

THE CIRCLE OF HEALTH: UNRAVELING SEASONAL AND COMMON AILMENTS

S.N V Lakshmi Harshini, T.Hema, S.Divya sri, M.Aswini, V.Pavithra

Dr.P. Aparna*, Professor, Department of Pharmaceutics.

NRI COLLEGE OF PHARMACY

ABSTRACT

Allergic reactions are common disorders that are strongly linked to seasonal changes or allergens that are present in the atmosphere which may cause certain health hazards to humans at various levels. This work, aims at discussing about various allergic disorders like Psoriasis, Urticaria, Athlete's foot, Ringworm, Common cold, Pneumonia, Dengue, Typhoid, along with their pharmacological manifestation and categorisation. These allergic reactions are commonly diagnosed by various tests, history of the patient, physical examination and different allergen testing. These help in identifying the root cause of allergic reaction and then the treatment procedure can be adopted. Some allergic reactions range from nominal to severe reactions depending on the exposure time and sensitivity of the person. These reactions can be easily cured with medicines or sometimes hospitalisation may be require depending on the severity of the reaction. In this study discussion about various seasonal reaction, as mentioned earlier and their physiology along with their manifestation is discussed.

KEY WORDS: Crumble, Torso, Glutes, Sac like blisters, Groin, Wane, Wheals, Leukopenia, Dicrotic pulse wave, Jock itch, Mycoses, Idiopathic, Puffy areas, Pruritic.

INTRODUCTION TO COMMON ALLERGIES

Allergies are also called as allergic diseases, and are caused by hypersensitivity of the immune systems. These diseases include hay fever, food allergies, atopic dermatitis, allergic asthma and anaphylaxis. The development of [something] is influenced by both genetic factors and environmental variables. The body's immune system's immunoglobulin E (IgE) antibodies link to an allergen and then to a receptor on mast cells or basophils, where they cause the production of inflammatory chemicals like histamine. Clemens von Parquet coined the term "allergy" in 1906.

For the treatment allergies are avoidance known allergens and the use of medications such as steroids and antihistamines. Contact dermatitis (or) eczema is a term used to describe allergic reactions that occur when a chemical comes into contact with the skin. Skin allergies frequently result in rashes or skin swelling, which is known as whale and flare reaction and typical of angioedema. With the insect stings, a significant local reaction may happen in the form of a 10cm -or-larger region of skin redness that can persist one to two days. This response could also happen following immunotherapy.

INTRODUCTION TO SEASONAL DISEASES

Seasonal diseases arise due to the change in the environmental conditions during different seasons. To avoid the seasonal diseases like monsoon, winter & summer diseases stay informed about its causes & symptoms to detect it at early. Seasonal change in the incidence of infectious diseases is a common phenomenon in both temperate & tropical climates. Skin infections represent a group of illness triggered by specific disease-causing agents. While some of these agents lead to localized skin infections with symptoms confined to the skin itself, others can trigger systemic infections where the skin symptoms are just one part of a broader infection affecting the entire body.

The interaction between the human body and these pathogens encompasses various aspects, including the regulation of stress responses, inflammatory reactions, genetic recombination, and the expression of cell receptors. Cutaneous infections can be categorized into four primary types: bacterial, fungi, viral, and parasitic. Among these categories, viral infections exhibit the closest association with epigenetics.



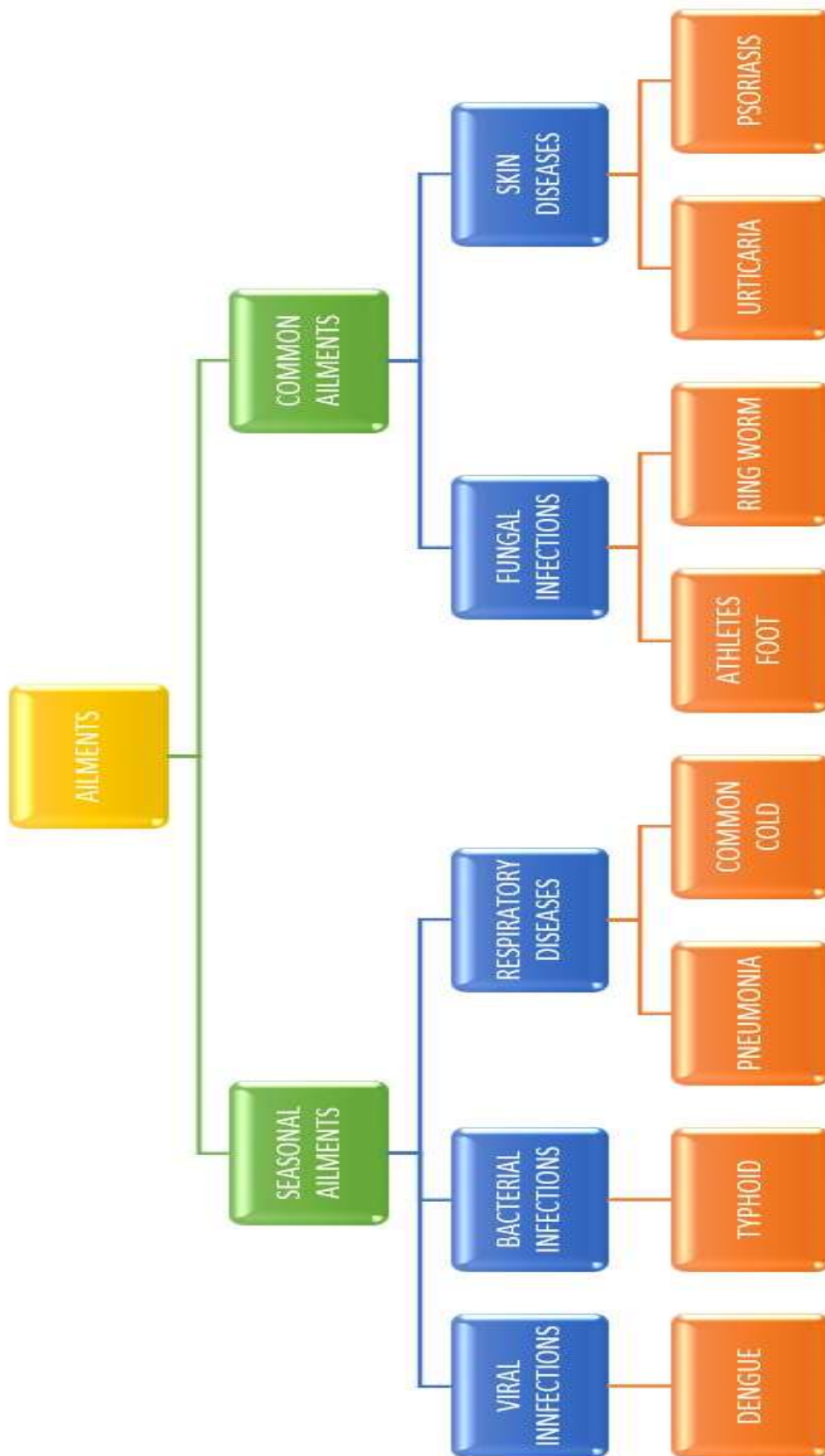


FIGURE 1: Classification of Ailments.

ENGINEERING RESEARCH

PSORIASIS

INTRODUCTION:

Psoriasis is a chronic disease of the skin, mainly affects to 1 in 50 people, which is about 1.3 million. Psoriasis is non- contagious, & it cannot be transmitted from one person to another. Typically, it manifests in the form of red, raised, crusty areas known as elevated formations(plaques). Plaques are most commonly seen on elbows, scalp, knees. In some conditions it may cause pain in the impacted region. Out of 40% ,2 may be affected by nail changes which include hollows & grooves on a surface.1 in 4 people with this psoriasis problem about 3,25,000 people are being suffering. This can cause inflammation and hardness and pain in the joints or stiffness in lower spine. Although common form of these is red, raised, scaly layers with many number of types of psoriasis.[1]

Psoriasis mainly includes in skin and nails, and associate with number of co existing features. Skin lesions are localised or generalised, mostly symmetrical, small red bumps and elevated formations and usually coated with pale and silvery flakes. Lesions cause itching, staining, and paining.[2] People with psoriasis may experience persistent, inflammatory arthritis which can result in joint deformities and reduced mobility. Psoriasis vulgaris also known as plaque psoriasis are most frequently encountered type which affects 85 -90 %

Individuals.[3][4]

TYPES OF PSORIASIS:

Several types of psoriasis are there in which they differ in its indications and manifestations.

- Plaque psoriasis
- Nail psoriasis
- Guttate psoriasis
- Inverse psoriasis
- Pustular psoriasis
- Erythrodermic psoriasis.[5]



FIGURE 2: Psoriasis on hands.

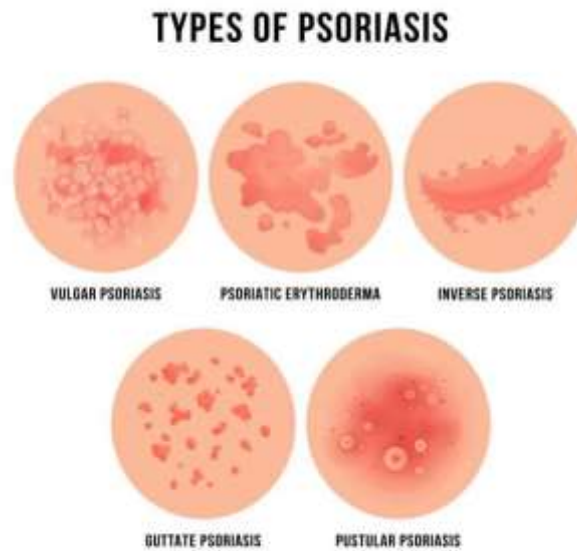


FIGURE 3: Types of Psoriasis.

PLAQUE PSORIASIS: This is the most frequent type which causes dry, pruritic, elevated dermis patches covered with flakes. There may be few or many. Generally, surface on the elbows, knees, lumbar region and top of the head. The patches fluctuate in colour, based on skin colour. The damaged skin could heal with short-term alterations in colour, especially on brown or dark skin.

NAIL PSORIASIS: Psoriasis has the potential to impact both finger nails and toe nails results in pitting leads to irregular nail growth and changes in colour. Psoriasis nails could become loose and detach from the nail bed. In severe cases, the condition may cause the nail to crumble.

GUTTATE PSORIASIS: Mainly impacts on individuals in their early adulthood and children. It commonly initiated by a bacterial infection like streptococcal pharyngitis. It is marked by tiny, tear drop shaped, marking on the torso, upper limbs and legs.

INVERSE PSORIASIS: Inverse psoriasis mainly impacts skin folds of the groin, glutes, bosom (breast). It results in smooth patches of irritated skin with more severe friction and sweating. Fungal infections may stimulate this type.

PUSTULAR PSORIASIS: It is a uncommon type which causes evidently defined pus filled sack like blisters. It can occur on localised region of the palms or bottoms of feet.

ERYTHRODERMIC PSORIASIS: This is the rarest form of psoriasis which can encompasses the whole body with a flaking skin rash that can burn intensely. It can be acute or chronic.[6][7]

URTICARIA

INTRODUCTION:

"Urticaria" is the medical term for hives. Hives are lifted or puffy areas of the skin that itch intensely. Hives are wide spread condition. Around 20 percent of citizens have hives at some time throughout their lives. Hives improve when there is a stimulus that starts immune cells in the skin known as mast cells. When activated, these cells emit natural chemicals. One most important chemical is histamine, which causes itching, redness, and swelling of the skin in an area: a hive. In most scenarios, hives appear unexpectedly and disappear within a few hours.

Hives generally respond well to therapy, which involves medicines and evading whatever provoked the hives. Severe Urticaria can be generated by allergic responses to foods, medicines, cosmetics, or soaps; infected conditions; insect bites, bites, or exposure; environmental factors; latex; undue cutaneous for Use, cold, or heat; psychological strain; and exercise, amongst other elements.[8]

Signs and symptoms:

Hives, or urticaria, is a type of skin rash with red, lifted, itchy lumps. They may also burn or puncture. Welts (raised areas surrounded by a red base) from hives can emerge anywhere on the outside of the skin. Whether the trigger is hypersensitive or not, a complicated release of inflammatory mediators, containing histamine from epidermal mast cells, effects in fluid leakage from external blood vessels. Hives may be pinpoint in size or various inches in diameter. Frequently the patches of rash change position.[9]

- ❖ Batches of welts (wheals) that can occur anywhere on the body
- ❖ Wheals that could be red, purple or skin-coloured, based on your skin type.
- ❖ Welts that differ in size, change structure, and appear and wane regularly Scratching (pruritus), which can be over whelming.
- ❖ Painful bloating (angioedema) nearby the eyes, cheeks or lips.
- ❖ Flares activated by heat, workouts or tension.
- ❖ Signs that continue for more than six weeks and repeat frequently and anytime.[10]



FIGURE 4: Different modes for formation of hives.

Types:**Acute vs Chronic:**

Urticaria impacts up to 20% of people of all ages, races, and genders. Hives can either be acute or chronic based on how extended they last. Acute hives last for lower than six weeks, in the course of chronic hives continue beyond six weeks.

Acute urticaria is more frequent in kids and young adults. The large number are idiopathic, sense that the cause is unknown. Acute hives lean to start and stop rapidly, frequently lasting a few hours and occasionally for more than a several days. If a cause is built, it is more often an infection, sting, or a drug or food hypersensitivity. Even drugs like aspirin, ibuprofen or certain painkillers can triggers Acute Urticaria. They generally affect the face, toes, fingers, neck and sometimes even men's genitals.[11]

Chronic urticaria is often unknown and can repeat over the course of months or years. In one 2013 study, out of 70% of human beings with long lasted hives had signs that lasted for more than a year, while 14% of them had signs for five or more years. In half of the conditions, no reason was found. Chronic wheals can trigger a person as they can be uncomfortable and humiliation and may also intervene with the person's hibernate and daily routine.[12]

FUNGAL DISEASES

INTRODUCTION:

Fungi are the pathogens that take advantage of favourable conditions, entering the body only when a significantly compromised immune system allows their invasion. Fungi thrive across a broad spectrum of temperatures, spanning from 25°C to 50°C and even higher. Some fungal species typically exhibit growth within more limited temperature. The primary influential factor on fungal growth is moisture. Fungal growth requires a relative humidity exceeding 70%, but it's the water activity of the substrate that truly serves as the critical factor. Fungi, which exhibit absorptive nutrition, are eukaryotic organisms existing in either single-celled or multi-celled forms. Fungal life cycles have been categorized into two main states: perfect (sexual) and imperfect (asexual), determined by the type of spores they produce. In modern terminology, these states are referred to as the teleomorph (sexual) and anamorph (asexual), collectively forming a holomorph.[13]

The term "conidium" is termed to describe as an externally generated asexual spore created by the anamorphic phase of filamentous fungi. Certain filamentous fungi mainly or solely generate conidia instead of sexual spores. Previously known as Fungi Imperfecti or deuteromycetes, these are now referred to as anamorphic fungi. In contrast to mammalian cells, fungi typically possess a sturdy cell wall made up of chitin components that envelops their plasma membrane.[14]

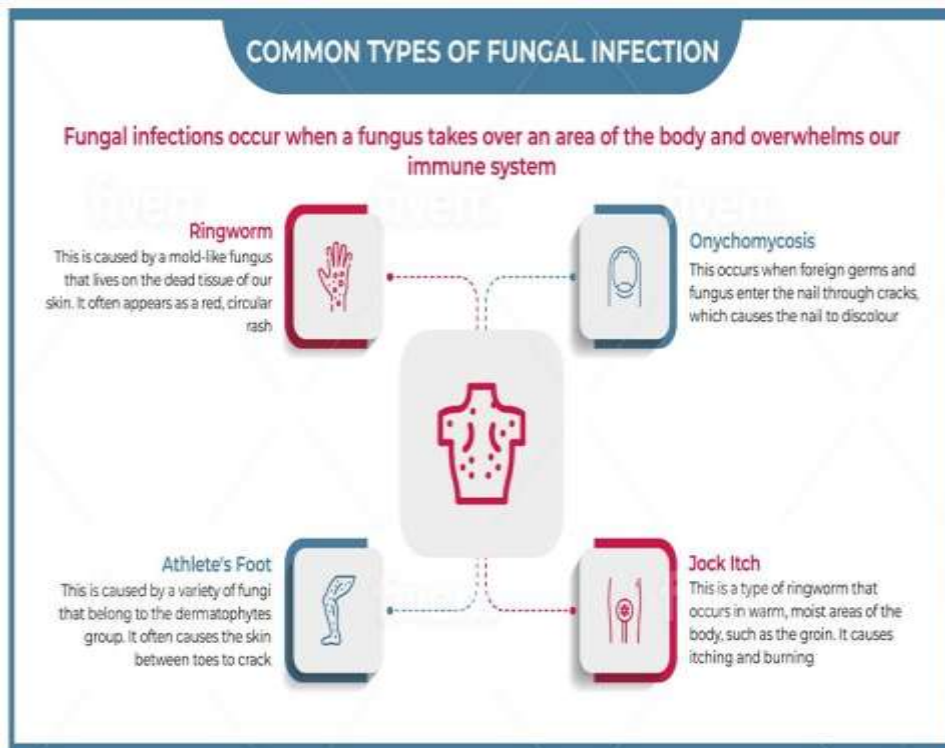


FIGURE 5: Types of Fungal infections.

TYPES OF FUNGAL INFECTIONS:

- ❖ Superficial mycoses: Skin, hair, and nails
- ❖ Cutaneous and Subcutaneous Mycoses: Penetrating the deeper layers of the skin.
- ❖ Systemic or Deep Mycoses: Involving internal organs, often as opportunistic infections.

RINGWORM

A frequent fungal infection of the skin is responsible for ringworm. Ringworm is a prevalent fungal skin infection known for its circular rash resembling a ring, often red and accompanied by itching. The name "ringworm" stems from this distinct shape. This condition can affect anyone as the responsible fungi can thrive on skin, surfaces, and common household objects like clothing, towels, and bedding.

- Ringworm is referred to by various names. The medical conditions are referred to as "tinea" or "dermatophytosis." Ringworm is alternatively named according to its anatomical location on the body.
- Body parts susceptible to ringworm comprise: Feet (known as tinea pedis or commonly referred to as "athlete's foot")
- Groin, inner thighs, or buttocks (referred to as tinea cruris or commonly called "jock itch")
- Scalp (identified as tinea capitis)
- Beard (referred to as tinea barbae)
- Hands (recognized as tinea manuum)

- Toenails or fingernails (termed tinea unguium, also known as "onychomycosis") other parts of the body such as arms or legs (tinea corporis).
- Ringworm of the body (known as tinea corporis) is a skin rash resulting from a fungal infection
- Ringworm on the arm typically manifests as a ring-shaped rash. This rash is characterized by itchiness, scaliness, and a slightly raised appearance. The transmission of ringworm often occurs through direct skin-to-skin contact with an infected person or animal. Mild cases of ringworm can often be treated effectively with antifungal medications applied topically to the skin.[15][16]

Symptoms of ringworm:

- A scaly area shaped like a ring, commonly found on the buttocks, trunk, arms, and legs.
- Itching sensation.
- An area within the ring that is clear or scaly. This region might have scattered bumps, with their color varying from red on fair skin to shades like reddish, purplish, brown, or gray on darker skin tones.
- Rings that are slightly raised and tend to expand.
- Circular, flat patches of skin that are itchy.
- Rings that might overlap in appearance.

Ringworm can spread through various modes of transmission:

Human to Human: The most common way ringworm spreads is through direct skin to-skin contact with an infected person. Physical contact with the affected area can result in transmission.

Animal to Human: Ringworm can be contracted by touching an animal, such as dogs or cats, that has the infection. The act of petting or grooming these animals can lead to transmission. It's also relatively common in cows.

Object to Human: Ringworm can spread through contact with objects or surfaces that an infected person or animal has touched. This includes items like clothing, towels, bedding, linens, combs, and brushes.

Soil to Human: In rare cases, ringworm can be transmitted to humans through contact with infected soil. However, infection from soil is more likely to occur after prolonged and extensive contact with highly infected soil.[17]



FIGURE 6: Ringworm on different regions of skin.

Tinea Pedis (Athlete's Foot)

Tinea pedis, commonly known as athlete's foot, holds the distinction of being the most prevalent dermatophytosis due to the conducive environment created by foot sweating. Tinea pedis can manifest in any of the following four clinical forms or even in combination:

Chronic Hyperkeratotic: This form involves the buildup of thickened skin layers on the foot. It can lead to scaling, flaking, and cracking of the skin, particularly on the soles and heels.

Chronic Intertriginous: This type typically occurs in the spaces between toes where skin surfaces come into contact. It results in redness, itching, and maceration (softening of skin due to moisture).

Acute Ulcerative: In this form, there can be the development of open sores, often accompanied by pain, inflammation, and pus.

Vesiculobullous: This variation results in the formation of blisters or vesicles on the skin, which can subsequently rupture and cause discomfort. It's important to address tinea pedis promptly through appropriate hygiene and antifungal treatments to prevent its progression and spread.[18]

SYMPTOMS:

Athlete's foot can manifest through a variety of symptoms, including:

- Itching, stinging, and burning sensations between the toes or on the soles of the feet.
- Development of blisters on the feet accompanied by itching.
- Skin on the feet, particularly between the toes and on the soles, may crack and peel.
- Presence of dry skin on the soles or sides of the feet.
- Raw and irritated skin on the feet.
- Toenails that are discolored, thickened, and appear crumbly.
- Toenails that start to detach from the nail bed.

CAUSES:

- Athlete's foot develops when the tinea fungus proliferates on the feet.
- The fungus can be contracted through direct contact with an individual who has it or by touching surfaces that have been contaminated with the fungus.
- This fungus flourishes in environments that are warm and moist.
- It is often encountered in places like showers, locker room floors, and areas around swimming pools, where conditions are conducive to its growth and Transmission.[19]



FIGURE 7: Athlete's Foot

RESPIRATORY INFECTIONS

Respiratory infections are communicable diseases that predominantly affect the respiratory system, encompassing the nasal passages, throat, airways, and lungs. These infections are brought about by different microorganisms like viruses, bacteria, or fungi.

Numerous respiratory infections necessitate antimicrobial treatment.

Respiratory infections can be categorized into two types:

- Upper respiratory infections
- Lower respiratory infections

Upper respiratory infections: Primarily target the sinuses and throat.

This category encompasses:

- Common cold
- Epiglottitis
- Laryngitis
- Pharyngitis
- Sinusitis

Lower respiratory infections: Impact the airways and lungs.

Typically, lower respiratory infections have longer durations and are more severe. This group includes:

- Bronchitis (characterized by coughing and fever)
- Bronchiolitis (which primarily affects young children)
- Chest infections
- Pneumonia

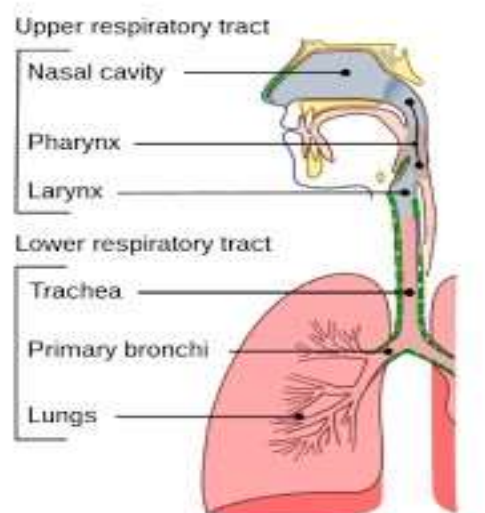


FIGURE 8: Upper Respiratory tract

COMMON COLD

The common cold stands out as a distinct human ailment due to its status as one of the most widespread diseases and its complexity, which is attributable to the multitude of respiratory viruses that contribute to its occurrence. This ailment constitutes an acute and self-limiting viral infection that primarily affects the upper respiratory tract, involving the nasal passages, sinuses, pharynx, and larynx. The mode of transmission involves either direct hand contact with secretions from an infected person or exposure to aerosols containing the virus. The incubation period for rhinovirus, one of the common causative agents, typically spans just under two days.[20]

The term "common cold" captures the sensation of coldness that often accompanies the initial symptoms, mimicking exposure to a chilly environment. Contracting the cold occurs through contact with individuals who are carrying the virus. Interestingly, carriers can spread the virus without personally experiencing any symptoms. The incubation period is relatively short, usually ranging from one to four days. The viruses responsible for the cold begin to spread from an infected individual before symptoms manifest, and this transmission peaks during the symptomatic phase. The occurrence of colds tends to reach its zenith in the autumn season, and minor outbreaks are prevalent during the winter months. It's worth noting that young children are susceptible to contracting between three and eight colds.[21][22]

Colds are mild infections affecting the nose and throat, brought about by over 200 distinct viruses. Additional viruses contributing to common colds encompass coronaviruses and respiratory syncytial virus (RSV).

Varieties of common cold include:

- Influenza (Flu)
- Tracheal Cold
- Chest Cold (Lung Cold)

SYMPTOMS:

- Fatigue or general tiredness
- Chills
- Body aches
- Low-grade fever below 102°F (38.9°C)
- Chest discomfort
- Difficulty in breathing

CAUSES:

Numerous viruses can lead to a common cold, with rhinoviruses being the most prevalent culprits.

- The introduction of a cold virus into the body occurs through the mouth, eyes, or nose. This virus can propagate via:
 - Airborne droplets generated when an individual who is sick coughs, sneezes, or speaks.
 - Direct contact between hands with a person who has a cold.
 - Sharing items contaminated with the virus, such as dishes, towels, toys, or telephones.
 - Touching the eyes, nose, or mouth after coming into contact with the virus.[23]

PNEUMONIA

Pneumonia can be described as an infection affecting the lung, typically involving the alveolar space. When microorganisms are present in the alveolar space without provoking an accompanying inflammatory response, it's considered colonization and not classified as pneumonia.

Pneumonia is widespread and continues to impose a substantial burden on healthcare systems. According to the Global Burden of Disease Study 2015, lower respiratory infections (LRIs) stood as the primary infectious cause of death and the fifth leading cause of death overall. Among LRIs, pneumococcal pneumonia was responsible for 55% of deaths across all age groups, accounting for approximately 1.5 million deaths.[24]

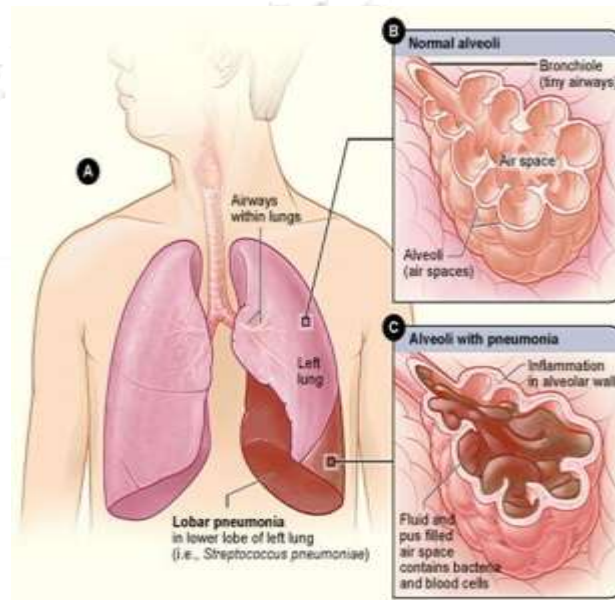


FIGURE 9: Healthy Alveoli and Pneumonia condition.

Types of Pneumonia:

Bacterial Pneumonia: Bacteria are responsible for the majority of cases of community-acquired pneumonia in adults. Pneumonia can be contracted when infected individuals cough or sneeze, releasing droplets filled with bacteria into the air. These droplets can be inhaled through the nose or mouth. The risk of pneumonia increases if you have a weakened immune system or underlying conditions like asthma, emphysema, or heart disease. Bacterial pneumonia is treatable with antibiotics. A milder form of bacterial pneumonia is known as "walking pneumonia."

Viral Pneumonia: Viruses are the second most common cause of pneumonia. Various viruses, including those that cause colds, flu, and the coronavirus responsible for COVID-19, can lead to pneumonia. Unlike bacterial pneumonia, viral pneumonia cannot be treated with antibiotics since antibiotics target bacteria.

Fungal Pneumonia: Fungi are a less frequent cause of pneumonia. Healthy individuals are less likely to contract fungal pneumonia. However, the risk increases if your immune system is compromised due to factors like organ transplantation, cancer chemotherapy, autoimmune disease treatment (e.g., rheumatoid arthritis), or HIV infection. Fungal pneumonia is caused by inhaling fungal spores and can be challenging to treat.

It's important to note that the appropriate treatment for pneumonia varies depending on its cause, whether bacterial, viral, or fungal.[25]

CAUSES:

Viruses that can lead to pneumonia include:

- Influenza (flu) A and B viruses are among the most frequent causes of pneumonia in adults. Additionally, the following viruses can lead to pneumonia.
- Respiratory syncytial virus (RSV), which is more prevalent in infants and children compared to adults.
- Coronaviruses, including SARS-CoV-2, the novel virus responsible for COVID-19.
- Rhinoviruses, parainfluenza viruses, and adenoviruses, which can also result in conditions such as pinkeye.
- Less commonly, other viruses like herpes simplex, measles, and chickenpox can also contribute to pneumonia.

SYMPTOMS:

The symptoms associated with pneumonia encompass:

- Coughing, potentially yielding greenish, yellow, or even bloody mucus.
- Presence of fever, accompanied by sweating and chills.
- Shortness of breath.
- Rapid and shallow breathing patterns.
- Occurrence of sharp or stabbing chest pain that intensifies during deep breaths or coughing.
- Reduced appetite, decreased energy levels, and feelings of fatigue.
- Nausea and vomiting, particularly common in young children.
- Confusion, a notable symptom in older individuals.[26]

TYPHOID**INTRODUCTION:**

Salmonella typhi and salmonella paratyphoid are the infectious agent that cause typhoid fever, it is also known as enteric fever. Typhoid and paratyphoid fever are together called as enteric fever.[27]

Enteric fever and typhoid fever are used interchangeably since typhoid and paratyphoid fever are clinically similar.

Typhoid fever is one of the major cause of mortality and morbidity in over populated and unclean places.

The condition progress in many different ways, from early abdominal pain to a generalised systemic illness, but it ultimately may cause several consequences. Fever typically appears in a step-wise rhythm, followed by headache and is consider to be the “four Fs” by which salmonella spreads.

Causative organism is salmonella enterica subsp. enterica serovar.[28]

The two species salmonella enteritis and enterica Sarovar, which were discovered by investigational employing multiplex quantitative polymerase chain reaction, are included in the genus salmonella. Salmonella typhi and salmonella Para typhi are among the salmonella enterica serotypes (A, B, C).

Salmonella is more prevalent in locations with high population density, tumultuous social dynamics and subpar sanitation and is spread by the faecal oral route through contaminated water, undercooked food, and fomites infected individuals. Humans are its only host meaning it can only spread from one sick person to another. Poultry, eggs, and very infrequently turtles are the main sources of salmonella.

57% of samples tested positive in research on the prevalence of salmonella isolates by whole-genome sequencing in chicken slaughterhouses in China.

40% to 90% of infections can be prevented by typhoid vaccine, during first two years.

SIGNS AND SYMPTOMS:

First week- During the first week, there is a gradual increase in body temperature, intermittent fever, relative bradycardia (the Faget sign), malaise, headache, and cough. Blood cultures show *S. enterica* subsp. *Enterica* Sarovar typhi in the presence of eosinopenia, relative lymphocytosis, and a decrease in the quantity of circulating white blood cells (leukopenia). Typical, the widely test is unfavourable.[29]

Second week: The person usually has a high temperature in a plateau about 40 degrees (104 degrees F) in the second week, as well as bradycardia (sphygmothermic dissociation or the Faget sign), which is typically accompanied by a dicrotic pulse wave. Delirium is a condition where the patient is frequently calm but occasionally disturbed. The term “nervous fever” for typhoid is result of this delirium. In around a third of patients, rose patches develop on the lower chest and belly. In the base of lungs, rhonchi (rattling breathing sounds) are audible. A rumbling sound can be heard in the right lower quadrant of the abdomen, which is swollen and uncomfortable. In this stage, diarrhoea is possible, although constipation is also typical.

Hepatosplenomegaly, an enlargement and tenderness of the liver and spleen.

Third week: Several problems are possible during the third week of typhoid fever: The fever is still very high and barely changes over the course of a day. Malnutrition and dehydration follow, and the patient becomes delirious. Macular rashes appear on the trunk in one-third of those who are affected.

- Intestinal haemorrhage can happen as a result of bleeding in clogged Peyer’s patches; while this can be very serious, it typically results in death.
- An extremely dangerous and frequently deadly consequence is intestinal perforation in the distal ileum. Prior to the onset of septicaemia or diffuse peritonitis, it may happen without any worrisome signs.
- Respiratory conditions such as acute bronchitis and pneumonia.
- Meningitis.
- Neuropsychiatric symptoms (sometimes known as ‘muttering delirium’ or ‘coma vigil’), including plucking and the sheets or making up stories. In the third week of typhoid fever, a number of problems can occur:
- Metastasis abscesses, cholecystitis, endocarditis, and osteitis.
- Low platelet count (thrombocytopenia) is sometimes seen.[30]

Symptoms of Typhoid Fever



FIGURE 10: Symptoms of Typhoid Fever.

CAUSES:

- Typhoid fever is brought on by salmonella enterica subsp. enterica serovar typhi, a gram-negative bacterium. According to the MLST subtyping in method, the two most common sequence type of S. typhi or ST1 AND ST2, and both are found around the world.[31]
- Haplotype 58(H58), which most likely emerged in India in the late 1980s and is now spreading throughout the world with multi-drug resistance, was shown to be dominate globally by phylogeographical study.

VIRAL INFECTION

When harmful viruses invade an organism's body and infectious virus particles(virions) bind to and enter vulnerable cells, the result is a viral illness (or viral infection Dengue fever has two DNA families, two of which are enveloped

(Herpesviridae and Poxviridae) and three of which are non-enveloped (adenoviridae, papillomaviridae and polyomaviridae). The capsids of all non-enveloped families are icosahedral

- Structural characteristics
- Hepadnaviridae are the double standard DNA viruses which are enveloped virus.
- Paryoviridae are the single standard DNA viruses infect humans which are non-enveloped.

DENGUE

INTRODUCTION:

The dengue virus is the source of dengue fever, a mosquito-transmitted tropical disease.^[32] Three to fourteen days after infection, symptoms usually appear.^[33] In a tiny percentage of instances, the illness progresses into a more severe form of dengue haemorrhagic fever, which causes bleeding, low blood platelet counts, blood plasma leakage, or dengue haemorrhagic fever with shock, which causes dangerously low blood pressure. *Aedes aegypti* is the main species of female mosquitoes in the *Aedes* genus that transmit dengue.^{[32][33]}

SYMPTOMS:

- Pollinosis (or) seasonal allergic rhinitis
- Headache
- Nausea
- Discomfort in the muscles and joints
- Typical skin rash and itching

VIROLOGY:

An RNA virus belonging to the family Flaviviridae and genus Flavivirus is the dengue fever virus (DENV). Yellow fever virus, West Nile virus, Zika virus, Japanese encephalitis virus, tick-borne encephalitis virus, Kyasanur Forest disease virus, and Omsk haemorrhagic fever virus are all members of the same genus. The majority are also known as arboviruses (arthropod-borne viruses) since they are typically spread by arthropods (mosquitoes or ticks).^[34]

About 11,000 nucleotide bases make up the dengue virus genome (genetic material), which also codes for seven other non-structural protein molecules (NS1, NS2a, NS2b, NS3, NS4a, NS4b, and NS5) that are only present in infected host cells but are necessary for viral replication. These three different types of protein molecules—C, prM, and E—make up the virus particle.³⁵ The virus has five different serotypes, or strains, of which the first four are known as DENV-1, DENV-2, DENV-3, and DENV4. In 2013, the sixth kind was revealed. The antigenicity of each serotype determines how they differ from one another.

CONCLUSION:

Allergies are common disorders encountered in daily life during seasonal changes or exposure to certain types of allergens that are present in atmosphere. Each person has a unique set of resistance for these types of diseases i.e., not all have same type of manifestation which is again related to their genetic makeup and resistance. In this work some allergies along with physiology of common and rare types were discussed along with their pharmacological manifestations and causes.

REFERENCES:

1. <https://www.papaa.org/media/2254/what-is-psoriasis-2020.pdf>
2. Boehncke W-H, Schön MP. Psoriasis. *Lancet*. 2015;386(9997):983–94.
3. Augustin M, Radtke MA, Glaeske G, Reich K, Christophers E, Schaefer I et al. Epidemiology and Comorbidity in Children with Psoriasis and Atopic Eczema. *Dermatology*. 2015;231(1):35–40.
4. Vena GA, Altomare G, Ayala F, Berardesca E, Calzavara-Pinton P, Chimenti S et al. Incidence of psoriasis and association with comorbidities in Italy: a 5-year observational study from a national primary care database. *Eur J Dermatol*. 201
5. Colledge NR, Walker BR, Ralston SH, eds. (2010). *Davidson's principles and practice of medicine* (21st ed.). Edinburgh: Churchill Livingstone/Elsevier. pp. 1260–1.0;20(5):593–8.
6. Kermott CA, et al., eds. Psoriasis. In: *Mayo Clinic Book of Home Remedies*. 2nd ed. Time; 2017.
7. Menter A, et al. Joint AAD-NPF guidelines of care for the management and treatment of psoriasis with biologics. *Journal of the American Academy of Dermatology*. 2018; doi: 10.1016/j.jaad.2018.11.057
8. <https://emedicine.medscape.com/article/762917overview?form=fpf>
9. Griffiths, Christopher; Barker, Jonathan; Bleiker, Tanya; Chalmers, Robert; Creamer, Daniel (2016). *Rook's Textbook of Dermatology*.
10. Jafilan, L; James, C (December 2015). "Urticaria and AllergyMediated Conditions".
11. Techasatian, L., Phungoen, P., Chaiyarit, J. & Uppala, R. Etiological and predictive factors of pediatric urticaria in an emergency context. *BMC Pediatrics* 21, 92 (2021)
12. Galli, S. J. & Tsai, M. IgE and mast cells in allergic disease. *Nat. Med.* 18, 693 (2022)
13. Wisplinghoff H, Seifert H, Wenzel RP, Edmond MB. Current trends in the epidemiology of nosocomial bloodstream infections in patients with
14. haematological malignancies and solid neoplasms in hospitals in the USA. *Clin Infect Dis.* 2003; 36:1103–1110. doi: 10.1086/374339. [PubMed] [CrossRef] [Google Scholar]
15. Bodey GP, Bueltmann B, Duguid W, Gibbs D, Hanak H, Mall G, Martino P, Meunier F, Milliken S, Naoe S, Okudaira M, Scevola D, van't Wout J. Fungal infections in cancer patients: an international autopsy survey. *Eur J Clin Microbiol Infect Dis.* 1992; 11:99–109. doi: 10.1007/BF01967060. [PubMed] [CrossRef] [Google Scholar]
16. Havlickova B, Chaika VA, Friedrich M. Epidemiological trends in skin mycoses worldwide external icon. *Mycoses*. 2008 Sep;51 Suppl 4:2-15.
17. Allmon A, et al. Common skin rashes in children. *American Family Physician*. 2015; 92:211.
18. Kokollari F, Daka A, Blyta Y, Ismajli F, Haxhijaha-Lulaj K. Tinea corporis, caused by *Microsporum canis* – a case report from Kosovo. *Med Arch*. 2015;69(5):345–346. doi: 10.5455/medarh.2015.69.345-346.
19. Lipner SR, Scher RK. Onychomycosis: Clinical overview and diagnosis. *J Am Acad Dermatol*. 2019 Apr;80(4):835-851. [PubMed]
20. Clebak KT, Malone MA. Skin Infections. *Prim Care*. 2018 Sep;45(3):433-454. [PubMed]
21. <https://www.britannica.com/science/common-cold>
22. Makela MJ, Puhakka T, Ruuskanen O, Leinonen M, Saikku P, Kimpimaki M, et al. Viruses and bacteria in the etiology of the common cold. *J Clin Microbiol*. (1998) 36(2):539–42. doi: 10.1128/JCM.36.2.539-542.1998
23. Dowling HF, Jackson GG, Spiesman IG, Inouye T. Transmission of the common cold to volunteers under controlled conditions. II. The effect of chilling of the subject upon susceptibility. *Am J Hyg.* (1958) 66:59–65.

24. Sikka R., Tommaso L.H., Kaucky C., Kulstad E.B. Diagnosis of pneumonia in the ED has poor accuracy despite diagnostic uncertainty. *The American Journal of Emergency Medicine*.
25. Wagenvoort G.H., Sanders E.A., De Melker H.E., van der Ende A., Vlamincx B.J., Knol M.J. Long-term mortality after IPD and bacteremic versus nonbacteremic pneumococcal pneumonia. *Vaccine*.
26. <https://www.webmd.com/lung/pneumonia-types>
27. Smith C.J., Kishore A.K., Vail A., Chamorro A., Garau J., Hopkins S.J., Di Napoli M., Kalra L., Langhorne P., Montaner J., Roffe C., Rudd A.G., Tyrrell P.J., van de Beek D., Woodhead M., Meisel A. Diagnosis of stroke-associated pneumonia: Recommendations from the pneumonia in Stroke
a. Consensus Group.
28. Wain J, Hendriksen RS, Mikoleit ML, Keddy KH, Ochiai RL (March 2015). "Typhoid fever". *Lancet*. 385 (9973): 1136–45. doi:10.1016/s01406736(13)62708-7. PMID 25458731. S2CID 2409150.
29. "Typhoid Fever". *cdc.gov*. May 14, 2013. Archived from the original on 6 June 2016. Retrieved 28 March 2015.
30. Kumar P, Kumar R (March 2017). "Enteric Fever". *Indian Journal of Pediatrics*. 84 (3): 227–230. doi:10.1007/s12098-016-2246-4. PMID 27796818. S2CID 3825885.
31. "Typhoid fever: MedlinePlus Medical Encyclopedia". *medlineplus.gov*. Retrieved 2020-04-21.
32. Yap KP, Ho WS, Gan HM, Chai LC, Thong KL (2016). "Global MLST of Salmonella Typhi Revisited in Post-genomic Era: Genetic Conservation, Population Structure, and Comparative Genomics of Rare Sequence types". *Frontiers in Microbiology*. 7:
a. 270. doi:10.3389/fmicb.2016.00270. PMC 4774407. PMID 26973639.
33. "Dengue and severe dengue Fact sheet N°117". WHO. May 2015. Archived from the original on 2 September 2016. Retrieved 3 February 2016.
34. Kularatne SA (September 2015). "Dengue fever". *BMJ*. 351: h4661. doi:10.1136/bmj.h4661. PMID 26374064. S2CID 1680504.
35. Gould EA, Solomon T (February 2008). "Pathogenic flaviviruses". *Lancet*. 371 (9611): 500–9. doi:10.1016/S0140-6736(08)60238-X. PMID 18262042. S2CID 205949828.