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AN OVERVIEW OF PULSE IN UNANI SYSTEM OF MEDICINE

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ABSTRACT

The examination of pulse is one of the most important and practical means to diagnose a disease and to assess its prognosis. It also provides the first opportunity to develop patient-doctor relationship. Almost all systems of ancient medicine have described the importance of pulse and its examination. This paper describes the examination of pulse in Unani system of medicine.

INTRODUCTION

Ever since the age of antiquity, people realize the importance of beating heart and its relation to pulse beat and warm blood (1). In Edwin Smith Papyrus, the heart is described as being the center of a system of blood vessels extending peripherally to various parts of the body without reference to what they are distributed. A direct correlation between the pulse and the heart is said to be influenced by force and action of the heart. (2) Galen (132-201AD) emphasized the importance of feeling pulse and taught that an intermittent pulse carried a poor prognosis and could be harbinger of sudden death. (3) Galen wrote 18 books on the arterial pulse, providing elaborate description that influenced clinical practice into the 18th century. He fully elaborated the concept that heart is the source of heat, and blood vessels carried *pneuma*, the life sustaining spirit of the vital organs. Galen also noted that the general purpose of the valves is to prevent the reversal of blood flow.(4) Although pulse counting can be traced to the 5th century AD, Alexandrian physician, Herophilus used a water clock for this purpose(5). In 1707 AD Italian physician, Giovanni Lancisi, in his study of sudden death, argued that an intermittent pulse without shortness of breath or other symptoms did not imply the dire prognosis that had been accepted since the time of Galen.(3)

Unani Physicians were diligently observing pulse for diagnosing the disease. Every important variety of pulse revealed by sphygmograph was recognized, described and named before Christian era. Paraxagoras (400 BC), a contemporary of Hippocrate, taught the art of “sphygmopalpation”. The word itself is derived from the Greek word ‘*sphygmōs*’ meaning “pulse” and Latin ‘*palpare*’ meaning “feel”.(6)

Rufus of Ephesus in 200 AD noted that the pulse, the heartbeat and systole are synchronized. He described the mechanism of the pulse and observations of several classical pulses including dicrotic, formicans, and vermiculans. (6)

Galen (130-201 AD) stated that pulsation is the feeling of the artery striking against left finger as it is expanded; pause is the period of quiescence between the pulsation. Some pulses have a name, *worm-like* (vermiform) pulse which is feeble and beating quickly, the *ant like* (formicans) pulse has sunk to extreme limits of feebleness, frequency, and smallness, though it appears swift is not really so. Throughout his writings he described a great variety of pulses such as the *pulsus serratus*, or saw shaped pulse, the thread pulse and the *pulsus myurus*, (a pulse described as having diminishing strength which tapers like a rat’s tail).(6) According to Avicenna (980-1037 AD): “pulse is a movement in the vessels of *pneuma* which comprises

expansion and contraction”. The purpose of this movement is to temper pneuma with breeze. Each pulse beat comprises of two movements and two pauses. Expansion: Pause: Contraction: Pause (7).

Avicenna has mentioned that Pulse is felt at the wrist because, it is easily accessible, the patient is not distressed by exposing this part; it is situated in the continuity of heart and is close to it. According to Unani Physician there are ten features in the pulse from which we are able to discern the states of the body. These are as follows. 7

1. Amount of expansion (*miqdar inbisat*)
2. Quality of the impact imparted to the finger of the observer at each beat (*kafiyat-e-qara*)
3. Duration of movement (*zamanah-al-harkat*)
4. Duration of pause (*zamanah-al-sukun*)
5. Consistency of artery (*qiwam-al-alah*)
6. Emptiness or fullness of the vessel between the beats (*khala-wa-imtila*)
7. The feeling-whether hot or cold (*malmas*)
8. Equality or inequality of force in successive beats (*istwa-wa-ikhtilaf*)
9. Regularity or irregularity, orderliness or disorderliness (*nizam-wa-adamnizam*)
10. Metre, rhythm, harmony, accent (*al-wazan*)

These types of pulses described by Unani Physician to diagnose the disease has its importance even today e.g. the completely irregular pulse is found in atrial fibrillation and occasional irregularities are likely to be due to extra systole. (8)

A large number of abnormal pulses have been described in Tibbi Literature with their asbab (causes) leading to the diagnosis of various diseases of the vessel walls itself, disease of the heart and of the other organs and systems of the body directly or indirectly affecting the heart. (9) The examination of pulse is one of the most important parts of clinical examination. The oldest medical sciences like Ayurveda, Unani and even Chinese medicine gives so much emphasis on pulse, that almost all diseases in these sciences are diagnosed by pulse only. In modern medicine the pulse has retained the place as one of the important diagnostic methods for cardiac ailments, but not the only method. (10)

Technique of feeling pulse (11)

1. The position of Hand: If the palm be turned upwards the pulse will appear wider, less high and less long, especially in thin persons. If the hand be palm down, the pulse seems higher, longer and narrower.

2. The position of observers hand; this must be adapted according to the position of the patient. The middle finger must be placed exactly at the junction of carpus with lower end of radius. The other two fingers are now allowed to rest upon the artery, one on either side. The index finger should be nearest to the heart.
3. Emotional state of the patient: The pulse should not be felt when a patient is not in state of excitement or anger, or affected by exertion or under the influence of emotions, or in state of satiety, or of hunger; nor must it be a time when usual habits are neglected or new ones are being formed.
4. The state of the observer: The observer must be in a calm state of mind. He must be very attentive and free from the least distraction of thought. The body must be tranquil and the posture at ease. The respirations thus should be unimpeded and regular. His own state of health should be good.

Different types of irregular pulses in Tibbi Literature. (7, 9, 11)

1. *Nabz Gazalee* (Gazelle Pulse) or Goatleap pulse: - It is the unequal pulse varying in one part. It is slow but later on becomes rapid.
2. *Nabz Moaji* (Wavy pulse, Undulatory pulse): - The irregularity is in respect of thickness, smallness, height and breadth of the parts of the artery. Similarly, in this pulse the beat is too soon or too late. This type of pulse is soft but it is not very small; it has some breadth. It is like waves, which follow one another in orderly way and yet in the extent of rise and fall, and in swiftness and slowness.
3. *Nabz Doodi* (Vermicular pulse or Creeping pulse): - It is similar to the wavy pulse, but it is small and very regular. Its regularity causes it to be mistaken for a swift pulse though it is not so.
4. *Nabz Namle* (Ant-like pulse or Formicant pulse): - It is smaller and still more regular than the vermicular pulse. It differs from vermicular pulse in the great ease with which upward rise, anteposition of beat or postposition is perceived. Irregularity of breadth is hardly perceptible.
5. *Nabz Manshari* (Serrate pulse or Harsh pulse):- This pulse resembles the wavy pulse in inequality of the various parts, rise, breadth, ante position and post position. It differs, however, in being harder though the hardness is not uniform. Hence, the serrate pulse is swift, continuous and hard. Its part differs in size of expansion and in hardness and softness.

6. *Nabz Zinabulfar* (Mouse tail pulse): - There is progressive inequality of the components- from decrease to increase, from increase to decrease. This may apply to several beats or only to one beat or only to a part of beat. This inequality is in respect of volume, or of slowness or of weakness.
7. *Nabz Zinab Misalli* (Spindle shaped pulse or Recurrent pulse): - It starts from smallness and increases up to a certain limit. Then it declines and comes back to the original position. It is like two mouse tail joined to each other at the base.
8. *Nabz Zulqaruttain* (Dicrotic pulse): - Attiba are divided about the description of pulse. Some of them regard it as single beat varying in anteposition and postposition while others regard it be a dual beat. The intermission between the two beats is not so much as to facilitate for a movement of contraction and then expansion. This type of pulse is found in extra systoles.
9. *Nabz Zulfitra* (Intermittent pulse): - In this pulse a pause appears when movement is expected.
10. *Nabz Waqae Fil Wast* (Fading or falling pulse, Supernumerary pulse):- In this pulse an extra beats appears during the period of rest after the first beat has ended.
11. *Nabz Mutashanuj* (Spasmodic pulse)
12. *Nabz Murtaesh* (Tremulous pulse)
13. *Nabz Multawi* (Twisted pulse): - This pulse is like a thread, which is twisted. These varieties (11-13) differ from one another in progress and delay of the beat in position and breadth.
14. *Nabz Mutwatir* (Cord like pulse): - It is one the variety of the twisted pulse. It resembles the tremulous pulse with the difference that in the cord like pulse the movement of expansion is less conspicuous; similarly, the departure from the regularity of position of rise is less evident but tension is evident.

Inflammatory conditions of fibro-muscular organs like pleura, diaphragm etc. causes harsh pulse. This pulse shows a varying consistence of the artery which is produced by changes in the composition of the (circulating) humours, whereby decomposition products, “crudities”, or products of maturation diffuse through the vessel wall and affect its mode of expansion.¹¹

Factors concerned with the production of pulse: 11

The factors concerned with the production of pulse are i) essential and integral in the constitution of the pulse. They are called “contentive” factors; ii) non-essential: comprising

two groups a) inseparable- that is, if they were altered, the type of the pulse would be altered;
b) separable- that is , a change may be produced in them without affecting the type of pulse.

There are three contentive factors:

1. The (vital) power of the heart, producing the expansion.
2. The elasticity of the artery.
3. The resistance, or urge

The non-essential factors are:

1. Natural (i.e. pertaining to the nature) - Age (manhood, youth); temperature of air (hot seasons, hot localities); temperament.
2. Non- natural: Exposure to very hot atmosphere; use of hot baths; vigorous exercise or gymnastics, influence of food and wine; influence of calfacient medicines.
3. Preternatural: Emotional states; Secretiveness (hiding anger etc.), cunning persons who easily conceal matters, habits of the patient; “hot” intemperaments; decompositions occurring in the fluids (in the stomach or tissue).

Variations of Quality of Expansion (11)

Length factor: long, short, or moderate

Width factor: wide, narrow, or moderate

Depth factor: eminent, lowered, or moderate

The possible variations are:

Long--Wide—Eminent	Moderate--Narrow--Eminent
Long--Wide—Lowered	Moderate--Narrow--Lowered
Long--Narrow- Eminent	Moderate--Moderate--Eminent
Long--Narrow—Lowered	Moderate--Moderate--Lowered
Long--Moderate—Eminent	Long--Wide—Moderate
Long--Moderate—Lowered	Long-- Narrow-Moderate
Short--Wide—Eminent	Long--Moderate--Moderate
Short--Wide—Lowered	Short--Wide—Moderate
Short--Narrow—Eminent	Short--Narrow—Moderate
Short--Narrow—Lowered	Moderate -- Narrow--Moderate
Short--Moderate—Eminent	Short--Moderate-Moderate
Short--Moderate—Lowered	Moderate--Wide—Moderate
Moderate--Wide—Eminent	Moderate--Moderate--Moderate
Moderate--Wide—Lowered	

Some diseases and their characteristic pulse.(12)

Sarsam har	Azeem, sare, wa mutwater
Faranitus	Azeem wa laen
Sibat	Sare wa zaef wa mutfawit wa mumtale
Sakta	Sager wa zaef wa mutfawit
Zukam har	Azeem sarah wa mutwar
Zatul janab	Sare wa sager wa mutawater wa sulb
Zatul riyah	Zaef was are wa laen wa moje
Gashi	Sagheer wa zaef
Warm kabid	Azeem was are wa mutwater
Yarqan	Mutwater wa sulb
Ehtebas tamas	Bate wa mutfawet
Hamlah	Azeem, sare wa mutwater
Nabz Marg	Nabz laen wa gair muntazim

CONCLUSION

Unani Physicians were diligently observing pulse for diagnosing the disease and the findings observed by them are at par with the present day concept of pulse. The basic concept of pulse and its interpretation is given as collaborative efforts of both Unani and modern medicine. This is also important that pulse should be examined when the person is not in the state of anger or excessive happy or under stress of exercise or emotions.

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