Jurnal Ekonomi Teknologi & Bisnis (JETBIS)
Volume 2, Number 2, February 2023
p-ISSN 2964-903X; e-ISSN 2962-9330

ERYTHRODERMA ET CAUSA ALLERGY MEDICATION

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ARTICLE INFO
Accepted:
10 February 2023
Revised:
24 February 2023
Approved:
02 March 2023

ABSTRACT
Erythroderma is a skin disorder with clinical findings in the form of an erythema, with or without scales, which is generalized and covers 90% of the body's surface area. These skin disorders are usually preceded by pre-existing skin disorders (e.g. psoriasis or atopic dermatitis), cutaneous t-cell lymphoma, drug reactions, and idiopathic. A 37-year-old male patient came to the skin and genital polyclinic with complaints of peeling skin and itchy reddish patches on his face, chest, stomach, back, arms and legs since four months ago. The patient said that initially, reddish spots appeared on the face, then on the arms, legs, chest, stomach and back. The patient scratches the itchy skin then the skin peels off. The accompanying complaint experienced by the patient was fever. The patient previously took antibiotics and applied ointments to reduce complaints. On physical examination, generalized erythematous macules with scaling were found on the face, chest, hands and feet.
Keywords: Erythroderma, Erythema, Generalized

INTRODUCTION

Erythroderma is a skin disorder with clinical findings in the form of an erythema, with or without squama, which is generalized and covers 90% of the surface of the body area (Suryani & Oktarlina, 2017). The causes of Erythroderma are pre-existing skin disorders (e.g. psoriasis or atopic dermatitis), skin T cell lymphoma, drug reactions, and idiopathic (cause unknown) (Silvia et al., 2020).

Some studies report variations in the incidence of Erythroderma from 0.9 to 71.0% per 100 thousand patients. Studies from the Netherlands reported an annual incidence of Erythroderma of 0.9 per 100,000 inhabitants in the country. Men are reported to be more at risk of Erythroderma than women in a ratio of 2:1 in most cases (Emre et al., 2014). All age groups are at risk of developing Erythroderma, with an average age of 40 to 60. The incidence of Erythroderma is reported to be very little or rare in children because reports of epidemiological data on the pediatric population are minimal.3 The mortality rate depends on the cause of Erythroderma. Sigurdson reported that of the 102 erythroderma patients, 43% died, 18% were caused directly by Erythroderma, and 74% were unrelated to Erythroderma (Purwanto et al., 2018).

Cytokines have a role in the pathogenesis underlying the incidence of Erythroderma. The theory states that high levels of immunoglobulin-E can be found in Erythroderma, and in each underlying cause, erythromycin has different levels of immunoglobulin-E. The increase in immunoglobulin-E levels in erythroderma sufferers is caused by an immunological reaction that changes T helper 1 to T helper two and produces toxic cytokines (Maharani & Setyaningrum, 2017).

Erythroderma is a case that can cause severe systemic conditions and threaten life so that it is fatal. Therefore, it is necessary to identify the underlying disease and provide adequate therapy (Asrawati et al., 2013). The management of Erythroderma is generally by tapering off the administration of corticosteroids. Drug reactions cause Erythroderma; drugs suspected to be the cause should be stopped immediately .

RESEARCH METHODS

The male patient, Mr. S, aged 37 years came to Karanganyar Hospital with complaints of peeling skin and itchy reddish patches on the face, chest, back, hands, and feet. The complaint was felt since 4 months before coming to the hospital. At first reddish patches appear on the part of the ears, head, then to the legs. About 1.5 months later it appears on the hands, then extends to the abdomen and back. After 1-2 weeks, the reddish patches expand and thicken and then like peeling skin. The patient scratches his skin until wounds appear on the patient's hands and feet. Exfoliated skin. The patient scratches his skin until wounds appear on the patient's hands and feet. The accompanying complaint experienced by the patient is fever. The patient admitted to taking antibiotic medication and using ointment but the patient forgot the name of the medicine. The condition of patches and itching on the skin is increasingly widespread and causes patients to come to the emergency room of Karanganyar Hospital for treatment. The patient has no history of hypertension and diabetes mellitus. The patient's family has no similar complaints, a history of hypertension, diabetes mellitus, drug allergies and food allergies (Gurappanavar et al., 2015).

Physical examination obtained the general condition of the patient moderate, compos mentis awareness, blood pressure 112 per 65 mmHg, pulse 62 times per minute, respiration 20 times per minute, temperature 36.6oC, SpO2 98%. On physical examination from head to toe, dermatological status was obtained in the form of macular erythema generalisata with squama on the face, hands, and feet and macular erythema generalisata on the chest, abdomen, and back.

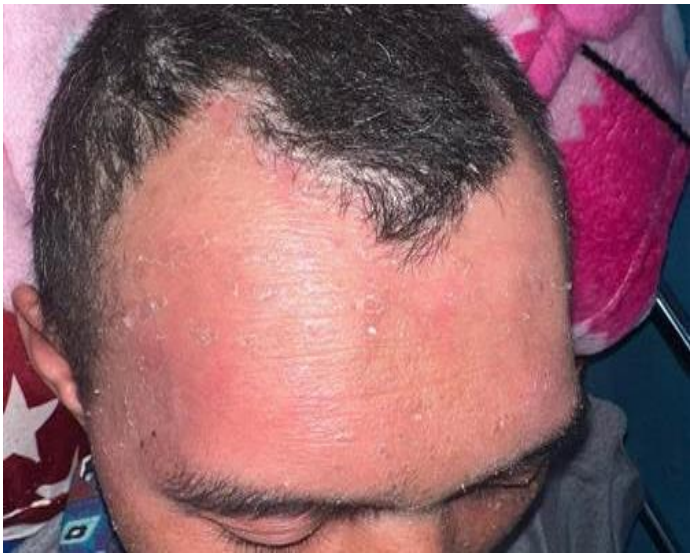

Figure 1
Macular appearance erythema generalisata with squama on the face

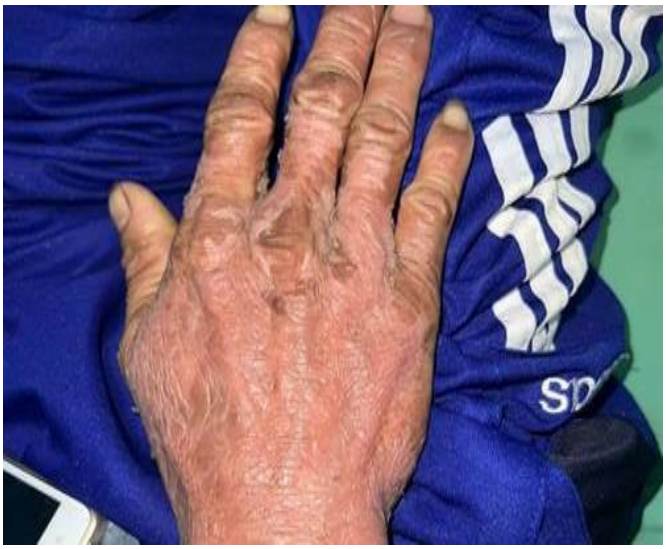

Figure 2
Macular view erythema generalisata with squama di regio manus

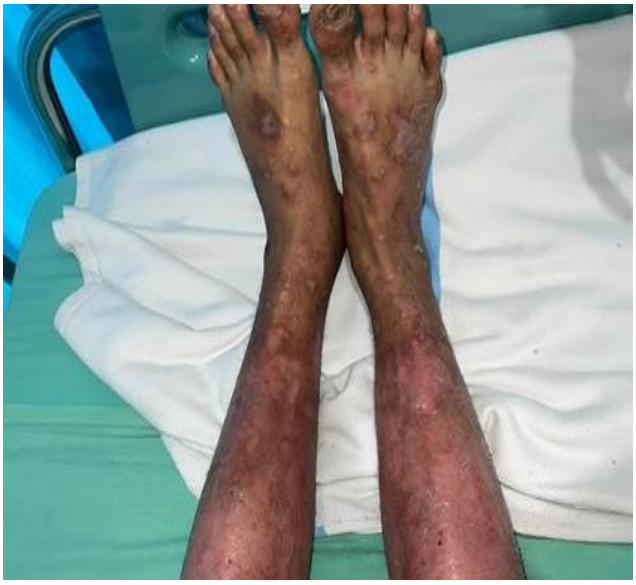

Figure 3
Looks macular erythema generalisata with squama in regio cruris and pedis

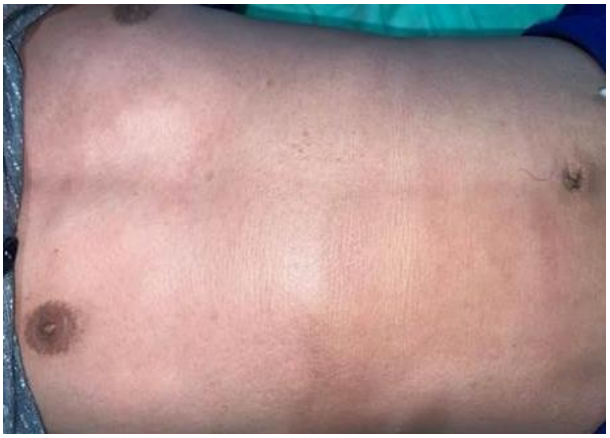

Figure 4
Appears macular erythema generalisata in the thorax and abdomen region

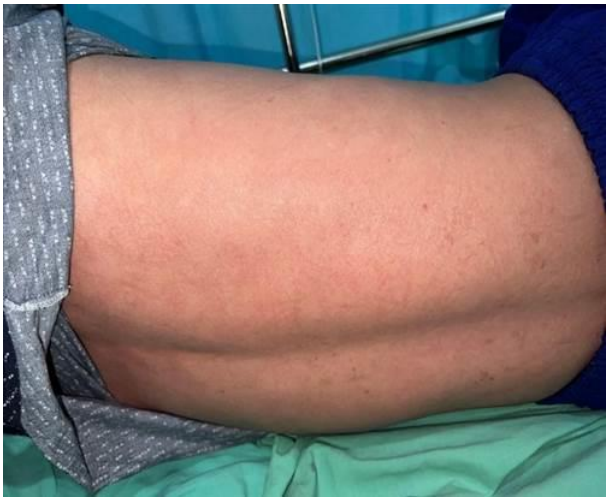

Figure 5
Macular erythema generalisata on the back

Laboratory examination obtained the results:

Table 1
Laboratory Results

Examination	Result	Reference
HAEMATOLOGY		
Hemoglobin	12.4	12.3-17.6
Hematocrit	35.7 **(L)**	40-52
Lecocytes	15.11 **(H)**	4.4-11.3
Platelets	277	132-356
Erythrocyte	4.27 **(L)**	4.5-5.9
INDEX		
MCV	83.6	82.0-92.0
MCH	29.0	28-33
MCHC	34.7	32.0-37.0
CALCULATE TYPE		
Neutrofil%	70.3 (**H)**	50.0-70.0
Limfosit%	17.6 **(L)**	20.0-40.0
Monosit%	7.5	3.0-9.0
Eosinofil%	4.3	0.5-5.0
Basofil%	0.3	0.0-1.0
NLR	3.99 **(H)**	<3.13
ALC	1.78	>1.5
RDW-CV	14.6	11-16
RDW-SD	44.4	

BLOOD CHEMISTRY		
Sugar Blood when	140	70-150
Liver		
SGOT	44	0-46
SGPT	103 **(H)**	0-42
IMUNO-SEROLOGI		
Creatinin	0.81	<1.0
Ureum	13	10-50

The management given to Mr. S is Ringer Lactate infusion 20 tpm, Ceftriaxon injection per 12 hours, Methylprednisolone injection 125 mg per 12 hours, Vitamin C injection 1000 mg per 24 hours, Ranitidine injection per 12 hours, Chlorpheniramine Maleate 3x4 mg, Zinc 3x20 mg, and for topical treatment given vaselin album 15 gr and desoxymethasone cream 15 gr. Patients are advised to eat foods high in protein and avoid scratching on the skin (Talat et al., 2016).

The patient's condition gradually improves after being given medicamentous and nonmedicamentous management. This is evidenced by changes or improvements in the patient's skin in the form of macula eritem and squama that begin to thin out. This skin condition is different from the initial condition when the patient comes to the hospital.

Figure 6
Macular erythema and squama thinning (after 2 days of treatment)

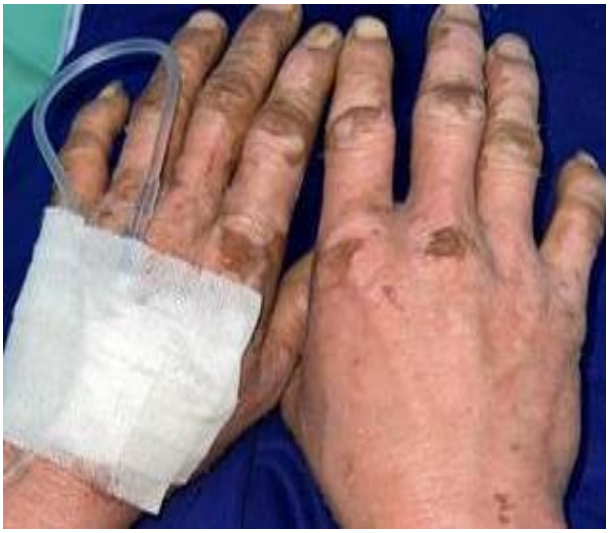

Figure 7
Macular erythema and squama thinning (after 2 days of treatment)

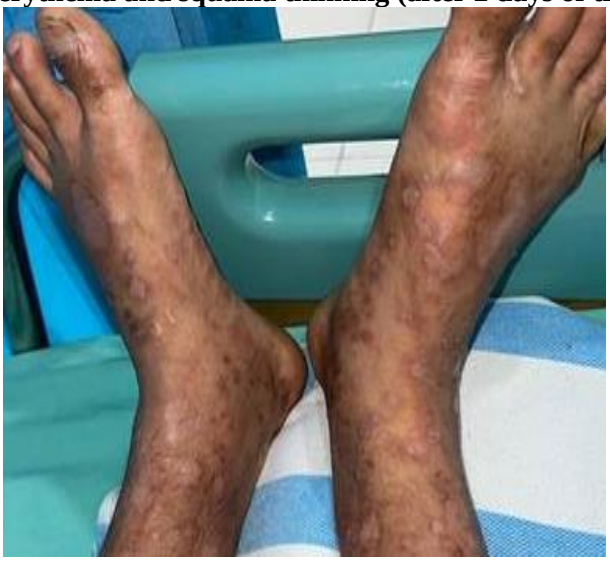

Figure 8
Macular erythema and squama thinning (after 2 days of treatment)

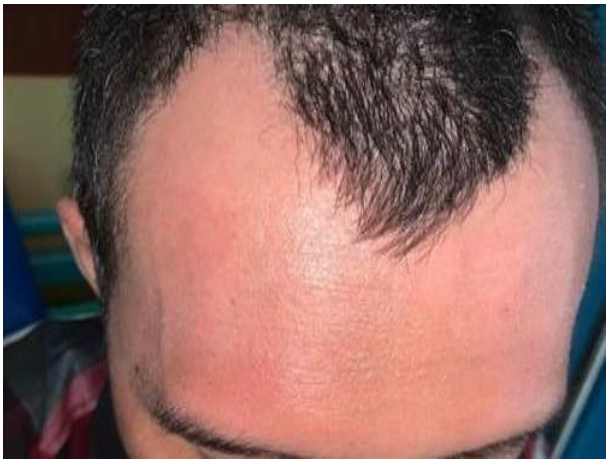

Figure 9
Macular erythema and squama thinning (after 4 days of treatment)

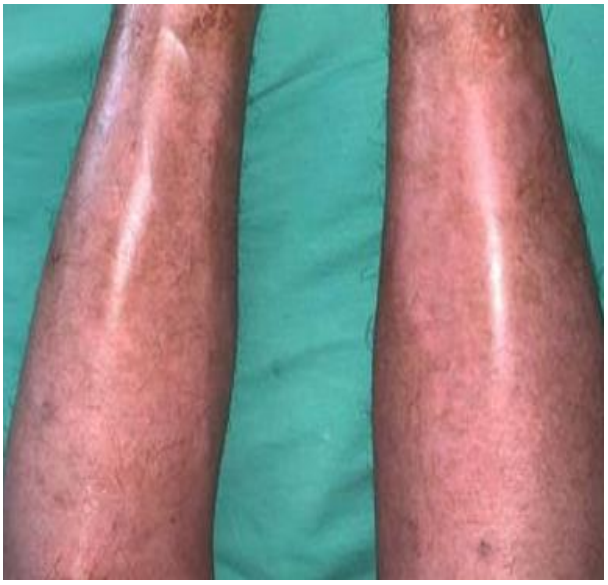

Figure 10
Macular erythema and squama thinning (after 4 days of treatment)

Figure 11
Macular erythema and squama thinning (after 4 days of treatment)

The management given to Mr. S to take home was Methylprednisolone 3x16 mg, Vitamin C 1x500 mg, Ranitidine 2x1, Chlorpheniramine Maleate 3x4 mg, Curcuma 3x1, and for topical treatment given vaselin album 15 gr and desoxymethasone cream 15 gr. Patients are advised to eat foods high in protein and avoid scratching on the skin.

RESULTS AND DISCUSSION

The male patient, Mr S, aged 37 years, came to Karanganyar Hospital complaining of peeling skin and itchy reddish patches on the face, chest, back, hands, and feet. Complaints were felt as early as four months ago. At first reddish patches appear on the part of the ears, and head, then on the legs. About 1.5 months later, it appears on the hands, then extends to the abdomen and back. After 1-2 weeks, the reddish patches expand, thicken, and then act like peeling skin. The patient scratches his

skin until wounds appear on the patient's hands and feet. The accompanying complaint experienced by the patient is fever. The patient admitted to taking antibiotic medication and using ointment, but the patient forgot the name of the medicine. The condition of patches and itching on the skin is increasingly widespread and causes patients to come to the emergency room of Karanganyar Hospital for treatment. The patient has no history of hypertension and diabetes mellitus. The patient's family has no similar complaints, a history of hypertension, diabetes mellitus, drug allergies and food allergies.

Physical examination obtained the general condition of the patient moderate, compos mentis awareness, blood pressure 112 per 65 mmHg, pulse 62 times per minute, respiration 20 times per minute, temperature 36.6oC, SpO2 98%. On physical examination from head to toe, dermatological status was obtained in the form of macular erythema generalization with squama on the face, hands, and feet and macular erythema generalization on the chest, abdomen, and back.

The anamnesis and physical examination established the diagnosis of erythroderma et causa drug allergy. Erythroderma is a skin disorder with clinical findings in the form of an erythema, with or without a square, which is generalized and covers 90% of the surface of the body area.1 On physical examination, squama can be found little or no, for example, in cases of Erythroderma caused by drug allergies. In Erythroderma already in the chronic phase, the findings of erythema are not very clear. This is because, in the chronic phase, erythema is accompanied by skin hyperpigmentation (Effendi et al., 2020).

There are various causes of Erythroderma, namely pre-existing skin disorders (e.g. psoriasis or atopic dermatitis), skin T cell lymphoma, drug reactions, and idiopathic (cause unknown) (Effendi et al., 2020).

Drugs that usually cause Erythroderma are antibiotic drugs such as penicillin, co-trimoxazole, gentamicin, tobramycin, vancomycin, antifungal drugs such as griseofulvin and ketoconazole, antihypertensive drugs of the beta blocker group, calcium channel blockers such as nifedipine, ACE inhibitors such as captopril, proton pump inhibitor drugs such as omeprazole, H2 blockers such as ranitidine and cimetidine, other drugs such as paracetamol, phenobarbital, Carbamazepine, Plaquenil, and lithium (Mellaratna et al., 2021).

Some studies report variations in the incidence of Erythroderma from 0.9 to 71.0% per 100 thousand patients. Studies from the Netherlands reported an annual incidence of Erythroderma of 0.9 per 100,000 inhabitants in the country. Men are reported to be more at risk of Erythroderma than women in a ratio of 2:1 in most cases. All age groups are at risk of developing Erythroderma, with an average age of 40 to 60. The incidence of Erythroderma is reported to be very little or rare in children because reports of epidemiological data on the pediatric population are minimal (Nurhayati et al., 2020).

There are various risk factors for Erythroderma, namely pre-existing skin diseases (psoriasis, atopic dermatitis), prolonged consumption of medications, work or habits related to contact with irritants, and male sex (men are more active, so they are more at risk of developing Erythroderma). These risk factors need to be asked at the time of anamnesis of a suspected erythroderma patient (Nurhayati et al., 2020).

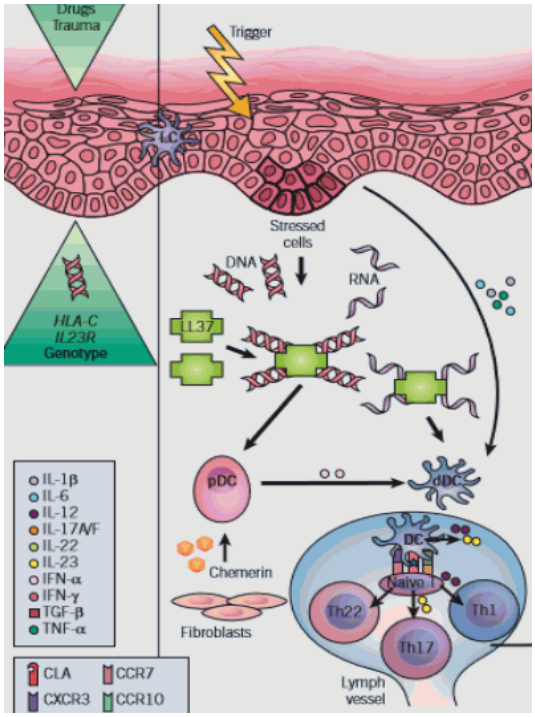

Figure 12 The initial phase of erythroderma occurrence

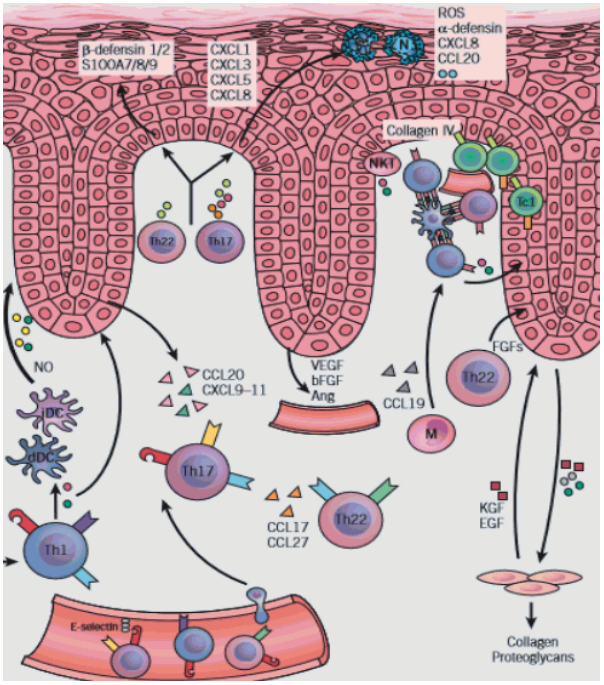

Figure 13 Advanced phases of erythroderma occurrence

The pathogenesis of Erythroderma is still a matter of debate. Erythroderma is closely related to the role of cytokines, that is, complex interactions between cytokine molecules and interleukin cellular adhesion molecules (IL-1, IL-2, IL-8), intercellular adhesion molecules 1 (ICAM-1), tumour necrosis factors, and interferon-γ. These interactions result in increased mitosis activity and accelerated proliferation of epidermal cells and germinativum cells compared to normal skin cells. Epidermal turnover occurs faster within 3 to 4 days, while the normal epidermal turnover is 28 to 56 days.7 The theory also states that high levels of immunoglobulin-E can be found in Erythroderma. The immunoglobulin-E level varies depending on the underlying cause of Erythroderma. The increase in

immunoglobulin-E levels in erythroderma sufferers is caused by an immunological reaction that changes T helper 1 to T helper two and produces toxic cytokines. In erythroderma patients, blood vessels experience dilation (erythema), which causes blood to flow more to the skin. This leads to impaired regulation of body temperature. Elevated body temperature causes the body to lose heat even more. The release of squama on the skin causes the body to lose a lot of protein. Squamous loss in erythroderma patients can reach 9 grams per m2 of body surface area (Maharani & Setyaningrum, 2017) (Menaldi et al., 2015).

Clinical manifestations in people with Erythroderma are items with or without squama. In Erythroderma, clinical manifestations in the form of universal and squamous erythema will arise in the healing phase due to drug allergies. In Erythroderma due to psoriasis, clinical manifestations are thick, multi-layered, rough feet, uneven and circumscribed erythema skin, and non-pathognomonic marks on the nails in the form of pitting nails (nails become dull, thickened, and brittle). In some patients, lesions are found only in universal erythema and square. In Erythroderma, due to skin T cell lymphoma, clinical manifestations in the form of universal erythema are very red, accompanied by squama and very itchy, oedema and infiltration on the skin. In some patients, dystrophic nails, splenomegaly, hyperpigmentation, superficial lymphadenopathy, palmmaric hyperkeratosis and hyperkeratosis plantaris, and alopecia were found (Menaldi et al., 2015).

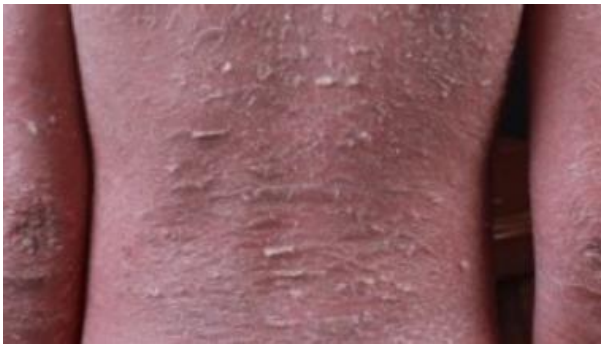

Figure 14
Universal and squama erythema

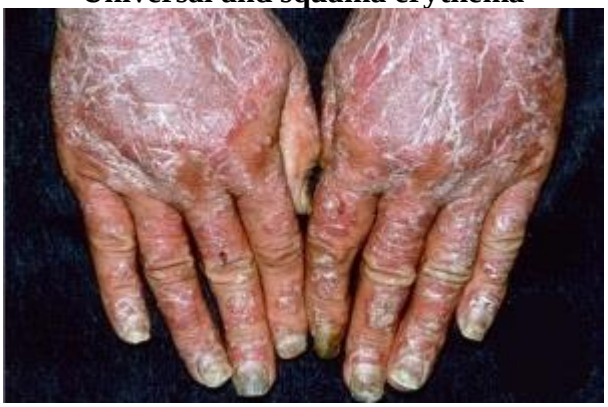

Figure 15
Damage to the nails in the form of pitting nails

Supporting examinations that can be done to establish the diagnosis of Erythroderma are laboratory examinations in the form of complete blood tests to detect the occurrence of anaemia, usually caused by a malignancy, erythrocyte. In addition, it is also recommended to do a skin biopsy and a biopsy of the lymph glands if there are indications. In laboratory examinations, results of

leukocytosis, eosinophilia, lymphocytosis, and hypo albumin are usually obtained. On skin biopsy examination, infiltrates can be found on the upper part of the dermis layer of the skin (Suryani & Oktarlina, 2017) (Menaldi et al., 2015).

Erythroderma diagnoses are based on anamnesis, physical examination, and supporting examination (Nurhayati et al., 2020). Anamnesis needs to be done to find information about complaints, disease history, drug consumption history, and drug allergies. A symptom that patients often complain about is itching. The itch causes the patient to scratch his skin so that wounds from scratching appear on the skin. Redness of the skin appears, followed by a squama that appears 2 to 6 days later. Chronic Erythroderma causes damage to the nails (pitting nails) and hair loss (alopecia). In addition, pigmentation disorders will arise in the form of pigment damage evenly and widely. Swollen lymph nodes may also occur. On enlarged lymph nodes, it is recommended to biopsy (Menaldi et al., 2015).

In this case, the patient's diagnosis is erythroderma et causa drug allergy. In the anamnesis obtained a history of the use of antibiotic drugs. On physical examination, it was found that there was a macular erythema generalization with squama on the face, hands, and feet and macular erythema generalization on the chest, abdomen, and back. Laboratory examination, in this case, did not show significant results. Only leukocytosis results were obtained. In this case, no further supporting examination is carried out in the form of a skin biopsy.

Prevention of Erythroderma depends on the underlying cause. Erythroderma, known to be caused by drug allergies, can be stopped by taking drugs that can result in Erythroderma, in addition to the need for knowledge about the history of drug allergies in patients. Skin moisture needs to be considered, especially in patients with a history of atopic dermatitis. Erythroderma, in some cases, cannot be prevented. Patients with severe skin diseases are at risk for Erythroderma (Waspodo & Amalia, 2017).

Medicamentous management in cases of Erythroderma is by administering corticosteroids tapering off. The dose of corticosteroids is lowered slowly if it shows clinical improvement after a few days. Methylprednisolone is better to use than prednisone if the treatment is longer than one month. This is because there are fewer methylprednisolone side effects than prednisone. The administration of antihistamines also needs to be considered to reduce complaints of itching on the skin. Emollient administration needs to be done in chronic Erythroderma to reduce radiation due to vasodilation by erythema.

Nonmedicamentous management in cases of Erythroderma is by maintaining skin hygiene, avoiding precipitating factors (in this case, by stopping the consumption of antibiotic drugs that are suspected to be the cause), a high-protein diet to overcome protein loss in the body due to exfoliation of squama on the skin and adequate rest (Anggarini & Pasaribu, 2021). In this case, the management given is inf. Ringer Lactate 20 tpm, Ceftriaxone injection per 12 hours, Methylprednisolone injection 125mg per 12 hours, Vitamin C injection 1000 mg per 24 hours, Ranitidine injection per 12 hours, Chlorpheniramine Maleate 3x4 mg, Zinc 3x20 mg, and for topical treatment administered vaseline album 15 gr and dexamethasone cream 15 gr. Patients are advised to eat protein-rich foods and avoid scratching the skin (Trzepacz et al., 2010).

The prognosis of Erythroderma depends on the underlying cause of the occurrence of the disease. Due to the eruption of the drug, Erythroderma has a good prognosis if the drug that is the cause is immediately known and stopped its consumption. The patient has an allergic reaction due to the drug in this case. Patients respond well to the therapy provided and have a favourable

prognosis.3 Poor prognosis in erythroderma patients caused by skin T cell lymphoma. Male patients usually die after five years, and female patients die after ten years. This is due to the aggravation of the disease due to the infection experienced by the patient (Menaldi et al., 2015).

Complications can occur in cases of Erythroderma if you do not immediately get proper treatment. Exfoliation causes the body to lack fluid and lose protein. Patients may experience impaired body temperature regulation and heat loss, causing hypothermia or a significant drop in body temperature. The fluid loss also disrupts electrolyte fluid balance which results in dehydration. Continuous exfoliation causes the absorption of nutrients such as vitamin A and vitamin D to be not optimal, so the skin's function as a protector of organs and bones is disturbed. Secondary skin infections from bacteria, such as impetigo and cellulitis, can occur (Susanto, 2022).

Erythroderma patients who are elderly and have comorbidities can experience life-threatening conditions. Excessive blood flow to the skin can lead to heart failure. About 20% of deaths of erythroderma patients are caused by factors unrelated to Erythroderma. The most common causes of death in erythroderma cases are heart failure, respiratory infections (pneumonia), Acute Respiratory Distress Syndrome (ARDS), and sepsis (Maharani & Setyaningrum, 2017).

CONCLUSION

Erythroderma is a skin disorder with clinical findings in the form of an erythema, with or without squama, which is generalized and covers 90% of the surface of the body area. The causes of Erythroderma are pre-existing skin disorders (e.g. psoriasis or atopic dermatitis), skin T cell lymphoma, drug reactions, and idiopathic (the cause is not yet known). Risk factors for Erythroderma are prolonged consumption of drugs, work or habits related to contact with irritants, and male sex (men are more active, so they are more at risk of Erythroderma). The diagnosis of Erythroderma can be established based on anamnesis, physical examination, and supporting examination. The management of Erythroderma consists of meikamentosa and nonmedicamentose. Medicamentous management is by tapering off antihistamines and emollients. Nonmedicamentous management in cases of Erythroderma is by maintaining skin hygiene, avoiding precipitating factors (in this case by stopping the consumption of antibiotic drugs that are suspected to be the cause), a high-protein diet to overcome protein loss in the body due to squama exfoliation of the skin, and adequate rest. Proper management in cases of Erythroderma is necessary to avoid life-threatening complications. Complications that can occur in erythroderma patients are heart failure, respiratory infections (pneumonia), Acute Respiratory Distress Syndrome (ARDS), and sepsis.

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