Review Article

A Review of Ancient and Modern Concepts of Hyperlipidemia/*Farṭ shaḥm fī al-dam*

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Abstract: Ancient Yūnanī physicians were aware of *dasam* and *shaḥm* (fat) of the blood. They described the condition of *farṭ shaḥm fī al-dam* which is what we call now hyperlipidemia. They also described *al-simna al-mufriṭa* (excess of fat in the body) or what we call now obesity. They considered these two conditions a single disease. While we now know that they are different conditions, it is true that obese individuals frequently suffer from hyperlipidemia.

Key words: Hyperlipidemia, obesity, Yūnanī medicine, *al-simna al-mufriṭa*, *farṭ shaḥm fī al-dam*

Introduction

Medical science is as old as mankind. Every civilization on the earth had its unique system of medicine. Classical medicine included Bābli Ṭibb (Babylonian medicine), Miṣrī Ṭibb (Egyptian medicine), *Hindi* Ṭibb (Ayurvedic medicine), Ṣīnī Ṭibb (Chinese medicine) and Yūnanī Ṭibb (Greek medicine). Yūnanī Ṭibb is a system of medicine that originated in Greece about 2,500 years ago and was adopted and developed by Muslims and others living in the areas of Syria, Iraq, Iran, Central Asia and India.[1] The Yūnanī (Greco-Islamic) system of medicine is a rich storehouse of remedies, principles and philosophies, which if practiced properly, can prove to be of immense value to science in general and medicine in particular. The theories, philosophies and therapies of this system are most appropriate to the human biologic system. Their remarkable results in day-to-day health problems as well as in complicated conditions have created implicit faith in the minds of people towards this system.

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The concept of ṭabīyat and *mizāj* are unique. The term ṭabīyat is derived from the Arabic word ṭabī`a. It is also known as *al-ṭabī`a al-mudabbira lil-badan*. Ṭabīyat is a natural power, a prime mover, which, when it exists in a body, becomes the direct (proximate) cause for its active motion or rest.[2] *Mizāj* (temperament) is the homeostasis in the internal environment of the body. It is specific for each individual, fluctuating between certain minimum and maximum limits.

In physiological conditions, ṭabīyat maintains homeostasis in the internal environment of the body (*mizāj*). In case of disease or simply the body's failure to reach its ideal state, ṭabīyat acts to correct imbalances and non-ideal states.[3]

Man is subjected to various dangerous ailments in present time. Among these challenging diseases, *farṭ shaḥm fī al-dam* (literally "excessive fat in the blood") or hyperlipidemia is a major public health problem disproportionately affecting the affluent classes of society throughout the world. It accounts for millions of visits to doctors per year.

Hyperlipidemia is a pathological condition and the term is applied when the plasma cholesterol or triglyceride levels are increased above the normal levels.[4-6] It is characterized by an excess of fatty sub-

stances such as cholesterol, triglycerides and lipoproteins in the blood and is an important risk factor in the development of atherosclerosis. Lipoproteins include very low-density lipoproteins (VLDL), low-density lipoprotein (LDL), and intermediate-density lipoproteins (IDL). Chylomicrons are also considered as lipoproteins, and are composed of triglycerides, cholesterol and protein. High-density lipoprotein (HDL), or "good cholesterol", level is inversely related to the risk of coronary artery disease, as it is protective against the development of atherosclerosis. Hyperlipidemia is mainly of two types:

Primary: This may be caused by genetic factors and includes familial hypercholesterolemia, familial lipoprotein lipase deficiency, hepatic lipase deficiency and familial apoprotein C-II deficiency.

Secondary: This can be due to some other cause like diabetes mellitus, hypothyroidism, renal and liver diseases.

More than half of the coronary artery disease is attributed to the abnormities in the metabolism of plasma lipids and lipoproteins. Sedentary life style, high fat intake (greater that 40% of total calories, saturated fat intake greater than 10% of total calories, and/or cholesterol intake greater than 300 milligram per day), habitual excessive alcohol use and cigarette smoking are also associated with increased risk for atherosclerosis.

Defect in lipid metabolism causes hypercholesterolemia. LDL is the mediator of cholesterol and cholesterol esters uptake into many tissues. Free cholesterol is removed from tissue by HDL and transported to the liver for conversion into bile salts. Any disturbance can cause cardiac disease, peripheral vascular disease, and gall stones and other conditions. Elevated levels of fasting plasma total cholesterol in the presence of normal levels of triglycerides are almost always associated with increased concentration of plasma LDL cholesterol, since LDL caries 65-75% of total plasma cholesterol. Rarely, patients with markedly elevated HDL can have increased plasma cholesterol levels. Elevations of LDL can result from a single gene defect, polygenic disorders or secondary effects of other disease states.

There is no direct reference to this disorder in the classical Yūnanī literature per se, but since hyperlipidemia is almost always associated with obesity, the term *al-simna al-mufriṭa* (obesity) can be said to encompass this disorder as used in these classical books.[2,3,4] If we trace back the genesis of this problem, one will realize that the ancient Yūnanī scholars were well acquainted with the basic concept of this disorder. The ancient Yūnanī physicians like Būqrāṭ (Hippocrates, 460-377 B.C) and Ibn Sīna (980-1038 CE) have described *al-simna al-mufriṭa* (obesity) in their magnum opuses.[7-9] They mentioned *dasam* (fat) of blood in their books. According to Abū Sahal al-Masīḥī, fat is *ʿuḍw mufrad* (tissue) or *ʿuḍw-e-basīṭ* (simple organ), and omentum or *tharb*, the fat that supports the outer surface of the intestine, is soft organ. He described fat's two types. One is soft (liquid) and has less propensity to solidity. For example, fat which is bound to muscles (*ʿaḍalāt*) is called *samn*. The second type is solid or *munjamid* fat, which he called *shaḥm*, which adheres to the kidneys (adipose tissue). According to al-Masīḥī, fat (*shaḥm* and *samn*) are formed by the blood. The lubricant property of blood is due to the *dasam*. He also said that fat (*shaḥm* and *samn*) has less *ghidhāʾiyāt* (nutrients). Balgham (phlegm) and other *faḍulāt* (wastes) are formed by *shaḥm* and *samn*.[10]

According to Ibn Rushd, fat is a source of *ḥarārat* (energy) in the body of human beings. He said fat (*shaḥm*) is produced by blood and its average quantity in human being is a sign of health and its decreased level indicates *ʿadam-e pukhtigi-e dam* (undeveloped blood) and reduction of *ghidhāʾ* (diet) for *aʿḍāʾ* (organs). He said excess of fat is not good for health.[11]

Ibn Sīna also said, "*Shaḥm* and *samn* are formed by the *māʿiyyāt* (water) and *dasam* (fat) of *al-dam*." According to Nafīs ibn Iwāz Kirmānī (d. 1448 CE), *dasam-e laṭīf* of *al-dam* (good fat of blood) changes into *ghidhāʾ* and maintains *harārat al-ṭabīʿa* of *laḥm-e-aʿḍāʾ* (the natural heat of the muscular organs). On the other hand *dasam fi al-dam* (blood cholesterol), which comes with blood circulation to *bārid aʿḍāʾ* or al-aghshiya (membranes), solidifies by the *barūda* (cold) and is known as *shaḥm* (fat). He also wrote that due to its lubricant property it makes these organs soft and mushy.[12] From the above descrip-

tion, it is clear that ancient Yūnanī physicians were aware of dasam (*shaḥm*, fat) of blood. This *dasam* or *shaḥm* of blood has now been called lipids (cholesterol and triglycerides).

In the humoral theory, Būqrāṭ has said that health is maintained by homeostasis of *al-dam* (blood), *balgham* (phlegm), *ṣafrā'* (bile) and *sawdā'* (black bile). Imbalance of homeostasis leads to disease. Since *dasam* is present in blood in a certain proportion required for the maintenance of health, increased level of *shaḥm* and *samn* in the blood is *sū'-al-mizāj māddi* (abnormal temperament due to change in matter), which manifests itself with many symptoms. In the modern conception, this *dasam* is called lipids of plasma (cholesterol and triglycerides), the increased level of which leads to hyperlipidemia. So we can say that *farṭ shaḥm fī al-dam* is a *maraḍ khilṭi* (humoral disease) and we are justified in calling this increase of *dasam* (cholesterol and triglycerides) in blood as *farṭ shaḥm fī al-dam* or hyperlipidemia.

In classical Yūnanī literature, a disease similar in various aspects such as etiology, clinical features and complications to *farṭ shaḥm fī al-dam* has been mentioned, namely *al-simna al-mufriṭa* (obesity). Despite the fact that hyperlipidemia and obesity are two different diseases, many times obese people do suffer from hyperlipidemia. The causes, signs, symptoms and complications of these two diseases are very similar. This might be the reason that our ancient Yūnanī physicians considered these two conditions as a single disease. Also, at that time there was a lack of laboratory facilities and means of evaluation of lipids in blood, so our Yūnanī physicians may have considered obesity and hyperlipidemia as one disease. Thus, they described *al-simna al-mufriṭa* as a whole (excess of fat in whole body) and could not specify the excess of fat in blood. *Farṭ shaḥm fī al-dam* is one of the complications of *al-simna al-mufriṭa* (obesity) and *al-simna al-mufriṭa* (obesity) can be said to include this disorder as used in classical books.

References

1. Nigrmi H. *Tarik-e-tibb*. New Delhi, India: Taraqqi Urdu Bureau; 2000.
2. Ahmad I. Introduction to Al-Umoor-al-tabi'yah. Delhi, India: Saini Printers; 1980.
3. Bhika R, Haq H. Tibb-traditional roots of medicine in modern routes to health. South Africa: Mountain of Light; 2000.
4. William B. Text book of pathology. Eighth ed. Dadar Bombay, India: Wagus Publishing House; 1992.
5. Braunwald E, Anthony S, Fauci D et al. Harrison's principles of internal medicine. New York: McGraw Hill Company; 2001.
6. Weatherall DJ, Ledingham JGG and Warrell DA. Oxford textbook of medicine. Third ed. New York: Oxford University Press; 1996.
7. Būqrāṭ (460-377 BC). Malakiss-e-fasool-e-Būqrāṭi. Kantoori GH, translator (Urdu). Lucknow, India: Naval Kishore; 1903.
8. Ibn Sīna (980-1038). Al-qanun. Lukhnow, India: Namipress; 1905
9. Ibn Sīna (980-1038). Al-Qanun fī al-tibb. Kantoori GH, translator (Urdu). Lahore, Pakistan: Naval Kishore (reprint by Sheikh Bashir and Sons); 1930.
10. Abū Sahal al-Masīḥī (970-1010). Kitabul-mia-lil-Masīḥī. Hyderabad, India: Nashrul Uloom Islamia; 1961.
11. Ibn Rushd (1126-1198). Kitabul kulliyat. Urdu translation. New Delhi, India: CCRUM; 1980.
12. Nafīs ibn Iwāz. Moalijat-e- Nafeesi. Lukhnow, India: Naval Kishore; 1906.