

Erysipelas

Erysipelas is an acute, superficial bacterial infection of the skin and subcutaneous tissues, typically affecting areas such as the face, ears, and lower legs. It is distinguished by its well-demarcated borders, with the affected skin appearing erythematous, swollen, warm, and painful. In addition to local symptoms, erysipelas may present with systemic manifestations including fever, chills, headache, muscle pain, and malaise.

Pathophysiology and Etiology

Erysipelas is most commonly caused by Group A Streptococcus (*Streptococcus pyogenes*), a Gram-positive bacterium that can invade the skin through broken or compromised areas, such as cuts, scrapes, or operating wounds. Although *Streptococcus pyogenes* is the primary etiologic agent in adults, *Haemophilus influenzae* has been identified as the predominant pathogen in children, particularly those under 3 years old. The infection results from bacterial colonization of the superficial dermis, leading to inflammation and immune responses that produce the characteristic erythema and swelling.

In some cases, predisposing factors, such as diabetes mellitus, chronic venous insufficiency, immune compromise, or lymphatic obstruction, increase susceptibility to the infection by compromising the integrity of the skin or immune defenses. Importantly, erysipelas is often associated with rapid progression and may involve systemic inflammation, presenting as fever, chills, and other constitutional symptoms.

Clinical Presentation

The onset of erysipelas is often sudden, with affected individuals experiencing high fever, chills, malaise, and generalized weakness. These systemic symptoms are frequently followed by the appearance of a well-demarcated erythematous plaque on the skin, typically located near a site of injury, such as an abrasion or wound. The lesion becomes shiny, raised, and painful, often with a characteristic sharp margin distinguishing it from the surrounding healthy skin. Over the subsequent 24 to 48 hours, the affected area may expand, and lymphatic involvement (e.g., regional lymphadenopathy) can be observed, further indicating systemic involvement.

While erysipelas commonly affects the lower limbs, it can also involve the face, particularly around the nostrils and eyes, or the ears. The infection may result in blistering, or in more severe cases, necrosis of the affected tissue. If left untreated, erysipelas can lead to complications such as sepsis, abscess formation, and deep tissue involvement.

Diagnosis

Diagnosis of erysipelas is primarily clinical, with dermatologists typically able to identify the infection based on the patient's presentation. The classic findings of erythematous, well-demarcated plaques with accompanying systemic symptoms often allow for prompt diagnosis. In uncertain cases or when the diagnosis is in doubt, additional diagnostic tests may be warranted. These may include:

- **Bacterial culture:** Skin cultures can help identify the causative organism and guide appropriate antibiotic therapy. However, cultures are often negative in cases where the infection is localized to the superficial layers of the skin.
- **Blood tests:** A white blood cell count may reveal leukocytosis, indicative of an ongoing infection. In severe cases, blood cultures can help detect bacteremia or confirm the presence of Group A Streptococcus in the bloodstream.

Although imaging is generally unnecessary, it may be used to rule out other conditions such as deep vein thrombosis or cellulitis.

Treatment Options

Erysipelas is treatable with antibiotics, and early intervention is crucial to prevent complications. The choice of treatment depends on the severity of the infection, the age of the patient, and any known antimicrobial resistance.

- **Antibiotic Therapy:**
 - *Adults:* The first-line treatment for erysipelas in adults is typically penicillinase-resistant penicillins, such as nafcillin or oxacillin, due to their efficacy against Group A Streptococcus. Alternatively, cephalosporins (e.g., cefazolin) may be used for patients who cannot tolerate penicillin or are allergic. For patients with penicillin allergies, erythromycin or clindamycin may be appropriate alternatives.
 - *Children:* In pediatric cases, particularly in those under 3 years old, the most effective initial treatment is intravenous ceftriaxone or cefazolin, both of which cover a broad spectrum of potential bacterial pathogens, including Haemophilus influenzae and Group A Streptococcus. Oral antibiotics, such as amoxicillin-clavulanate or cephalexin, can be used once the patient improves clinically.
- **Supportive Care:**
 - *Pain management:* Nonsteroidal anti-inflammatory drugs or acetaminophen may be used to reduce pain and fever.
 - *Elevation of the affected limb:* In patients with lower extremity involvement, elevating the leg can help reduce swelling.
 - *Wound care:* Proper care of any skin breaks or wounds should be emphasized to prevent secondary infections.

- **Management of Complications:** In severe or recurrent cases, additional management strategies may include:
- *Intravenous antibiotics:* For patients with severe erysipelas or systemic signs of infection, intravenous antibiotics may be required to achieve adequate tissue penetration and effective bacterial eradication.
 - *Surgical intervention:* In cases complicated by abscess formation or tissue necrosis, drainage or debridement may be necessary.

Prevention

Preventive measures focus primarily on reducing the risk of skin trauma and infection in at-risk individuals. People with a history of chronic venous insufficiency, lymphedema, or diabetes should take precautions to avoid cuts, abrasions, and other skin injuries. Proper wound care and the use of antiseptics can help minimize the risk of secondary infection.

For individuals with recurrent erysipelas, prophylactic antibiotics may be considered to reduce the risk of recurrence, particularly in those with significant underlying conditions such as lymphatic obstruction or chronic skin conditions.

Conclusion

Erysipelas is a skin infection characterized by acute inflammation and erythema, most commonly caused by Group A Streptococcus. Early diagnosis and appropriate antibiotic treatment are critical in managing the infection and preventing complications. With prompt treatment, most patients experience full recovery, although careful management of predisposing conditions and skin care is essential to minimize recurrence.

References

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