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Homoeopathic approach to pneumonia

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Abstract

Pneumonia represents a significant challenge in clinical practice, contributing significantly to infection-related fatalities and antimicrobial resistance. This paper provides an overview of pneumonia, covering its etiology, classification, risk factors, pathophysiology, clinical features, diagnosis, complications, and homoeopathic management.

The classification of pneumonia encompasses various types, including acute, atypical, nosocomial, aspiration, chronic, necrotizing, and pneumonia in immunocompromised hosts, each with distinct implicated pathogens.

Pathophysiology involves microbial proliferation in the alveoli, triggering an immune response, with various routes of pathogen entry. Mechanical defenses, such as mucociliary clearance and local antibacterial factors, play a crucial role in preventing infection, but when breached, inflammation ensues, leading to clinical symptoms.

Clinical presentation includes a range of symptoms such as cough, fever, dyspnea, and chest discomfort, often leading to misdiagnosis due to overlapping features with other conditions.

Complications of pneumonia can be severe, including respiratory failure, sepsis, and multi-organ dysfunction if left untreated. Homoeopathic management offers a holistic approach, considering individual patient reactions and prescribing medicines based on the law of similia matching patient symptoms and disease stages.

In conclusion, pneumonia poses a significant clinical challenge due to its diverse etiology, variable presentation, and potential complications. A comprehensive understanding of its classification, risk factors, pathophysiology, clinical features, and management options is essential for effective patient care and outcomes.

Keywords: Pneumonia, pneumococcus, hospital acquired pneumonia, community acquired pneumonia, ventilator associated pneumonia, homoeopathy

Introduction

Pneumonia stands as a significant contributor to infection-related fatalities, presenting a pivotal challenge in clinical practice. Inadequate treatment of pulmonary infections not only yields unfavourable clinical outcomes but also fosters the development of antimicrobial resistance. This condition, characterized by inflammation of the pulmonary parenchyma due to infectious agents, manifests through a clinical spectrum encompassing symptoms like fever or hypothermia, sweats, rigors or chills, and pulmonary manifestations such as cough, sputum production, dyspnea, pleurisy, or pulmonary lesions evident on radiographic examination. The landscape of pneumonia diagnosis and management has been intricately shaped by the emergence of novel pathogens, the escalation of antimicrobial resistance, a surge in immunocompromised populations, and the advent of advanced diagnostic modalities and antimicrobial agents [1].

Despite its substantial impact on morbidity and mortality, pneumonia is frequently misdiagnosed, improperly treated, and underestimated. Historically, pneumonia was categorized into Community-Acquired (CAP), Hospital-Acquired (HAP), or Ventilator-Associated (VAP). A more recent addition to this classification is Health Care Associated Pneumonia (HCAP) [2].

Rather than looking at it as a single disease, health care professionals must remember that pneumonia is an umbrella term for a group of syndromes caused by a variety of organisms resulting in varied manifestations and sequelae [3].

The clinical presentation of pneumonia encompasses a range of symptoms, including fever or hypothermia, sweating, rigors or chills, as well as pulmonary manifestations like cough, sputum production, dyspnea, pleurisy, or pulmonary lesions detected through radiographic examination. The ch11ges associated with diagnosing and treating pneumonia have been compounded by factors such as the identification of novel pathogens, the proliferation of antimicrobial resistance, the rise in immunocompromised patient populations, and the introduction of advanced diagnostic techniques and antimicrobial medications [1].

Etiology and Classification

Table 1: Classification of Pneumonia and its Implicated Pathogens are [4]

Type of Pneumonia	Pathogens
	Streptococcus pneumoniae,
Acute Pneumonia Atypical Pneumonia	Haemophilus influenza,
	Moraxella catarrhalis,
	Staphylococcus aureus,
	Legionella pneumophila,
	Enterobacteriaceae (Klebsiella
	pneumoniae),
	Pseudomonas spp.
	Mycoplasma pneumoniae,
	Chlamydia spp. (Chlamydia pneumoniae,
	Chlamydia psittaci, Chlamydia
	trachomatis),
	Coxiella burnetii (Q fever),
	Viruses: respiratory syncytial virus, human
	metapneumovirus, parainfluenza virus
	(children); influenza A and B (adults);
	adenovirus (military recruits).
Nosocomial Pneumonia	Gram-negative rods (Enterobacteriaceae,
	Pseudomonas spp.),
	Methicillin-resistant Staphylococcus aureus
	(MRSA).
Aspiration Pneumonia	Anaerobic oral flora (Bacteroides,
	Prevotella, Fusobacterium,
	Peptostreptococcus) admixed with aerobic
	bacteria (S. pneumoniae, S. aureus, H.
	influenzae, <i>Pseudomonas</i> aeruginosa).
Chronic Pneumonia	Nocardia,
	Actinomyces,
	Granulomatous: Mycobacterium
	tuberculosis and atypical mycobacteria,
	Histoplasma capsulatum, Coccidioides
	immitis, Blastomyces dermatitidis.
Necrotizing Pneumonia & Lung Abscess	Anaerobic bacteria,
	Mixed aerobic infection,
	Streptococcus pyogenes,
	Type 3 pneumococcus.
	Cytomegalovirus,
	Pneumocystis jiroveci,
Pneumonia in	Mycobacterium Avium Complex (MAC),
Immunocompromised	Invasive aspergillosis,
Host	Invasive candidiasis,
	Usual bacterial, viral, and fungal organisms
	(listed above).

Risk Factors of Pneumonia [5]

Pneumonia risk factors encompass various aspects including age, environment, lifestyle choices, and underlying health conditions:

1. **Age:** Both infants and adults aged 6 or older are at higher risk due to developing immune systems in babies and weakened immunity in older adults, exacerbated by

- chronic health issues. Vaccination status significantly impacts risk.
- Environment or occupation: Crowded places like military barracks, prisons, and nursing homes heighten risk. Exposure to air pollution or animal-borne pathogens in occupations like poultry processing or veterinary clinics increases susceptibility.
- 3. **Lifestyle habits:** Smoking impedes mucus clearance, while substance abuse raises vulnerability, particularly in sedated states.
- 4. Other medical conditions: Neurological disorders affecting cough or swallowing, immune-weakening conditions like HIV/AIDS or organ transplants, hospitalization for critical illnesses, lung diseases, and systemic conditions like malnutrition or diabetes elevate pneumonia risk.

Pathophysiology

Pneumonia occurs when microbial pathogens proliferates in the alveoli of the lungs, triggering a response from the host's immune system. These pathogens typically gain access to the lower respiratory tract through various means, with aspiration from the oropharynx being the most common route. This aspiration can happen during sleep, particularly in the elderly or those with reduced consciousness levels. Additionally, pneumonia can occur when pathogens are inhaled as contaminated droplets. In rare cases, pneumonia may result from hematogenous spread, such as from tricuspid endocarditis, or from the extension of infection from adjacent pleural or mediastinal spaces.

Mechanical factors play a crucial role in the body's defense against pathogens. Structures like nasal hairs and turbinates trap larger particles before they can reach the lower respiratory tract. The branching design of the tracheobronchial tree further captures microbes, where mechanisms like mucociliary clearance and local antibacterial factors work to clear or neutralize them. Protective reflexes like the gag reflex and coughing prevent aspiration, while the normal flora in the oropharynx helps to prevent pathogenic bacteria from binding and causing pneumonia. However, if these barriers fail or if microorganisms reach the alveolar level, resident alveolar macrophages step in to clear and kill pathogens efficiently. They are aided by proteins like surfactant proteins A and D, which have innate antibacterial properties. Even if pathogens manage to evade macrophage clearance, they are eliminated through mucociliary clearance or lymphatic drainage, thus reducing the risk of infection. Clinical pneumonia only occurs when the capacity of alveolar macrophages is overwhelmed, leading to an inflammatory response. This response, rather than the proliferation of microorganisms, triggers the symptoms of pneumonia, such as fever and increased leukocyte count.

The inflammatory cascade results in capillary leak, leading to radiographic infiltrates, audible rales, and hypoxemia due to alveolar filling. Some bacterial pathogens can exacerbate hypoxemia by interfering with normal vasoconstriction processes. Respiratory alkalosis may occur due to increased respiratory drive. Reduced lung compliance, secondary to capillary leak and other factors, can lead to dyspnea and, in severe cases, respiratory failure and death. ^[6]

Clinical features [7] Symptoms of pneumonia can manifest as

- Cough, possibly yielding greenish, yellow, or bloody mucus
- Fever accompanied by sweating and shaking chills.
- Difficulty breathing, leading to shortness of breath.
- Rapid and shallow breathing patterns.
- Chest discomfort, often described as sharp or stabbing, exacerbated by deep breathing or coughing.
- Decreased appetite, accompanied by low energy levels and fatigue.
- Nausea and vomiting, particularly observed in young children.
- Confusion, notably prevalent among older individuals.

Diagnosis

The effectiveness of diagnostic approaches for suspected pneumonia is limited, with varying strategies required for each patient. Clinical indicators such as fever, purulent tracheobronchial secretions, leukocytosis, and new infiltrates on chest X-rays are hindered by their common occurrence in patients without pneumonia. Moreover, routine sputum culture often yields a mix of potential pathogens due to upper airway colonization, making it of questionable value to physicians. While transtracheal aspiration can effectively diagnose community-acquired pneumonia in patients without prior lung issues, its utility in hospital-acquired pneumonia requires more investigation. [8]

Radiological Evaluation

As per the guidelines from the Infectious Diseases Society of America (IDSA) and American Thoracic Society (ATS), a visible infiltrate on chest X-ray, along with supportive clinical evidence, is deemed essential and is considered the most effective means for diagnosing pneumonia. These findings can range from lobar to interstitial infiltrates, and in some cases, may include cavitary lesions with air-fluid levels, indicating a more serious disease progression [3].

Laboratory Evaluation

A series of tests, including blood culture, sputum culture and microscopy, routine blood counts, and lymphocyte count, are commonly conducted for diagnosing pneumonia. Additionally, specific tests like urinary antigen testing, bronchial aspirate, or induced sputum may be employed for detecting certain pathogens. Two notable tests, procalcitonin and C-reactive protein, play a crucial role in distinguishing between viral and bacterial causes when clinical and radiological findings are inconclusive [3].

Complications

In case of untreated or under-treated cases, pneumonia can complicate with respiratory failure, sepsis, metastatic infections, empyema, lung abscess, and multi-organ dysfunction [3].

Homoeopathic management

Homoeopathy is a method of treatment based on holistic concept, in which a person is diseased when the harmony of vital force gets deranged due to any obnoxious morbific agent and to and this derangement is reflected outwardly in form of sign and symptoms and to treat this disease, a totality of symptoms is constructed using these sign and symptoms, and medicine is prescribed on the principal of law of similia, where medicines having similar symptoms during proving are prescribed [9]. Similarly in pneumonia, a

medicine is prescribed homoeopathically which covers not only acute pathological picture of the disease but also covers reaction of the patient to the disease, because reaction of one patient to the infective organism pneumococcus can be different from another patient [10].

According to Dr. Borland, the average case of penumonia has three stages, first is the stage of congestion, or invasion, or the incipient stage in which there is doubt about diagnosis as pneumonia; second is stage of frank consolidation, in which the patient is running a good temperature with confirmatory physical signs in the chest; and last is stage of resolution, in which the condition begins to clear up.

According to him, a physician has to find a group of medicine that has symptom complex of pneumococcal infection and then from that group, medicine that covers the reaction of the patient to infection should be selected. The successful outcome of the prescription depends on the identification of common symptom developed due to particular infective organism and peculiar symptoms developed due to reaction of the infected individual. According to him, in pneumonia, the selection of potency after selection of medicine is also important, as lower potencies reduces severity, avoids complications, reduces mortality and makes patients more comfortable, but it does not reduces the duration of disease. While higher potency aborts the disease, as it does not run its normal course and the duration of the illness is very much shortened. Another consideration for potency is that in lower potencies matching of the drug symptoms with the patient's symptoms does not require to be much accurate as it need to be when using the higher potencies; as in case of lower potencies modifying effect without necessarily covering the whole case can be done Similarly when repetition is concerned, in case of low potency, one probably needs to give more than one drug as first drug modifies the picture and gives indications for a second prescription, and possibly a third; while in case of higher potency, it is advisable to continue the administration of the selected drug until the temperature has reached normal and has remained normal for at least six hours. In regards to the frequency of administration of the medicine, in case of low potency, medicine can be repeated once in four hours; while in high potency, it is wiser to give the drug every two hours [10].

Commonly indicated medicines in cases of Pneumonia are Some of the important medicines and their indications are:-

Aconitum napellus

This medicine is first remedy indicated in acute inflammatory cases during congestive stage, before disease localizes. In initial stage of pneumonia, it is indicated when it is present with great heat, unquenchable thirst for large quantity of cold water, dry cough and nervous excitability. The causative factor for pneumonia in aconite are exposure to dry, cold weather, draught of cold air, checked perspiration. On exposure in aconite, onset of disease is acute, sudden and violent. Patient complaints of dry, hoarse, suffocating, loud, rough, croaking; hard, ringing, whistling cough accompanied with physical and mental restlessness, great fear and anxiety impending breathing, fever, short, oppressed, laboured breathing, sensitive and painful larynx even on touch and inspiring air and must grasp throat every time on coughing. There is constant pressure in left chest with stitching pain through chest and shortness of breathing when sleeping or raising one's self. After every cough, there

is tickling sensation in larynx. Patient feels hot and cold alternately with cold sweat and icy coldness of face, feeling cold waves pass through him. Complaints are aggravated in evening, night and after midnight; in warm room; on rising from bed; lying on affected side; after eating or drinking; during sleep; from tobacco smoke; from vexation, esp., fright; overheating; from dry, cold winds; from walking in open air; in upright position; from deep inspiration; from speaking and ameliorates in open air and sweating [11-15].

Antimonium Tartaricum

It is one of the medicine that has proven its effective role in the respiratory complaint clinically. It is chiefly indicated in those cases when there is much rattling of mucus, but only a little quantity of mucus expectorates. It is indicated in cases of pneumonia associated with icterus, especially with inflammation of right lung. It has paroxysms of coughing with suffocative, obstructive, short breathing with sense of mechanical asphyxia due to mucus in bronchi or from impending paralysis of lung that compels the patient to sit up. These suffocative attacks are accompanied with sensation of heat in heart, perceptible palpitation and heat and moisture of hand. It has marked sleepiness, drowsiness with constant desire to sleep. Complaints are aggravated in damp, cold weather; lying down at night; warmth of room; change of weather in spring and ameliorated in Cold open air; sitting upright; expectorating; lying of right side [11, 13, 14,

Bryonia Alba

Bryonia acts on all serous and mucous membranes making them dry with stitching and tearing pain that worse by motion, pressure and relived by rest. It is indicated in Pleuro-pneumonia with quick, short, anxious, difficult respiration with constant effort to take deep inspiration, fits of choking but breathing gets impeded by shooting pain in chest. In this medicine, causative factors are chagrin; mortification; anger; violence; initial period when warm weather sets in, after cold days; from cold drinks or ice in hot weather; after taking cold or getting hot in summer; from chilling when overheated; from exposure to draft, cold wind; suppression of discharges of menses, milk or eruption of acute exanthema. Cough is dry, hard, spasmodic, racking, with scanty expectoration causing stitching pain in chest every time while coughing compelling patient to hold chest. Pneumonia is accompanied with heat in the chest. Thirst is intense for large quantity of cold water but at longer interval. Complaints are aggravated by Motion, exertion, touch; sitting up; warmth, warm fold and ameliorates by Lying, especially on painful side; pressure; rest; cold, eating cold things [11-15].

Chelidonium Majus

This medicine is indicated in pneumonia of right lung or pneumonia associated with liver complaints caused by change of weather. There is throbbing, stitching pain with soreness in lungs and right side of chest and shoulder that worse on deep inspiration, cough, and sneezing. Inspiration is very quick and short with dyspnoea and exhausting, spasmodic cough with sensation of dust, which is not relived on coughing. Cough is in paroxysms with copious expectoration and pain behind sternum that worse after waking and on rising; tight clothing at night at 4 P.M; and throws up lumps of mucus. Tongue is thickly yellow coated

with red edges and shows imprint of teeth. With every complaint, patients desire for very hot drinks, almost boiling [11-15]

Ferrum Phosphoricum

It is indicated in First stage of all inflammatory affections including pneumonia. There is marked congestions of lungs with expectoration of pure blood in pneumonia and pleuritic stitching pain on deep inspiration, or cough. Cough is hard, dry, short, painful, tickling cough, with large green lumps of mucus and sore chest that worse at night and 4 to 6 pm; from touch; from jar; from motion and better at night; from cold applications. There is much mucus in throat and rattling in chest [13, 14].

Mercurius Solubilis

It is one of the important polycrest medicine having marked action on respiratory system. Respiration is short, loud, and difficult with stitching pain in lower lobe of right lung extending to back. It affects lower lobe of right lung and results in haemorrhage and suppuration of lungs during pneumonia. Cough is dry, fatiguing, racking, in two paroxysms with yellow muco-purulent expectoration and pain in chest. It worse at night and from warmth of bed; inability to lie on right side in respiratory complaints but cough relives when lying on right side. [11, 13, 14]

Phosphorus

It is indicated in Pneumonia nervosa where lungs gets hepatized. Respiration is quick, difficult, oppressed, anxious with much heat, fullness, congestion and anxiety in chest. There is Inflammation of the lungs especially left side, with stitches in the sides of the chest. It has congestion of lungs with tightness across chest and feeling of great weight on chest. Cough is Hard, dry, tight, racking caused by tickling in throat that worse from cold air, reading, laughing, talking, from going from warm room into cold air [11-15].

Pulsatilla

It is indicated in cases having accelerated, short, and superficial, or rattling and anxious respiration. Respiration impeded, shortness of breath, choking as from vapour of sulphur, and fits of dyspnoea and of suffocation, with anxiety, spasmodic constriction of chest or larynx. Sharp and incisive pain in chest as from ulceration with acute suppuration of the lungs. There is shootings in chest and in sides, especially at night and when lying down, and sometimes with difficulty in drawing a full inspiration. Chest feels oppressed as by a load on it. Complaints aggravates in a warm close room, evening, at twilight on beginning to move, lying on the left, or on the painless side, very rich, fat, indigestible food, pressure on the well side if it be made toward the diseased side, warm applications, heat and relives in the open air, lying on painful side; cold air or cool room; eating or drinking cold things; cold applications [11-15]

Senega

It has sensation of oppression and weight of chest with profuse mucus and rattling in chest but it is difficult to raise tough mucus. Chest feels oppressed on ascending and especially during repose. It has great soreness in walls of chest and accumulation of clear albuminous mucus which is difficult to expectorate. Pressure is felt on chest as lungs are forced back to spine. It has sensitiveness to the inner chest, even to the touch with stitches in the chest when coughing and breathing. The majority of symptoms are most violent during repose, but do not obstruct respiration [12-15].

Veratrum Viride

It is indicated in cases of Pneumonia, with hard, strong, quick, or slow and intermitting pulse, faint feeling in stomach and violent congestion of lungs with difficulty in breathing. Lungs feels engorged. Patient feels heavy load on chest especially on attempting to walk with fullness and heaviness in splenic region. In evening, there is tickling, spasmodic cough from just above sternum with short; dry; hacking; loose, rattling cough that aggravates on going from warm to cold. Cough is violent from very start [12-15].

Conflict of Interest

Not available

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