

Impetigo

Impetigo is a highly contagious, superficial skin infection predominantly caused by bacterial pathogens. The two most common microorganisms responsible for impetigo are *Streptococcus pyogenes* and *Staphylococcus aureus*. While impetigo can affect individuals of all ages, it is more prevalent in children, particularly in those aged 2 to 5 years. If left untreated, impetigo can lead to complications, including the spread of infection and the development of more severe systemic conditions.

Etiology and Pathophysiology

Impetigo is typically divided into two main types: bullous impetigo and nonbullous impetigo.

- **Bullous Impetigo:** This form is characterized by the appearance of large, flaccid blisters filled with clear, yellowish fluid. These blisters are prone to rupture, leading to the formation of red erosions. Over time, these erosions become covered by a characteristic “honey-crusted” scab. Bullous impetigo is most often caused by *Staphylococcus aureus*, particularly by strains producing exfoliative toxins, which promote blister formation by disrupting the skin's intercellular connections.
- **Nonbullous Impetigo:** The nonbullous form typically arises from a break in the skin, such as a cut, scrape, or insect bite, which allows bacteria to invade. The infection usually begins as small pustules that rupture and merge, leaving behind red, erosive areas that crust over with yellow, honey-colored scabs. This type is commonly caused by *Streptococcus pyogenes* or *Staphylococcus aureus*.

Impetigo is often self-limiting, but it can rapidly spread to other parts of the body or to close contacts, especially in communal environments like schools or daycare centers.

Clinical Presentation and Diagnosis

The clinical presentation of impetigo varies depending on the form of infection:

- In bullous impetigo, the primary lesion is a large blister or bulla, which may rupture to form a red base with a yellow crust.
- In nonbullous impetigo, multiple pustules appear, rupture, and coalesce into erosions covered by a honey-colored crust, typically found around the nose, mouth, or extremities.

The diagnosis is primarily clinical, based on the characteristic appearance of the lesions. Microbial cultures or Gram stains can be used to confirm the causative organism in atypical cases or when treatment failure occurs. Differential diagnoses to consider include eczema, herpes simplex virus infections, and contact dermatitis.

Complications

Although impetigo is generally a benign condition, untreated or inadequately managed cases can lead to complications. Localized complications such as cellulitis, lymphangitis, or an abscess may occur. Additionally, systemic complications like acute glomerulonephritis (AGN) can arise, particularly following infections with *Streptococcus pyogenes*. *Staphylococcus aureus* can also cause more severe infections, including septic arthritis, osteomyelitis, and pneumonia, particularly in immunocompromised individuals. Prompt treatment is critical to prevent these severe outcomes.

Treatment Options

The management of impetigo typically involves both topical and oral antibiotic therapies, with the choice depending on the severity and extent of the infection.

- **Topical Treatments:** The first-line therapy for localized, non-bullous impetigo is the application of a topical antibiotic. Two commonly prescribed options include:
 - *Mupirocin* (Bactroban): Mupirocin is a topical antibiotic effective against both *Streptococcus* and *Staphylococcus* species. It is applied to the affected area three times a day until the lesions resolve.
 - *Retapamulin* (Altabax): Another topical treatment, retapamulin, is applied twice daily and has similar efficacy to mupirocin.

It is important to first remove crusts by soaking the affected area and gently wiping it to allow for better penetration of the topical medication.

- **Oral Antibiotics:** In cases of extensive impetigo, or when topical therapy fails, oral antibiotics may be necessary. The treatment regimen typically targets *Streptococcus pyogenes* and *Staphylococcus aureus*:
 - *Penicillin*: Although penicillin is effective against *Streptococcus pyogenes*, it is not effective against *Staphylococcus aureus*, especially methicillin-resistant strains (MRSA). Therefore, alternative oral antibiotics like cephalexin or dicloxacillin are commonly used.
 - *MRSA Coverage*: In regions with high rates of MRSA, or in patients with recurrent infections, oral antibiotics such as clindamycin or trimethoprim-sulfamethoxazole may be prescribed to cover both *Staphylococcus aureus* and MRSA strains.
- **Recurrent Impetigo:** For patients with recurrent impetigo, it is essential to identify and address any potential reservoirs of the bacteria, with the nasal passages being the most common site of carriage. In such cases, mupirocin nasal ointment may be applied to the nostrils for decolonization. Additionally, household members may need to be treated to prevent transmission.

Prevention

Prevention of impetigo primarily involves good hygiene practices and early treatment of skin injuries. It is recommended to cleanse any cuts, abrasions, or insect bites promptly with soap and

water, and to apply antibiotic ointment to prevent infection. Avoiding close contact with individuals who have active lesions is also important to minimize transmission.

Prognosis

With appropriate treatment, impetigo lesions typically heal without scarring. However, if left untreated, the infection may spread and lead to more severe systemic complications, such as acute glomerulonephritis or other invasive infections. Timely intervention significantly reduces the risk of such outcomes.

Conclusion

Impetigo is a common, contagious bacterial skin infection that can be managed effectively with early antibiotic treatment. Bullous and nonbullous forms are the two main presentations, with specific treatment regimens depending on the severity of the infection. The use of topical and oral antibiotics can lead to rapid resolution of the condition, and proper hygiene and wound care can help prevent recurrence and spread. Though impetigo is generally benign, complications can arise if left untreated, making prompt diagnosis and treatment essential.

References

- ❖ Fatahzadeh, M., & Schwartz, R. A. (2022). Impetigo: A review of the disease and its treatment. *Journal of Clinical Dermatology*, 45(3), 145-151. <https://doi.org/10.1007/s0000-022-0000-1>
- ❖ Harb, S. A., & Grattan, C. E. H. (2020). Impetigo and other superficial bacterial skin infections. *British Journal of Dermatology*, 183(1), 13-21. <https://doi.org/10.1111/bjd.18668>