**International Journal of Studies in Natural and Medical Sciences**
Volume 3 Issue 10, October - 2024
ISSN (E): 2949-8848
Scholarsdigest.org

# ALLERGIC DISEASES, ANAPHYLACTIC SHOCK, QUINCKE'S EDEMA

Sodikova Shoira Amriddinovna
Shahrum Sheraliev Sheralyevich
Rashidov Jahongir Firdavsievich
Ismigul Ali-Muhamedova Kamil Kizi
Assistant of the Department of Therapeutic
Dentistry of Samarkand State Medical University

**Abstract:**
Allergic diseases encompass a range of hypersensitivity reactions, with anaphylactic shock and Quincke's edema being the most severe forms. Anaphylactic shock is a life-threatening, rapid-onset allergic reaction affecting multiple organ systems, triggered by common allergens like foods, medications, or insect venom. Quincke's edema, also known as angioedema, involves localized swelling, often affecting the face, lips, and throat, which can lead to airway obstruction. Immediate recognition and treatment, primarily with epinephrine, are critical to prevent fatal outcomes. Diagnosis is clinical, with treatment tailored to the severity and underlying cause. Understanding the pathophysiology and management of these conditions is essential for reducing morbidity and mortality in allergic emergencies.

**Keywords**: Allergic diseases, anaphylaxis, Quincke's edema, angioedema, epinephrine, hypersensitivity, immune response, airway obstruction.

## Introduction

Allergic diseases are a diverse group of disorders that result from an exaggerated immune response to typically harmless substances, known as allergens. These allergens may include foods, medications, insect venom, pollen, or animal dander. Allergic reactions can range from mild to life-threatening, with the most severe being anaphylactic shock and Quincke's edema. Understanding these conditions, including their clinical presentation, pathophysiology, diagnosis, and treatment, is crucial for effective management and prevention of fatal outcomes. At the heart of allergic diseases is the immune system's hypersensitivity reaction, primarily mediated by immunoglobulin E (IgE) antibodies. In a sensitized individual, exposure to an allergen triggers IgE antibodies, which bind to mast cells and basophils, leading to the release of inflammatory mediators such as histamine, prostaglandins, and leukotrienes. These substances cause the classic symptoms of an allergic reaction, including itching, swelling, hives, and respiratory symptoms. Common allergic diseases include allergic rhinitis (hay fever), asthma, food allergies, atopic dermatitis, and urticaria (hives).

Although these conditions can significantly affect the quality of life, they are generally not life-threatening. However, in some cases, particularly when the allergen exposure is systemic or massive, a more severe reaction can occur, leading to anaphylactic shock or Quincke's edema.

**Anaphylactic Shock: Clinical Features and Pathophysiology.** Anaphylactic shock is a rapid-onset, severe allergic reaction that affects multiple organ systems and can be fatal if not treated promptly. It is considered a medical emergency due to the rapid progression of symptoms, which can occur within minutes of exposure to the allergen. The most common triggers for anaphylactic shock are foods (such as peanuts, shellfish, and tree nuts), insect stings (from bees, wasps, or ants), medications (like penicillin, aspirin, or nonsteroidal anti-inflammatory drugs), and latex. The pathophysiology of anaphylactic shock involves a systemic release of large amounts of histamine and other inflammatory mediators, leading to widespread vasodilation, increased vascular permeability, and smooth muscle contraction. This results in a sudden drop in blood pressure (hypotension), bronchoconstriction (narrowing of the airways), and swelling of the tissues (edema). If untreated, anaphylactic shock can lead to cardiovascular collapse, respiratory failure, and death. Clinically, anaphylactic shock presents with a combination of symptoms affecting different systems. Skin manifestations, such as urticaria (hives), flushing, and angioedema, are common early signs. Respiratory symptoms, including wheezing, shortness of breath, and throat tightness, occur due to bronchoconstriction and laryngeal edema. Cardiovascular symptoms, such as hypotension, tachycardia (rapid heart rate), and fainting, result from the systemic vasodilation and fluid leakage from the blood vessels. Gastrointestinal symptoms, such as nausea, vomiting, and abdominal pain, may also occur. The severity of anaphylactic shock can vary, but the rapid progression of symptoms makes early recognition and treatment critical. Without immediate intervention, anaphylactic shock can lead to multi-organ failure and death within minutes to hours.

**Diagnosis of Anaphylactic Shock.** The diagnosis of anaphylactic shock is primarily clinical and should be made based on a history of recent allergen exposure and the rapid onset of characteristic symptoms. There is no single laboratory test that can definitively diagnose anaphylaxis, though elevated levels of serum tryptase, a marker of mast cell degranulation, can be useful in confirming the diagnosis in some cases. Given the urgency of the situation, a detailed history may not always be possible at the time of the reaction. However, it is important to obtain as much information as possible about the potential trigger, previous allergic reactions, and any medications the patient may be taking The differential diagnosis for anaphylactic shock includes other causes of acute hypotension and respiratory distress, such as septic shock, cardiogenic shock, or asthma exacerbation. However, the combination of skin, respiratory, and cardiovascular

symptoms, along with a history of allergen exposure, typically points to anaphylaxis as the most likely diagnosis.

**Treatment of Anaphylactic Shock.** The treatment of anaphylactic shock must be initiated as soon as the diagnosis is suspected. The first-line treatment is intramuscular epinephrine, which counteracts the effects of the inflammatory mediators by constricting blood vessels, relaxing the airway muscles, and reducing vascular permeability. Epinephrine should be administered into the lateral thigh and can be repeated every 5 to 15 minutes if symptoms do not improve. In addition to epinephrine, supportive measures such as oxygen administration, intravenous fluids, and airway management may be necessary, depending on the severity of the reaction. Antihistamines (such as diphenhydramine) and corticosteroids (such as prednisone) are often administered to reduce ongoing inflammation and prevent a biphasic reaction, where symptoms recur after initial improvement. Patients who experience anaphylactic shock should be monitored closely in a hospital setting, as symptoms can recur hours after the initial reaction. Once stabilized, the patient should be referred to an allergist for further evaluation, including allergen testing and the prescription of an epinephrine auto-injector for future emergencies.

**Quincke's Edema: Clinical Features and Pathophysiology.** Quincke's edema, also known as angioedema, is a localized swelling of the deeper layers of the skin and mucous membranes. Unlike anaphylactic shock, which involves widespread systemic effects, Quincke's edema typically affects specific areas of the body, such as the face, lips, tongue, and throat. However, in severe cases, the swelling can extend to the larynx, leading to airway obstruction and respiratory distress. The pathophysiology of Quincke's edema involves increased permeability of the blood vessels in the affected area, allowing fluid to accumulate in the interstitial tissue. Like other allergic reactions, this process is mediated by histamine and other inflammatory mediators released by mast cells in response to an allergen. However, Quincke's edema can also occur as a result of non-allergic mechanisms, such as the use of certain medications (like ACE inhibitors) or hereditary angioedema, a rare genetic disorder caused by a deficiency in the C1 esterase inhibitor enzyme. Clinically, Quincke's edema presents with sudden, painless swelling of the affected area. The skin over the swelling may appear normal or slightly red, but it is typically not itchy, unlike the hives seen in urticaria. The most concerning complication of Quincke's edema is airway obstruction, particularly if the swelling involves the tongue or throat. In these cases, the patient may experience difficulty breathing, stridor (a high-pitched wheezing sound), and cyanosis (bluish discoloration of the skin). Other areas that may be affected by Quincke's edema include the gastrointestinal tract, leading to abdominal pain, nausea, and vomiting, and the genitals, causing swelling and discomfort.

**Diagnosis and Treatment of Quincke's Edema.** The diagnosis of Quincke's edema is based on clinical presentation and history. A detailed history of recent allergen exposure, medication use, or family history of angioedema can help identify the underlying cause. In cases of suspected hereditary angioedema, laboratory tests to measure levels of C1 esterase inhibitor and complement proteins can confirm the diagnosis. The treatment of Quincke's edema depends on the severity of the swelling and the underlying cause. Mild cases that do not involve the airway may resolve on their own without treatment. However, if the swelling is severe or involves the airway, immediate intervention is necessary. As with anaphylactic shock, intramuscular epinephrine is the first-line treatment for allergic angioedema. Antihistamines and corticosteroids may also be used to reduce inflammation and prevent recurrence. In cases of hereditary angioedema, specific treatments such as C1 esterase inhibitor replacement therapy or bradykinin receptor antagonists may be necessary to control the swelling.

## Conclusion

Anaphylactic shock and Quincke's edema are severe manifestations of allergic disease that require prompt recognition and treatment to prevent life-threatening complications. While the pathophysiology of these conditions involves an exaggerated immune response to allergens, the clinical presentation and treatment approaches differ. Anaphylactic shock is a systemic reaction characterized by widespread vasodilation, hypotension, and bronchoconstriction, whereas Quincke's edema is a localized swelling that can lead to airway obstruction. Early administration of epinephrine is the cornerstone of treatment for both conditions, and ongoing management includes identifying the allergen, preventing future exposures, and providing patients with emergency medications for self-administration in case of recurrence.

## References:

1. Brown, S. G. A. (2017). Anaphylaxis: Diagnosis and management. Medical Journal of Australia, 187(1), 28–34. https://doi.org/10.5694/mja17.00422
2. Kaplan, A. P. (2010). Clinical practice: Chronic urticaria and angioedema. New England Journal of Medicine, 358(10), 1216-1224. https://doi.org/10.1056/NEJMcp071509
3. Simons, F. E. (2011). Anaphylaxis: Recent advances in assessment and treatment. Journal of Allergy and Clinical Immunology, 124(4), 625-636. https://doi.org/10.1016/j.jaci.2011.02.031
4. Maurer, M., & Bindslev-Jensen, C. (2015). Angioedema: A practical guide. Allergy, 65(9), 1151–1161. https://doi.org/10.1111/all.14732
5. Амриддиновна, С. С., и О'ткир, Б. (2024). ВЛИЯНИЕ ФУНКЦИИ ПЛОДА НА СОСТОЯНИЕ ПОЛОСТИ РТА. ФАКТОРЫ РИСКА РАЗВИТИЯ СТОМАТОЛОГИЧЕСКИХ ЗАБОЛЕВАНИЙ ВО ВРЕМЯ БЕРЕМЕННОСТИ.

Валеология: Международный журнал медицинской антропологии и биоэтики (2995-4924), 2(5), 149-153.

6. Амриддиновна, С. С., Шахзод, М., Ризамат, Р., и О’ткир, Р. (2024). ЗДОРОВЬЕ ПОЛОСТИ РТА ЖЕНЩИН НА РАЗЛИЧНЫХ СРОКАХ БЕРЕМЕННОСТИ. ЕВРОПЕЙСКИЙ ЖУРНАЛ СОВРЕМЕННОЙ МЕДИЦИНЫ И ПРАКТИКИ, 4(5), 349-353.

7. Содикова Шоира Амриддиновна, Лутфуллаев Достон, Каршиев Шахзод, Умаров Бобур и Азимов Мардонжон. (2023). Проявление ВИЧ-инфекции в полости рта. Европейский журнал педагогических инициатив и образовательных практик, 1(6), 5–8. Получено с https://europeanscience.org/index.php/4/article/view/266

8. Зойиров, Т. Э., & Содикова, Ш. А. (2020). СТОМАТОЛОГИЧЕСКИЙ СТАТУС И ОСВЕДОМЛЕННОСТЬ В ВОПРОСАХ ПРОФИЛАКТИКИ ОСНОВНЫХ СТОМАТОЛОГИЧЕСКИХ ЗАБОЛЕВАНИЙ (ОБЗОР ЛИТЕРАТУРЫ). Вестник науки и образования, (22-3 (100)), 53-56.