



ISSN: 2456-0057

IJPNPE 2019; 4(2): 142-145

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www.journalofsports.com

Received: 11-05-2019

Accepted: 15-06-2019

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## Patho-Physiology of *baras* in the light of Humoral disturbances

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### Abstract

There is a wide literature regarding *Baras* in Unani system of medicine. Unani scholars have discussed a lot concerning dermatology and cosmetology under *Amrād Jild wa Zohrawiya* and *Amrād Tazeeniyat* which includes *Baras* as well. *Baras* is an Arabic word and the famous Arabic Urdu dictionary *Al-Munjid* defines its meaning as “It is a skin disease in which the skin becomes white and a painful itching is also present”. The incidence of this disease varies from country to country and may be as low as 0.24% in London and as high as 1-2% in India and Mexico. It is a complex disease which can be initiated by a variety of apparently unrelated etiologic factors. Unani physicians account this disease in the disorders of phlegm (*Balgham*) in which there is Humoral derangement (excess of *Khilṭ Balgham*). It is a disease of cold temperament (*Mizāj Bārid*). One of the main causes is considered to be the weakness of *Quwwat Mughayyira*, *Quwwat Dāfi’a* and *Quwwat Mushabbihā*. *Ibn Sīnā* in *Al-Qānūn* says that the main cause of *Baras* is digestive disturbances and food incompatibility. *Majūsī* says that every organ is attracted towards *Balgham* and that’s why it turns white. *Baras* is a chronic disease and therefore, all Unani physicians are of the opinion that its treatment should be started with *Tanqiya Badan* with *Mundij* and *Mushil*. *Abū Sahal Masīhī* was of opinion that treatment of *Baras* should be initiated by drugs of hot and dry temperament (*‘Ilāj bi’l-Ḍidd*). It is also interesting to note that Unani physicians were also aware of the fact that exposure to sun activates the process of pigmentation. In short, *Baras* is thought to be a phlegmatic disorder and its *Uṣūl-i-‘Ilāj* include *Tanqiya Balgham* and *Tasfiya Badan* along with other treatments.

**Keywords:** *Baras*, *Amrād Jild*, *Khilṭ Balgham*, *Quwwat Mughayyira*

### Introduction

Vitiligo is an idiopathic, acquired, circumscribed de-pigmentary condition. It is characterised by the appearance of white patches on the skin. These patches may be of different size and shape and have a tendency to enlarge peripherally. Vitiligo may be localised, segmental or generalised. It may also become so extensive that almost all the body surface becomes white. The disease does not affect the general health of the patient but the physical disfigurement caused by this disease often leads to social embarrassment and psychological turmoil. India is one of those countries where it is considered socially as well as medically significant. It affects 1-2% of the world population. In India the incidence has been estimated to be 3-4% among outdoor patients. It affects both the sexes. Although it is only cosmetic in nature, it has a devastating effect on the psyche of the patient as it distorts the body image and causes extreme fear, anxiety and concern. Its etiology still remains an enigma and its successful treatment has been a great challenge for medical scientists.

**Historic Context:** The term vitiligo has been derived from Latin word ‘*Vitellius*’ meaning calf - the characteristic white patches of spotted calf. Many other terms have also been used for this disease such as *leukoderma*, *sufaid dagh*, *phulbahri*, *svitra* etc <sup>[1]</sup>. Information concerning vitiligo comes from Pharaonic medicine in the Ebers papyrus (1550 B.C.). White spots have also been described in Greek literature. References to this disease are also found in the bible. Hippocrates (460-377 BC), the father of medicine was the first to define *Baras*. *Rabban Ṭabarī* (810-895 AD) in his famous book *Firdaws al-Ḥikma* <sup>[2]</sup>, *Zakariyyā Rāzī* (850-925 AD) in *Kitāb al-Ḥawī* <sup>[3]</sup> and *Ibn Sīnā* (980-1037 AD) in *al-Qānūn* <sup>[4]</sup> gave a comprehensive description of the disease.

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**Views of unani scholars regarding *Baraṣ*:** *Baraṣ* has been defined by Unani scholars as a skin disease [5, 6]. According to Galen, the cause of *Baraṣ* is the weakness of *Quwwat Mughayyira* and *Mushabbiha* (transformative faculties) in the organs [7]. *Rabban Ṭabarī* says, “*Fasād al-Dam* (impairment of blood) and *Burūdat al-Dam* (coldness of blood) are the main causes of *Baraṣ*. If the digestive faculty of the body cannot digest the food properly the blood of the whole body becomes impure. When this impurity occurs due to phlegm or coldness, appears the *Baraṣ*.” [2] *Zakariyyā al-Rāzī* mentions, “*Baraṣ* appears when flesh becomes phlegmatic. Thus the blood reaching this flesh also becomes phlegmatic and the area getting such blood cannot be nourished properly thus it is changed into phlegmatic substance”. According to *Rāzī*, if the patches of *Baraṣ* do not turn red on rubbing or when, instead of blood, white fluid comes out on pricking them the possibility of recovery is remote [8]. *Shamoon* says, “*Baraṣ* occurs due to frequent use of such food articles that contain water in excessive quantity” [3, 9]. *Al-Majūsī* says “*Baraṣ* is whiteness occurring in outer surface of the body. Sometimes it occurs in few organs sometimes it affects all organs. Consequently the whole body becomes white. This disease occurs due to weakness in *Quwwat Mughayyira* (transformative faculty) in the organ” [34] he further added, if the skin is punctured with a needle, the white fluid oozes in spite of blood, then there is no chance of cure. And if the blood or reddish fluid oozes, then there is hope for the cure [10]. *Ibn Sīnā* says, sometimes the function of *Quwwat Ghādhiya* (digestive faculty) is deranged as it happens in case of *Baraṣ*. The nutrient material reaches the tissues and is retained there but does not take proper shape due to the failure of *Quwwat Mushabbiha* [4]. *Ḥakīm Akbar Arzānī* says about *Baraṣ*, “*Baraṣ* is a whiteness appearing on the skin. When it spreads all over the body, it is called *Baraṣ Muntashir* (generalized vitiligo). Its treatment becomes difficult if it turns chronic and remain progressive” [11]. Sometimes *Baraṣ* is present over the nails with tiny white spots and is known as *Baraṣ al-Azfār* [12, 13]. According to *Yahya Ibne Masoya*, “the person who stored milk and fish at the same time in his stomach and if he gets leprosy, vitiligo or gout, he should not claim on others” [10].

**Causative Factors of *Baraṣ*:** In modern system of medicine the exact cause of vitiligo is unknown [14, 15, 16, 17, 18, 19]. Modern system treats vitiligo as a disease of multiple factors which may be as follows: Physical or mental trauma, emotional stress, sunburn [20], ailments of stomach, intestine and liver, worms or other parasites in the alimentary canal, deficiency of cupro-minerals, zinc or protein in diet [21], other environmental factors etc.

Unani physicians account this disease in the disorders of phlegm (*Khilṭ Balgham*). According to them, following may be the causes; Thick phlegm with excessive viscosity [3], all cold and phlegm producing food substances such as fish, brinjal, milk etc. in excess [3, 6, 10, 21], cold temperament (*Mizāj Bārid*) and digestive problems [22], Weakness of *Quwwat Mughayyira*, *Quwwat Dāfi’a* and *Quwwat Mushabbiha* [23], heavy and light food mixed simultaneously such as drinking of milk just after eating fish [6, 10, 21, 24], cupping [12, 25], deficiency of melanocytes (*Khuliyāt Sawdāwīa*), that’s why non production of *Sawdā* causes *Baraṣ*, metabolic disturbances [23].

### Pathology of *Baraṣ*

- In vitiligo, there is marked absence of melanocytes and

melanin in the epidermis i.e. pigment is lost from well-defined irregularly shaped patches of the skin, melanocytes in the lesions degenerate and disappear [26, 27, 28].

- The central process in the vitiligo is the destruction of melanocytes at the dermo-epidermal junction. Histochemical studies show lack of dopa positive melanocytes in the basal layer along with unusually large, highly dendritic melanized melanocytes in the epidermis and numerous melanophages in the dermis of the border areas [1].
- Some observers have noted an increase in the number of Langerhans cells in the vitiliginous epidermis. [61] Electron microscopy studies confirm the loss of melanocytes, which appear to be replaced by langerhan cells [26, 29].
- In addition to melanocytes, keratinocytes have shown evidence of ultra-structural degeneration at the vitiliginous border [30].
- A substance similar to melanin is secreted by the peripheral nerve endings, this lighten the pigmented cells and interferes with the new formation of melanin pigment [1, 31, 32].

### Pathophysiology of *Baraṣ* in the Light of Unani Philosophy [33, 34]:

According to Unani philosophy, the cause of a disease may be one or more of the three i.e.

- *Sū’-i-Mizāj*
- *Sū’-i-Tarkīb*
- *Tafarruq-i-Ittiṣāl*

*Baraṣ* comes under the category of *Sū’-i-Mizāj* which may of two types: *Sū’-i-Mizāj Sāda* or *Sū’-i-Mizāj Māddī*. *Baraṣ* occurs due to *Sū’-i-Mizāj Māddī* (*Sū’-i-Mizāj Bārid Raṭab*) due to excess of *Khilṭ Balgham*.

*Sū’-i-Mizāj* occurs due to weakness of *Quwwat Ṭabī’iyya* (natural power particularly nutritive power) that is concerned with the welfare and preservation of the individual, and secures nourishment to it to the end of the life. This faculty resides in liver and its functions emerges therefrom. Its function includes transmutation of the material from its former state until it has become worked up into a temperament such as enables it to become efficient nutrient material. This process is called digestion in strict sense. Due to weakness of nutritive power (which is mentioned to be a cause of *Baraṣ* in Unani literature), the nutritive substance cannot be transmuted to become melanocytes (which are part of the body) and hence the lack of pigmentation and occurrence of white patches.

There are four conditions ensuring the nutritive substance to become part of the body which are not being fulfilled in *Baraṣ*:

1. The organ receiving the nutrition should be in a state of health with respect to temperament and structure.
2. The nutritive substance should be in the required quantity and quality so as to become the part of the body.

The second condition does not get fulfilled in *Baraṣ* i.e. the nutritive substance is sufficient in quantity but is not in required quality so as to become melanocytes due to lack of nutritive powers which changes the temperament of the nutritive substances to make it part of the body i.e. melanocytes or if the melanocytes are even formed, they are not in accordance to the temperament required for normal functioning of melanocytes.

The function of melanocytes is pigmentation and whenever

the function of an organ deviates from its physiology, there could be three possible states of the functional deviation. These are:

- Complete absence of the function (*Naqsān Fi'l*)
- Altered function (*Taghayyur e Fi'l*)
- Less functional (*Buḥlān Fi'l*)

*Baraş* come under the first category. Here melanocytes can be considered as a body and the function of melanocytes i.e. pigmentation is not accomplished.

The cause behind the melanocytes not functioning or the absence of melanocytes is the derangement of nutritive powers (residing in liver) as stated above which makes the nutritive substance a part of the body (here melanocytes) by changing its temperament and consistency. Hence the required temperament and consistency are not achieved due to *Sū'-i-Mizāj* and vice versa and hence melanocytes are not formed or if formed, does not function properly.

It has been proved by the experiments as well that the activation of LXR (liver X receptors) in the skin stimulates the differentiation of keratinocytes and augments lipid synthesis in sebocytes and LXRs are important targets for anti-melanogenesis.

So it can be summarized that *Baraş* is *Sū'-i-Mizāj Bārid Raṭab* which is caused due to derangement of nutritive faculty which resides in liver and hence there is derangement of *Haḍm Kabdī* (metabolism of liver).

**Uṣūl-I- 'Ilāj of Baraş** [12, 35, 36]: Removal of the cause. It can be divided into two: '*Ilāj bi'l-Ghizā* and '*Ilāj bi'l-Dawā*.

*'Ilāj bi'l-Dawā*

- As the main cause is *Sū'-i-Mizāj Bārid Raṭab*, its treatment should be initiated with drugs of hot and dry temperament. (*'Ilāj bi'l-Didd*)
- As it is due to the derangement of nutritive faculty along with liver, *Muqawwī-i-Jigar Adwiya* should be implemented and digestive system should be corrected.
- *Tanqiya Badan* (removal of harmful material from the body) with *Mundij* and *Mushil Balgham* therapy.
- *Muqawwī Ām* to increase the immunity of the body.
- *Maqāmī 'Ilāj: Muḥammir* and *Mubaththir Adwiya* such as *Babchi* etc.

**'Ilāj bi'l-Ghizā** – Being a metabolic disease, diet plays a vital role in the management of *Baraş*.

- Avoidance of food materials that are cold and wet in temperament e.g. milk, curd, fish etc.
- The primary step in the treatment of this disorder is to restrict the intake of phlegm forming foods such as milk, fresh fish and cold and wet edibles.
- Such diets should be given as early as digestible and produces more and more blood.

**Treatment** [3, 7, 25, 37]: *Baraş* is a chronic disease therefore, all Unani physicians are of opinion that its treatment should be started with *Tanqiya Badan* with *Mundij* and *Mushil*. Hippocrates suggest that after *Tanqiya*, digestive system should be corrected and such diets should be given as early as digestible and produces more and more blood. He has prohibited milk and milk products. At the same time, he recommends the meat of birds and young diet. He says that unless there is a desire of food, it should not be taken. He also recommends some digestive tonic to be taken two hours after meals to accelerate digestion.

After *Mundij* and *Mushil* treatment, *Ma'jūnāt Hārra*, *Ayārijāt* and *Iṭrifalāt* are prescribed. Sometimes the specific medicines, both oral and topical are prescribed simultaneously with *Adwiya Musakkina* (soothing drugs) which accelerate general metabolism. Mostly *Mundij Balgham* is given in the management of vitiligo which plays a vital role in correcting the Humoral derangement and plays a vital role in preparing the patient for specific and radical treatment. In other words it detoxicates the body and corrects the Humoral balance.

It is also interesting to note that Unani physicians were aware of the fact that exposure to sun activates the process of pigmentation. *Al-Rāzī* while describing the medicine for external application says "Treat *Baraş* in its early stage by applying the medicine on the patches and by exposing the patient (patches) to sun it will cure *Baraş*." He also says "Make multiple pricks by needle on *Baraş* patches. It is a very effective measure to cure *Baraş*."

Ibn Hubal in his famous book *Kitāb al-Mukhtārāt fi'l Ṭibb* describes the treatment of *Baraş* in the following words- If *Baraş* is in early stage and has not spread completely over the body, the patient should be given the decoction of roots (*Mā' al-'Asal*) with *Julanjabīn* for some days, followed by purgation with *Ayārij Faiqra* and *Gharīqūn*. Apart from this, the decoction of *Baqam*, *Majīth* and *Shīraj* made up with the juice of *Marzanjosh* and *Qanabarri* should be applied locally.

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