approach and also referral to dermatologist due to the increased risk of death and morbidity [5, 6]. Dermatological crises such as angioedema, acute urticaria, immunobullous disorders, erythroderma, medication responses like Stevens-Johnson syndrome (SJS), toxic epidermal necrolysis (TEN), and lymphomas may be caused by a broad range of dermatoses [5]. The majority of these illnesses are considered emergencies because they pose a danger to life, limb, or the structure or function of a vital organ in the body, as defined by the American Medical Association [7]. Prof. Rene Touraine proposed the idea of an ICU in a dermatological setting for the first time in 1974. He argued that patients with a variety of skin disorders who have acute skin failure that involves multiple organs should get specialist intensive care from dermatologists working with ICU physicians [3].

The frequency and prevalence of dermatological disorders are generally associated with the community's genetic background and ethnicity. For example, the most prevalent categories of dermatological problems in Saudi Arabia were examined in a recent systematic review and meta-analysis. These categories included skin infections, disorders of skin appendages, and dermatitis and eczema, with summed prevalence rates of 24%, 24.8%, and 18.5%, respectively [8]. Even though common dermatological diseases may theoretically be treated in a primary health care (PHC) environment, primary care doctors (PCPs) as family physicians perform over 80% of dermatological consultations for these conditions [9].

As the main source of referrals to specialists, PCPs are essential to patients' access to secondary and tertiary healthcare. Dermatologists are among the medical specialists most often referred to by PCPs, accounting for 8.2% of all medical specialist referrals [10, 11]. The majority of people see PCPs for the same concerns prior to visiting the dermatology clinic [12].

Recognition Of Skin Conditions In Family Medicine

Family medicine practitioners must have a comprehensive understanding of various skin conditions and their presentations in order to accurately recognize dermatological emergencies. They should be familiar with the common signs and symptoms of emergencies such as severe rashes, bullae formation, rapidly spreading cellulitis, and necrotic skin [13]. Additionally, family medicine practitioners should be able to differentiate between urgent and non-urgent skin conditions, as well as recognize the potential complications or consequences of untreated dermatological emergencies.

In the first defense lines, PCPs and family physicians are often the first to see patients with dermatological issues [14]. Owing to this crucial duty, PCPs have been seen to follow the criteria given out by the American Academy of Family Physicians (AAFP) by using a variety of diagnostic techniques, including spot diagnosis, stepwise regression, and pattern recognition for skin disorders [15, 16]. Generally, complicated diagnostic techniques are not needed since the majority of common dermatological conditions are simply identifiable [11].

AAFP states that a PCP (e.g. family physician) has to be familiar with various diagnoses linked to various kinds of lesions [16]. In spite of this, PCPs have been seen to send patients with both common and simple skin disorders to dermatologists [17]. It has been shown that despite the necessity for PCPs to stay up-to-date on medical knowledge, over 68.5% lacked an understanding of common dermatological problems and half were incapable of addressing skin illnesses [18]. One major reason for challenges in identifying and treating skin conditions is a lack of dermatological expertise. Furthermore, it is thought that proper training enables PCPs to detect and treat skin diseases more accurately [17, 19]. Furthermore, significant research carried out in Saudi Arabia showed that PCPs with a brief period of specialized clinical training in dermatology outperform those without training in the identification and management of skin problems [19].

Emergency Management & Referral Consideration Of Dermatological Conditions

Family medicine practitioners should be equipped with the necessary knowledge and skills to manage dermatological emergencies in the primary care setting. This includes the ability to perform initial interventions such as wound care, administration of appropriate first-line medications, and referral to specialists when necessary. Additionally, family medicine practitioners should be aware of the limitations of their scope of practice and know when to involve other healthcare professionals, such as dermatologists or plastic surgeons, for further evaluation and management of dermatological emergencies [20]. Our goal in this section is to highlight some of the dermatological emergencies and their management.

1- Necrotizing fasciitis

The subcutaneous tissues may become necrotic as a result of this quickly growing deep fascia infection. While enterococci, gram-negative aerobic bacilli, and mixed anaerobes are associated with type I necrotizing fasciitis, group A streptococci are the source of type II. Minor burns, abrasions, wounds, or surgical operations may introduce the microbes. Necrotizing fasciitis may be effectively treated with early detection, intensive sepsis control, and surgical débridement of the necrotic tissue. The patient should receive antistreptococcal antimicrobial treatment; however, if the causative agents cannot be identified with certainty, broad-spectrum antibiotics should be given, as indicated by the clinical picture [21, 22].

2- Stevens–Johnson syndrome and toxic epidermal necrolysis

These disorders, which are characterized by skin tenderness, erythema, epidermal necrosis, and desquamation, reflect a range of drug-induced or idiopathic mucocutaneous response patterns. Genetic vulnerability and a compromised ability to detoxify intermediate drug metabolites are likely to be involved in the pathophysiology. NSAIDs, sulfonamides, anticonvulsants, and allopurinol are among the common drugs that cause toxic epidermal necrolysis and Stevens-Johnson syndrome. Administration of the medication usually occurs 1-3 weeks before the rashes outbreak. Toxic epidermal necrolysis and Stevens-Johnson syndrome should be treated by a medical professional with expertise. Supportive procedures include maintaining electrolyte and temperature homeostasis, identifying and removing the causing medicine, admitting the patient to a burn unit if needed, administering IV fluids, and getting an ophthalmologic examination if there is ocular damage. Antihistamine and topical corticosteroid treatment for pruritus, appropriate wound dressings, oral hygiene (such as chlorhexidine rinses), and antimicrobial therapy in situations of superinfection owing to skin-barrier collapse include skin care. High IV dosages of immunoglobulin are used as the major treatment for toxic epidermal necrolysis in several centers; nevertheless, more proof of its efficacy is required [21, 22].

3- Rocky Mountain spotted fever

The most prevalent way that this potentially fatal illness is brought to people is via tick bites that transmit the parasite *Rickettsia rickettsii*. The mortality rate from mounted spotted fever is 3%–7% for those who get treatment and 30%–70% for those who do not receive fast or sufficient care. After being bitten by a tick, patients have fever, headache, and rash in roughly 60% of patients. Within the first two weeks, the wrists and ankles are where the distinctive rash associated with this ailment initially emerges. It quickly spreads to the palms and soles, and finally the trunk and face. Diagnosing multiorgan involvement might be difficult since different symptoms can result from it. Myocarditis and cardiogenic shock, peripheral edema from hepatic failure and hypoalbuminemia, acute renal failure, altered mental state, convulsions or coma, meningismus, and disseminated intravascular coagulation are among the complications of Rocky Mounted spotted fever [21]. When this illness is detected, adequate antibiotic therapy should be started right once in addition to symptomatic assistance. The preferred medication is doxycycline, which should be taken for at least three days

after the fever goes down and until the patient shows signs of recovery. If the tick is entrenched in the skin, it should be extracted at the time of presentation [22].

4- Staphylococcal toxic shock syndrome

Rapid onset of widespread erythema with desquamation, fever, hypotension, and possible multisystem failure are the hallmarks of this toxin-mediated illness. When individuals have *Staphylococcus aureus* infections, such as those who use very absorbent menstruation tampons or have surgical wounds or superficial skin infections, the sickness develops. In most cases, patients show up with fever, chills, nausea, and stomach discomfort after two to three days prior to malaise. Desquamation follows a generalized erythematous, nonpruritic, maculopapular, or petechial rash. The rash starts on the trunk and moves sporadically to the soles and palms. Arrhythmias, hepatic and renal failure, disseminated intravascular coagulation, and acute respiratory distress syndrome are examples of multi-system involvement. Hypotension and possible multi-organ failure must be treated with aggressive supportive care. It is best to eliminate contributing elements. Treatment with an antibiotic that is resistant to β -lactamase and acts against staphylococci is advised after obtaining culture specimens.

5- Angioedema

This disorder mostly affects the skin, gastrointestinal system, and respiratory tract and is characterized by regions of edema induced by increased vascular permeability. Acute subcutaneous edema, generally of the face, limbs, or genitalia, is the most common presentation for patients.

There might be a widespread anaphylactic response, which could be lethal if the upper airway is damaged. Fifty percent of patients with urticaria also experience angioedema, which is typically burning but non-pruritic. Hereditary angioedema, which is autosomal-dominantly transmitted, and acquired angioedema, which may be linked to autoimmune diseases and B-cell lymphoproliferative malignant illness, are two uncommon but well-described types of the condition [21]. Most forms of treatment are supportive. If the respiratory system is affected, ventilation has to be guaranteed. Antihistamines and cool, wet compresses may be used to manage localized burning. Referral to an allergist for suitable investigations has to be taken into consideration. It is critical to stay away from recognized triggers, such as related drugs. Patients who lack C1INH are not candidates for ACE inhibitors. Danazol and stanozolol, two attenuated androgens, are used to prevent hereditary angioedema by increasing the quantity of active C1INH. Recently, an algorithm was presented for the diagnosis and treatment of hereditary angioedema [21].

When faced with a dermatological emergency that is beyond their scope of practice, family medicine practitioners should promptly refer the patient to a dermatologist for further evaluation and management. This ensures that patients receive specialized care from experts in the field and increases the likelihood of appropriate treatment and positive outcomes. The referral process for dermatological emergencies should be streamlined and efficiently coordinated to ensure timely access to specialized care. In order to effectively manage dermatological emergencies, family medicine practitioners should be familiar with appropriate referral pathways and have a system in place to expedite referrals when necessary.

Prevention Strategies For Dermatological Conditions

It is important for family medicine practitioners to not only address dermatological emergencies when they arise but also to promote preventive strategies to minimize the occurrence of these conditions and reduce the need for emergency interventions. By educating patients on proper skin care, the use of sun protection measures, and promoting healthy lifestyle choices, family medicine practitioners can play a crucial role in preventing the recurrence and spreading of dermatological emergencies. A study held in 2015 in Egypt showed that because family doctors were taught to thoroughly educate their patients either during the interview or in separate sessions after completing the examinations, a high proportion of patients were informed about their conditions and management protocol. Furthermore, the presence of human resources, like skilled nurses, and physical amenities, like a family club and counseling room, improved the ability of family physicians to implement patient education programs. According to the survey, a far larger proportion of patients took their prescription drugs as directed [23].

Family Medicine's Role In Dermatological Emergencies

Family medicine plays a critical role in the recognition, management, and referral of dermatological emergencies. Despite the high prevalence of skin-related problems, dermatologists correctly diagnose 93% of

conditions, while non-dermatologists only diagnose 52% of conditions [13]. This highlights the need for family medicine practitioners to have a strong understanding of dermatology and emergency management of skin conditions. In addition to referring patients to dermatologists for specialized care, family medicine practitioners can also play a role in the prevention of dermatological emergencies. By providing education on skin care practices, promoting early detection and self-examination, and offering preventive measures such as vaccinations and sun protection, family medicine practitioners can contribute to reducing the incidence and severity of dermatological emergencies. Overall, the recognition, management, and referral of dermatological emergencies in family medicine are vital for ensuring appropriate and timely care for patients [15].

Moreover, clinical protocols for dermatological emergencies are essential tools for family medicine practitioners. These protocols provide step-by-step guidance on the recognition, initial assessment, management, and referral of dermatological emergencies. The protocols are based on evidence-based guidelines and best practices, ensuring that practitioners have a standardized approach to diagnosing and treating dermatological emergencies. Using these protocols can improve the accuracy and efficiency of diagnosis, as well as ensure appropriate and timely referral to dermatologists when necessary.

Recommendations

In order to enhance learning and practical application, case studies should be done on this specific topic to illustrate the recognition, management, and referral considerations for dermatological emergencies in family medicine.

Conclusion

In their everyday job, family practitioners meet a wide range of dermatological emergencies. They use a number of tactics in the workup of these patients. Nonetheless, a considerable proportion of patients still have diagnostic ambiguity, which is mostly mitigated by referring them to a specialist. All general practitioners should be provided with regular training in the diagnosis and treatment of common dermatological illnesses. This recommends that family practitioners should get knowledge and skill training to enhance the treatment of skin problems. This would lead to a more responsive system with lower waiting times and improved medical services and outcomes.

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