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(CASE REPORT)

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Case Report, A 74-year-old female with cellulitis ET causa abscess (Cruris, Dorsum, And Tarsal) dextra

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Abstract

Cellulitis is an inflammation of the subcutaneous tissue often caused by infection with *Staphylococcus aureus* and *Streptococcus* bacteria A 74-year-old woman with complaints of pain and swelling of the right leg, accompanied by weakness and rapid breathing (Kussmaul), was diagnosed with cellulitis cruris, dorsum, and tarsal dextra. The patient had a history of uncontrolled type 2 diabetes mellitus, as well as complications such as acute kidney injury and hypokalemia. Physical examination showed edema, redness, tenderness, and warmth in the affected area. Laboratory examination indicated severe infection, iron deficiency anemia, and kidney damage. Management included debridement to remove necrotic tissue, combined antibiotic therapy (ampicillin and metronidazole) and postoperative care. This report highlights the association of diabetes mellitus with increased risk and severity of cellulitis, and the importance of a collaborative approach in managing comorbidities.

The patient underwent debridement to remove dead tissue, followed by post-operative care and combination antibiotic therapy (ampicillin and metronidazole). Results showed significant clinical improvement after 5 days of treatment. This case emphasizes the importance of early treatment and multidisciplinary collaboration to prevent serious complications in patients with comorbidities such as diabetes mellitus.

Keywords: Cellulitis; Diabetes mellitus; Debridement; Antibiotic therapy

1. Introduction

Cellulitis is an inflammation of the subcutaneous tissue where the inflammatory process, caused by bacteria S.aurcus and Streptococcus bacteria. Cellulitis causes redness or inflammation of the extremities as well as the face, the skin becomes swollen, slippery and painful and hot. Other symptoms are fever, feeling unwell, stiffness may occur. If the patient is suffering from cellulitis, treatment should be done to reduce pain and shrink the swelling so that the spread of infection to the blood and other organs can be prevented. cellulitis is a serious disease that can become an ulcer with severe infection so that surgery must be done. (Mitaart and Pandaleke, 2014)

Cellulitis most commonly affects the age group above 45 years. Cellulitis is one of the most common diseases in practice, ranking 18th in the *Global DALYs Disease Burden Ranking*, and the 4th leading cause of disability globally. The number of cellulitis cases in the United States is estimated at 14 million cases per year. Data in the UK shows there were 75,838 cases of cellulitis requiring hospitalization in 2014-2015. In addition, cellulitis accounted for 3% of cases in Regional General Hospitals in the UK. (Novarina and Sawitri, 2020)

Cellulitis occurs when bacteria enter the skin through exposed skin. The two bacteria that most commonly cause this infection are streptococcus and staphylococcus. The most common location it occurs is in the legs, specifically in the

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skin of the shin and instep areas. As it tends to spread through the lymphatic flow and bloodstream, if not treated promptly, cellulitis can become serious. Pathogenic bacteria that penetrate the outer layer cause infection on the skin surface or cause inflammation, infectious diseases often occur in obese, malnourished, elderly or senile people and in people with diabetes whose treatment is inadequate. The clinical picture is localized erythema on the skin and venous and lymphatic systems on both upper and lower extremities. On examination, characteristic warm redness, tenderness, fever and bacteremia are found. (Ezra, Sofyan and Setyawati, 2022) Uncomplicated cellulitis is most often caused by group A streptococci, other sterptococci or staphylococci aureus, unless the associated wound develops bacteremia, a definite microbial etiology is difficult to determine, for localized abscesses that have symptoms as lesions culture of pus or aspirated material is required. (Isselbacher, 2009)

To diagnose cellulitis can be generated from anamnesis, namely regarding the symptoms experienced, a history of recurrent cellulitis in the past, a history of comorbidities, and risk factors that may be a precursor to cellulitis, from a physical examination, namely the skin rash appears suddenly and has a firm boundary, supporting examination with laboratory tests, microbiological examinations, imaging and histopathological examinations. (Anggriani *et al.* , 2015)

2. Case

A 74-year-old woman came to Sukoharjo Ir Sukarno Hospital with complaints of pain and swelling of the right leg, weakness, rapid breathing (kusmaul), the patient had never experienced anything similar before, hypertension was denied and diabetes mellitus was recognized, the patient worked as a housewife every day. From the general examination of the patient, the patients consciousness was compos mentis, vital signs were stable, the nutritional status of the body mass index was 20 kg / m^2, the head, neck, thorax, abdomen and upper extremities for (inpection, palpation, auscultation and percussion) were within normal limits, on the right lower extremity, there was edema, extremetic weakness, deformation and swelling. From the localized status of the patient, it can be seen that the right leg is edematous, swollen in the crural, dorsum and tarsal region, reddish and whitish skin color appears in the crural, dorsum and tarsal region. Pressive pain (+), warm (+), in the crural, dorsum and tarsal regions.

2.1. Laboratosirum examination results

Table 1 Hematology laboratory examination results

Type	Results	Unit	Reference Value
Hematology			
Leukocytes	19.4	103/µl	3.8 - 10,6
Erythrocytes	4.51	million/µl	4,40 - 5,90
Hemoglobin	9.0	g/dL	13,2 - 17,3
Hematocrit	30.6	%	40 - 50
MCV	67.8	Fl	80 - 100
MCH	20.0	Pg	26 - 35
MCHC	29.4	g/dL	32 - 37
Platelets	361	10^3/µl	150 - 450
Clinical Chemistry			
GDS	100	mg/dL	70 - 120
Ureum	112.5	mg/dL	0 - 31
Creatinine	1.44	mg/dL	0.60 - 1.10
SGPT	21.44	U/L	0-35
SGOT	16.2	U/L	0-35

Laboratory tests showed infection, iron deficiency enemia and kidney damage.

From the results of anamnesis, physical examination and supporting examination, the patient was diagnosed with cellulits cruris, dorsum and tarsal pedis dextra with type 2 diabetes mellitus, acute kidney injury and hypokalemia. For the patient, debridement was performed to remove dead tissue and postoperative care was carried out for 5 days with daily medication. The patient was given ampicilin injection 1 gram every 8 hours, metronidazole drip 500 ml every 8 hours, antalgin injection gram every 8 hours, omeprazole injection 40 milligrams every 8 hours.

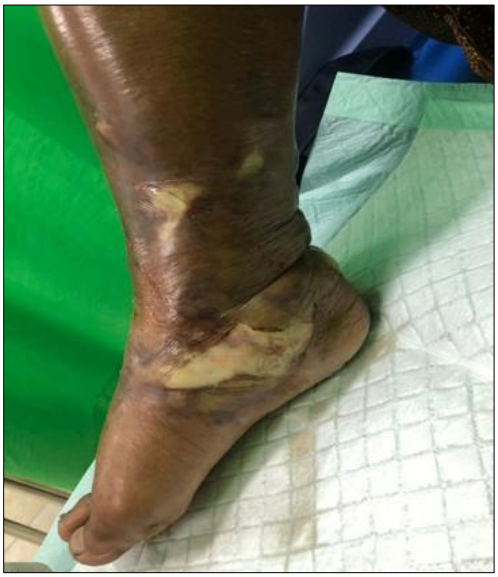

Figure 1 The patient's condition when he first arrived

Figure 2 The state of the patient's foot during debridement

3. Discussion

In this case, a 74-year-old woman came to the Sukoharjo Ir Sukarno Hospital with complaints of pain and swelling of the right leg, weakness, rapid breathing (kusmaul), from the results of the history of the disease now the patient is known to be swollen on the right leg and there is pain and difficulty moving on the right leg, previously the patient claimed never experienced anything similar, the patient was suspected of having an infection in the right leg and was diagnosed with cellulitis et causa abscess dextra. (Maharani and Santoso, 2021)

Cellulitis is an inflammation of the subcutaneous tissue where the inflammatory process, caused by bacteria S.aurcus and Streptococcus bacteria. Cellulitis causes redness or inflammation of the extremities as well as the face, the skin becomes swollen, slippery and painful and hot. Other symptoms are fever, feeling unwell, stiffness may occur. Cellulitis is classified into 3 namely: Acute serous circumferential cellulitis Cellulitis that is limited to a specific area, namely one or two fascial spaces, which have no clear boundaries. The bacterial infection contains serous, very soft and spongy

consistency; Acute suppurative envelope cellulitis The process is almost the same as acute serous envelope cellulitis, only the bacterial infection also contains purulent suppuration; and Acute diffuse cellulitis In this cellulitis, the most commonly encountered is Phlegmone / Ludwig's Angina. (Isselbacher, 2009)

In the anamnesis, the patient admitted that his leg was punctured by a foreign object before and left without being treated or cleaned, this is in accordance with the occurrence of cellulitis where cellulitis can occur due to an infection caused by a foreign object which causes the development of anaerobic bacteria causing a rapidly spreading infection, in addition to stab trauma the patient also has a history of diabetes mellitus which is a comorbid of cellulitis. (Anggriani *et al.*, 2015)

Diabetes Mellitus that is not managed properly can cause complications in the form of microangiopathy and macroangiopathy. One of the complications of microangiopathy is diabetic neuropathy on the feet, namely cellulitis. Cellulitis is usually caused by Streptococcus aureus and Streptococcus pyogenes bacteria. (Maharani and Santoso, 2021)

Based on the age of the patient based on the epidemiology of cellulitis most often over the age of 45 years and cellulitis is ranked 18th in the *Global DALYs Disease Burden Ranking*, and is ranked 4th leading cause of disability globally. (Widinartasari, Sodiq and Sofro, 2017)

From a pathophysiological point of view with patients from the cause and location of the most frequent occurrence of cellulitis it is in the foot area, especially in the skin of the shin area and the back of the foot. Because it tends to spread through the lymphatic flow and bloodstream, if not treated immediately. Pathogenic bacteria that penetrate the outer layer cause infection of the skin surface or cause inflammation, infectious diseases often occur in obese, malnourished people, and in diabetes mellitus whose treatment is inadequate. Clinical features are localized erythema of the skin and the venous and lymphatic systems of both upper and lower extremities. On examination, characteristic warm redness, tenderness, fever and bacteremia are found. Uncomplicated cellulitis is most often caused by group A streptococci, other sterptococci or staphylococci aureus, unless the associated wound develops bacteremia, a definite microbial etiology is difficult to determine, for localized abscesses that have symptoms as pus culture lesions or aspirated material is required. (Lay Ze, 2019)

Anamnesis in the patient in the form of questions about the symptoms experienced by the patient there are factors that accompany this cellulitis disease, namely diabetes mellitus, where diabetes mellitus is a comorbid in cellulitis disease, and from the results of the physical examination of the blood of the cruris pedis dextra obtained the skin looks red, swollen, From the results of the supporting examination from the laboratory, it appears that the leukocytes are increasing, indicating an ongoing infection and from the results of the elevated ureum creatinine examination, indicating an infection in the muscles, such as in bacterial myositis and necrotic infection.(Ezra, Sofyan and Setyawati, 2022)

The management of cellulitis depends on the severity of the cellulitis itself. The management of cellulitis is divided into non-surgical therapy and surgical therapy. The specific choice of treatment depends on the patient's age, severity symptoms, and comorbidities. Pharmacological therapy is divided into three, namely seen from the degree of severity, there are mild, moderate and severe degrees, which in this patient is given a combination drug for gram-positive and gram-negative bacteria which is combined with anaerobic bacteria, namely a combination of ampicilin and metronidazole, from several research results show that the combination of ampicilin and metronidazole is a combination for treating cellulitis. In addition to the treatment of infections caused by cellulitis, the surgical department collaborates with the internal medicine department to treat diabetes mellitus, acute kidney injury and hypokalemia so that the comorbidities of cellulitis can be resolved. (Julaeha and Farisma, 2022)

4. Conclusion

Treatment of patients with cellulitis cruris, dorsum, and tarsal dextra with a history of type 2 diabetes mellitus showed significant clinical results through a combination of antibiotic therapy and debridement, followed by structured postoperative care. Multidisciplinary management involving various medical expertise is the key to success in minimizing serious complications and improving patient quality of life. This study highlights the importance of early treatment, interdisciplinary collaboration, and community education about infection prevention in patients with comorbidities to reduce the risk and severity of future disease.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

This study has obtained ethical approval from the Health Research Ethics Committee of the Faculty of Medicine, Universitas Muhammadiyah Surakarta. All procedures in this study were conducted in accordance with research ethics guidelines, including the Declaration of Helsinki and relevant international standards.

Before starting the study, each participant was given complete information about the purpose, benefits, risks, and procedures of the study. Participants gave written consent through informed consent, and their rights as research subjects were guaranteed, including the right to withdraw from the study at any time without any consequences. The data collected were kept confidential and used only for research purposes.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study. Prior to participation, each participant was given a detailed explanation of the purpose, procedures, benefits, and potential risks associated with the study. All participants were given the opportunity to ask questions and receive clear answers before agreeing to participate.

In addition, participation in the study was voluntary, and participants were given the right to withdraw their consent at any time without negative consequences. The study ensured full protection of the confidentiality of participants' personal data, in accordance with applicable research ethics guidelines.

References

[1] Anggriani, Y. et al. (2015) 'Clinical Outcomes of Antibiotic Use in Patients with Diabetic Foot Infections', Journal of Pharmaceutical & Clinical Sciences, 1(2), p. 111. doi:10.29208/jsfk.2015.1.2.27.

[2] Ezra, D., Sofyan, A. and Setyawati, T. (2022) 'Cellulitis in the Anterior Tibia and Posterior Sinistra Region', Healthy Tadulako Journal, 8(2), pp. 132-137.

[3] Isselbacher, K. (2009) 'Harrison's Principles of Internal Medicine: (Harrison's Principles of Internal Medicine', Harrison, Volume 1.

[4] Julaeha, J. and Farisma, N. (2022) 'Case report of cellulitis pedis in type 2 diabetes mellitus with antibiotic and insulin therapy', Journal Borneo, 2(1), pp. 20-25. doi:10.57174/jborn.v2i1.18.

[5] Lay Ze, E. (2019) 'Hidden Germ of the Immunocompromised: A Case of Fungal Orbital Cellulitis', Medicine & Health, 14(2), pp. 266-270. doi:10.17576/mh.2019.1402.25.

[6] Maharani, I. and Santoso, D. (2021) 'Chronic pansinusitis complicated by cerebral abscess and preseptal cellulitis: a case report', Intisari Sains Medis, 12(2), pp. 477-482. doi:10.15562/ism.v12i2.1014.

[7] Mitaart, A.F. and Pandaleke, H.E.J. (2014) 'Cellulitis with Varicosum Ulcer', Journal of Biomedicine (Jbm), 6(1), pp. 60-64. doi:10.35790/jbm.6.1.2014.4165.

[8] Novarina, R.M. and Sawitri (2020) 'The Profile of Erysipelas and Cellulitis Patients', Current Clinical Neurology, pp. 321-342.

[9] Widinartasari, F.A.D.M., Sodiq, M.A. and Sofro, M.A.U. (2017) '30-year-old woman with sepsis, skin and soft tissue infection, and obesity', Indonesian Journal of Internal Medicine, 4(2), p. 91. doi:10.7454/jpdi.v4i2.119.