



A Review of Pleurisy (Dhāt al-Janb) in Perspective of Unani Medicine

Farukh Hasan¹, Azizur Rahman^{2*} and Sayma Anjum³

¹Assistant Professor, Department of Mahiyatul Amraz (Pathology), Markaz Unani Medical College and Hospital, Kozhikode, Kerala, India

²Assistant Professor, Department of Mahiyatul Amraz (Pathology), National Institute of Unani Medicine, Kottigepalya, Magadi Main Road, Bangalore, India

³Department of Ilmul Advia (Pharmacology), National Institute of Unani Medicine, Kottigepalya, Magadi Main Road, Bangalore, India

***Corresponding Author:** Azizur Rahman, Assistant Professor, Department of Mahiyatul Amraz (Pathology), National Institute of Unani Medicine, Kottigepalya, Magadi Main Road, Bangalore, India.

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Abstract

Pleurisy, or “Dhāt al-Janb” as it is known in Unani medicine, is a special kind of entity in the field of traditional medicine. Pleurisy has been described since antiquity in the works of well-known physicians like Hippocrates (460-377 BC) and Galen (131-201 AD). The prevalent medical views of that era were reflected in these early observations, which frequently linked pleurisy to abnormalities in body humours. The characteristic signs of pleurisy, such as severe chest pain made worse by breathing, coughing, or movement, were recognised by ancient physicians.

The review begins by explaining the Unani conceptualization of pleurisy, which is based on the humoral theory and the imbalance of vital fluids. Insights from fundamental Unani texts such as the Canon of Medicine by Ibn Sina (980 -1037 CE) and the Zakhira Khwarazm Shahi by Ismail Jurjani (1040-1136 CE) are analyzed to unravel the historical evolution of pleurisy in Unani medicine. It is usually caused by bilious (Şafrāwī) and sometimes sanguineous (Damawī) morbid matters. Phlegm (Balgham) and Black bile (Sawdāwī) rarely cause it.

This review explores the Unani perspective on pleurisy, exploring its aetiology, classifications, diagnostic principles, and therapeutic modalities as outlined in classical Unani texts. Therapeutic interventions encompass a spectrum of Unani remedies, including herbal formulations, dietary adjustments, and lifestyle modifications. The article evaluates the efficacy and rationale behind these treatments, shedding light on the unique Unani approach to managing pleuritic conditions. The study provides a fascinating glimpse into the evolution of medical knowledge and how diagnostic approaches have changed throughout time. Even though the philosophical basis was different from modern understanding, the recognition of symptoms and efforts at therapeutic interventions provided a framework for the ongoing advancement of medical knowledge across time. By reviewing these historical perspectives, we can better understand pleurisy now and the continuing attempts of people throughout history to solve the mysteries of illness.

Keywords: Pleurisy; Zaat-ul-janb; Unani Medicine; Pleurisy Treatment; Pleurisy Pathophysiology

Introduction

Although the ancient Egyptians may have known about the pleura, given their comprehensive knowledge of mummification and their practice of separating organs from a body to be placed in their own funeral (canopic) jar, there are no particular references to it in the pre-Greek period. Aristotle was the first person to introduce the concept of a membrane (384-322c). he stated “In all sanguineous animal’s membranes are found,” in his History of Animals [1].

A further advancement was made by Erasistratus (310-250C) of the School of Alexandria, who distinguished between diseases that restricted their effects to the lung and those that damaged the hymen hypezocota (undergirding membrane) which covers the thorax [2]. Following Erasistratus, Soranus (98-138 AD) and Galen (129-200 AD) described the membrana succingens (girdling membrane). “Nature created another structure made of the same material as the peritoneum, which functions for the pneuma’s organs in the same way as the peritoneum does for the assimilation organs”. It’s as thin as the web of a spider [3,4].

Hippocrates of Kos (460-377 BC) was the first person to describe pleurisy; he discussed it frequently in his treatise on diseases and aphorisms, as “fever, shivering, and pain in his side” along with “orthopnea” and “tachypnea”. The definition was then expanded by Jālīnūs, who followed Hippocrates’ ideas on pleuritis to inflammation of the lining of the lungs. The lining of the lungs was referred to in these texts as the “hypezokos membrane [5,6]. Avicenna (980-1037AD), a follower of the works of Aristotle, advanced the hypothesis in the book “The Canon of Medicine” that , the pleura also covers the thoracic organs [7].

In the Unani system of medicine, pleurisy is defined as a painful, hot inflammation that occurs in the surroundings of the chest. This inflammation is called Dhāt al-Janb Khālīṣ. If it affects the internal muscles, the inner layer of internal muscles (Pleura), or the left or right side of the diaphragm [8-14]. Regarding pleurisy, Intercostal pain and diaphragmitis there is controversy among many Unani physicians. Qarshī states that Ibn Sīnā believes Dhāt al-Janb, diaphragmitis (Barsām), and intercostal pain (Shūṣa) to be synonyms because they all have similar meanings. Additionally, Dhāt al-Janb Khālīṣ is also referred to as Dhāt al-Janb Sahi [8,9].

Ismā’īl Jurjānī (1040-1136 CE) states that pleurisy is the term used for inflammation that occurs in the diaphragm, which is situated between the upper and lower viscera [15]. Intercostal pain is the term used to describe inflammation felt in the chest muscles, particularly the inner muscles. Diaphragmitis is the term for inflammation that develops in the lining or membrane that is concealed inside the chest (Barsām). Because the Bar indicates the chest and Sām implies inflammation.

Ibn Abbās Majūsī (930-994 AD) describes pleurisy as a hot inflammation of the ribs’ inner membrane [16]. Chest pain (Waja’al Ṣadr) is the term used to describe inflammation in the chest muscle; diaphragmitis refers to a type of inflammation that affects the diaphragm. According to Akbar Arzānī and Azam Khan, Dhāt al-Janb Ḥaqīqī is pain associated with inflammation, whereas Dhāt al-Janb Ghayr Ḥaqīqī is caused by the accumulation of thick gases (Riyāḥ) around the rib cage, producing pain that is nearly similar to Dhāt al-Janb Ḥaqīqī [9,17].

Occasionally, the patient and the physician mistakenly believe that they have pleurisy when there is hot inflammation in the liver or the organs surrounding it are stretched and cause dyspnoea. Because characteristics of pleurisy (fever, cough, and shortness of breath) are present in that inflammation and are known as Dhāt al-Kabid [8,10,15,18]. Inflammation develops in the inner membrane of the ribs or the diaphragm whether it is on the right or left side of the diaphragm and membrane. i.e., in all components. That common Inflammation is known as Khāniqa [8]. The main aim of this review is to explore the Unani concept of pleurisy, its aetiology, classification, diagnosis and therapeutic modalities described by the renowned Unani physicians.

Materials and Methods

A comprehensive search of the literature was done from their beginning to November 20, 2023, using keywords to find papers published in the following databases: Medline through PubMed, Embase, Web of Science, Scopus, and Google Scholar, among others.

Observation and Result

Epidemiology: The cause of pleurisy determines the epidemiology. It can be caused by a variety of factors related to the host, including comorbid conditions, occupation, geography, and demography [8,10,15,18]

- Pleurisy often occurs in young people and those whose growth and development are incomplete.
- Less common in the elderly but if affected, it is fatal due to weakness in power.
- Common in northern countries, due to the abundance of morbid matters in the autumn season and coldness in winter.
- Common in the spring or winter and blows of northerly winds. And less frequent in southern nations and southern wind season.
- Fatal in pregnant women.
- The left side pleurisy is worse than the right side because it is closer to the heart, but the heat of the heart helps it in concoction (Nuđj) as well as dissolution.

Aetiology

It is usually caused by bilious (Şafrāwī) and sometimes sanguineous (Damawī) morbid matters. Because no other morbid matter can enter the peritoneal organs except thin humours, i.e., bile, and blood. Rarely caused by phlegm (Balgham) and Black bile (Sawdāwī), but when it occurs, the disease is prolonged and the concoction is delayed [8-10,12,14,16].

Wetness (Ruṭūbat) is another cause of this disease. Heat and dryness cannot be the cause because the vapours rise towards the head and then descend on the chest while dry vapours take longer to descend after they rise. The affected side would have become dark before death if the patient had passed away early in the illness [14].

There are four causes of pleurisy [19]

- The flow of catarrhal fluids from the brain.
- Drinking very cold water and staying in cold air leads to the accumulation of morbid matters in the chest and hijab.
- Alcohol consumption causes the veins and arteries to become full due to humour movement.
- Thick food that forms thick blood [15].

Statements of Hippocrates

- Those people who are constantly suffering from sour eructation can't be affected by pleurisy because the sourness (acidic nature) of black bile dissolves the heat and prevents it

from accumulating in one area to cause ulcers [20]. A different explanation of that statement is given in Kāmil al-Şanā'a al-Ṭibbiyya. i.e., Sour eructation is caused by the predominance of phlegm in the body. Even if there is an abundance of thick or greasy phlegm in the stomach, it cannot be absorbed by the internal membrane of the rib, which means that phlegm cannot enter the membrane. So, such people will not be affected by pleurisy [16].

- Sleeping on the diseased side indicates mild inflammation; not sleeping on the diseased side indicates severe inflammation.

Galen stated those patients who have suffered from pleurisy and are very weak and emaciated should be protected from sunlight, intercourse, air, flatulence, etc. and should not be given salty and bad-tasting things, because if the disease turns severe then it will be fatal.

Classifications of pleurisy

There are commonly two types of pleurisy Dhāt al-Janb sahih/ Khāliş/Ḥaqīqī and Dhāt al-Janb Ghayr sahih/Ghayr Khāliş/Ghayr Ḥaqīqī [8,9,12,15,18,20,22]. There are further four subtypes of each type i.e., Bilious (Şafrāwī), Sanguineous (Damawī), Phlegmatic (Balghamī)/Moist (Ruṭūbī), and Melancholic (Sawdāwī) [8,9,20]. Dhāt al-Janb Khāliş also called as Ḥijāb Khariq, Khamza-Al-Wajnatain, Ḍiq al-Nafas, Laheeb, 'Aṭash, Ḥummā Mādda Muṭbiqa, Nakhs Dā'im. All these are the symptoms of the Dhāt al-Janb Khāliş, and names are according to symptoms [21].

Dhāt al-Janb Sahih is referred to as, Inflammation that arises from the inner layer of the membrane lining the ribs. Whereas, Dhāt al-Janb Ghayr Sahih develops when inflammation occurs inside the muscles between the ribs. It is also called Dhāt al-Janb Mughalta [8]. Galen was given the term "Dhāt al-Janb Ghayr Sahih" [14].

According to Galen, Dhāt al-Janb Khushk is a type of pleurisy in which no morbid substance is evacuated and dissolves more slowly than other types in which morbid matter is released. The pain was also felt in the clavicle and at the ends of the ribs. Breathing is short, shallow and frequent [18].

Another type of pleurisy is characterised by easy breathing, normal and easily expelled saliva, blood and pus in the urine, pain that radiates to the back, and a sensation that the patient's back has been hit by a wooden object. This type of pleurisy is rarely curable,

and the patient typically passes away in five to seven days, though it can take up to fourteen. Additionally, health will be expected if it does not pass away in seven days. There is another type of pleurisy when the patient can't sit, their shoulders get warm, and the space between them becomes red. The patient will likely die shortly if his stomach gets hot and he passes faeces spontaneously, but recovery is expected after the seventh day. If there is severe pain and different types of morbid matter come with the saliva then the patient either dies or recovers on the third day.

Another type of pleurisy is characterised by clear urine, morbid matter in the saliva, and a throbbing, stretching pain that radiates from the neck to the calf. It is fatal because morbid matter moves upwards and meningitis symptoms appear, recovery is expected to occur after the seventh day [15].

Sign and symptom

The Signs and Symptoms that present together in pleurisy are as follows [8,10-12,14,16,18,20].

- High Fever (Due to Inflammation).
- Piercing Pain (Due to excessive hot humour).
- Impaired Respiration (Due to inflammation).
- Dry Cough (immature morbid matter).
- Serrate pulse (Nabḍ Minshārī).

The crisis will occur on the seventh, eleventh, and typically the fourteenth day if the phlegm starts on the fourth day. The disease will worsen if the phlegm comes on the eighth day, and the crisis may occasionally occur on the thirty-third, forty-first, or sixty-first day. Reddish-brown phlegm signifies sanguineous inflammation, while yellow or yellowish phlegm suggests bilious morbid materials. If the phlegm is red, it indicates sanguineous inflammation and yellow/yellowish phlegm indicates bilious morbid matter. If it is white and frothy, then it indicates it is phlegmatic inflammation and if it is black or blackish, then it is evidence of melancholic inflammation. Phlegmatic and melancholic inflammation rarely occurs in the inner membrane of the ribs due to stiffness, but sometimes it occurs in the internal muscles of the chest [10,14,16,18,20].

A dry cough is a sign which suggests that the disease has not fully matured. And if anything comes with the cough is abnormal, that may be of two types.

- Immature (morbid matter without Nuḍj/concoction).
- Immature, and vicious [18].

Signs of good pleurisy

- The phlegm starts coming immediately, matured, white, smooth, and uniform.
- The pulse is not very firm.
- Mild pain.
- The constant temperature of the body.
- Adequate Sleep.
- Normal respiration.
- Urine, stool, and sweating are moderate.

These signs are opposites of fatal pleurisy [10].

Severe symptoms of pleurisy are the following:

- Syncope (Ghashī).
- Dry tongue.
- Insomnia (Sahar).
- Ikhtilaj-al-Qalb
- Mental impairment (Fasād al-'Aql) [18].

Pleurisy (Dhāt al-Janb Khāliṣ) does not have any pulsation, because the affected organs (muscles and diaphragm) do not have more arteries [8,15,18].

Pathogenesis of pleurisy (MAHIYAT MARDI)

- It is usually caused by entering of bilious (Ṣafrāwī) and sometimes sanguineous (Damawī) morbid matters into the inner membrane of the chest because no other morbid matter can enter into the peritoneal organs except thin humour, i.e., bile, and blood [8-10,12,14,16]. Failure to resolve or remove that morbid matter due to weakness in medicatrix naturae (Ṭabī'at) and expulsive faculty leads to inflammation of the membrane.
- Pleurisy is also caused by moist vapours ascending to the brain and from there, they drip into the internal muscles of the chest. Therefore, they enter into the membrane and cause inflammation. Dry vapours do not cause this disease because dry vapours cannot drip from the head [14,20].

- It can also be caused by excessive alcohol consumption, resulting in intense and sudden movement in the humour and leading to congestion in arteries and veins. Therefore, bile pours into the membrane from the arteries leading to inflammation [15].

The fates of inflammation are:

- Complete dissolution
- Pus formation
- Hard inflammation

Pleurisy patients experienced similar outcomes. However, hardness is not common. There are now only two possible outcomes: either it accumulates or dissolves spontaneously. The concoction of morbid material varies according to the involved matter, age, and season [8,10,16]. The pleurisy-related morbid matter spreads to various organs in the body, causing disorders in the brain and nerves (tetany, muscle spasm), lungs (sill), heart (palpitation, syncope), skin (boil), and piles [8,10,15].

Principles of management (Usool-e-Ilaj)

In the Unani system of medicine, the basic principle is to identify both the cause and type of pleurisy before starting a therapy appropriate to the patient. Purgation and venesection are the next steps in the treatment plan when morbid matters cause pleurisy. The treatment plan begins with a concoction (Nuzj) which depends on the type of morbid matter present.

In order to evacuate the morbid materials, venesection of the basilic vein on the opposite side should be performed. This procedure should be repeated after three days in order to eliminate any residual morbid matter [9]. Lukewarm Sikanjabīn (oxymel, Mixture of honey and vinegar) should be given in winter and cold in the summer. Drinking cold water should be avoided because it causes delays in concoction [18]. Naṭūl (Douche, Medicinal liquid preparation poured on the affected part with force), Taskīn-i-Ḥarārat (Alleviation of morbid heat of body), Talyīn-i-Awrām (Process of softening of hard inflammation), Poultice should be used accordingly [9].

Management (Ilaj)

After venesection and purgation, decoction of Unnab (*Zizyphus sativa*), Khashkhas (*Papaver somniferum*), Sapista (*Cordia lotifolia*),

Anjeer (*Ficus carica*), Kateera (*Cochlospermum Gossypium* DC), Banafsha (*Viola odorata*), and Badam (*Prunus amygdalus*) should be given to the patient [18]. When the morbid matter is removed, the fever goes down and the patient's condition improves, Turkish bath of lukewarm water is beneficial to remove the remaining morbid matter by opening the skin pores and increasing the capacity of elimination [17]. Sharbat banafsha and Sharbat nilophar are more effective than Jullāb (preparation of rose water and sugar). According to Ibn masoya, Uṣāra juntiayana (extract of *Gentiana lutea*) is beneficial in pleurisy [18].

Qurṣ (tablet) for concoction of lungs/chest inflammation [18]

Khatmi (*Althaea officinalis* Linn.), Khiyar (*Cucumis sativus* Linn.), Khubbazi (*Malva sylvestris* Linn.), Kharpaza (*Cucumis melo*), Kaddu (*Cucurbita maxima* Duchesne), Rubbus soos (*Glycyrrhiza glabra* Linn.), Nakhona (*Trigonella uncata*), Banafsha (*Viola odorata*), Katira (*Cochlospermum Gossypium* DC.), Luab tukhm Katan (*Linum usitatissimum* Linn.). Used with water of Anjeer (*Ficus carica*). (Galen).

Poultice (Ḍimād) for pleuritic pain [18]

Ushuq (*Dorema ammoniacum*), Zoofa-e-tar (*Hyssopus officinalis* Linn), Jao-Sheer (*Ferula galbaniflua* Boiss), Kundur (*Boswellia serrata* Roxb. ex. Colebr), Barzad (*Pinus roxburghii* Sarg), Keherba shamai (*Pinus Succinifera*).

'Ilāj bi'l Tadbīr (Regimenal therapy)

Venesection should be done on the 8th day when risk of dyspnoea and pain [18] especially in the sanguineous type. If there is no contraindication, the venesection of the basilic vein on the affected side should be opened properly [20,21]. Considering the temperament, faculty and age of the patient, an adequate amount of blood should be removed, do not be wasteful. Because the need for venesection arises for the second or third time, the blood can be removed. and excessive blood withdrawal at once may cause weakness in the body and faculty. Therefore, the patient needs to take rest for a few days following the first Venesection.²¹ Pleurisy may improve by either hot or dry fermentation or Kimād [18].

Diet therapy [17]

At the early stage of the disease, Mā'al-Sha'īr (Barley water) with sugar or Sharbat Nilophar (*Nymphaea alba* Linn. syrup) should be included in the diet. When the illness progresses and strength is

required, start with almond Ḥarīra (a semi-liquid preparation); if appetite is improved, use spinach or Khubbazi (a preparation made from *Malva sylvestris*). Alternatively, the medication may be administered in a different dosage form, such as Ḥarīra, including Ḥarīra of wheat bran, Ḥarīra of Tukhm Khayarain (*Cucumis sativa* Linn. & *Cucumis melo var. utilissimus*), Ḥarīra of Sheera Magz Tukhm kaddu (*Cucurbita maxima* Duchesne), and Ḥarīra of Roghan Badam (*Prunus amygdalus*).

After the fever and severity of the disease subside physician suggested using butter and sugar as they help in concoction and sputum and it also provides strength. And after the seventh day or increase in strength start the chicken chicks soup cooked with barley. And if the weakness is severe then use the half-boiled eggs.

Finally, the review on pleurisy can be summarised by adding that it is not something that is new but it is an old era disorder which is purely understood and explained by the renowned Unani physicians and they have also advised the treatment for the same.

Conclusion

Pleurisy is defined as a painful, hot inflammation that occurs in the surroundings of the chest. It is usually caused by bilious (Ṣafarāwī) and sometimes sanguineous (Damawī) morbid matters. Young persons and those whose growth and development are incomplete are frequently affected by pleurisy. The left side pleurisy is worse than the right side because it is closer to the heart, but the heat of the heart helps it in concoction (Nuḍj) as well as dissolution. Pleurisy is often classified into two types: Dhāt al-Janb sahih/Ḥaqīqī and Dhāt al-Janb Ghayr sahih/Ghayr Ḥaqīqī. The signs and symptoms of pleurisy include a high fever, piercing pain, impaired respiration, dry cough, and serrated pulse. Based on the type of morbid materials involved, a diagnosis is made. The line of treatment and management of pleurisy is mainly based on the elimination of morbid matter and strengthening the medicatrix nature (Ṭabī'at) using different types of medicine and diet.

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