



Su-ul-Qinya and Their Clinical Correlation with Anaemia

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ABSTRACT

Su-ul-qinya is combination of two words 'Su' and 'qinya'. Both are Arabic words where "Su" mean defect and 'Qinya' means treasure. By combining both words, it becomes *Su-ul-qinya*, means defect in the asset of the body respectively since blood is supposed to be the asset of the body; therefore *Su-ul-qinya* is a disorder in which the blood becomes defected. The terms Faqruddam, qillatu dam and fasaduddam are used as synonymous for *Su-ul-qinya*. According to Unani literature *Su-ul-qinya* means defect in the blood. So, keeping the fact in mind want to establish the clinical correlation with anaemia in the light of classical Unani literature as well as modern medicine.

Keywords: *Su-ul-qinya; Anaemia; Faqruddam; Fasaduddam; Kuriyat-e-hamra.*

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INTRODUCTION

Su-ul-qinya also means term of *Faqruddam*, which is attributed fasad-e-mizaj. *Su-ul-qinya* means destruction of the assets of blood. The assets of liver are taken in this context as resembling to the assets of blood. Destruction of blood has been described as cause of *Su-ul-qinyahence* terms as *Faqruddam*¹. In classical Unani literature Avicenna described the disease *Su-ul-qinya* which is similar to iron deficiency anaemia (IDA) with clinical features of weakness, palpitation, pallor, fatigue, amenorrhoea². In modern system of medicine *Su-ul-qinya* (anaemia) is defined “as a deficiency in the numbers of red blood cells or in their haemoglobin contain, resulting in pallor, shortness of breath and lack of energy³.”

Anaemia is defined as reduction in total circulating red blood cells leads to decrease in total oxygen carrying capacity of blood. Since the oxygen carrying capacity of RBC's cannot be measured, therefore anaemia has been defined as a decrease in haemoglobin concentration in the blood below the normal lower range with respect to age and sex. Lower level of haemoglobin (Hb%) concentration 13.0gm/dl for male and 11.5gm/dl for female. while new born infants have higher haemoglobin level and therefore lower level in infants is 15gm/dl whereas at 3 months these level goes down to 9.5gm/dl because of destruction of RBC's at early age of life. Even though Hb% plays an important role in majoring anaemia red cell count, haematocrit (PCV) and absolute values (MCV, MCH and MCHC) also provide alternate means of assessing anaemia⁴.

Anaemia is global public health problem affecting both developing and developed countries with major consequences for human health as well as social and economic development. It occurs at all stages of the life cycle, but is more prevalent in pregnant women and young children in 2002, iron deficiency anaemia was considered to be among the most important contributing factors to the global burden of disease⁵. Anaemia is major public health problem in female about 25-50% girls become anaemic by the time they reach the age of menarche. During adolescence period need for iron is increased and also there is further increase due to regular menstrual loss. In developing countries, the high iron demands are not met, mainly because of the poor diet of low iron bioavailability & frequent parasitic infection, thus leading to higher incidence of anaemia in women & girls. Thus, an adolescent who conceives soon after menarche is likely to start pregnancy with depleted iron store⁶.

So anaemia is a major public help with this reason i have started correlation between *Su-ul-qinya* and anaemia with the help of classical Unani literature on the basis of causes clinical features pathogenesis and their management on the basis of modern parameter clinical features, pathogenesis and blood investigations like haemoglobin PCV, Reticulocytes index and serum iron

level. The presenting symptoms of anaemic subject were mainly fatigue, followed by weakness, *sailanur-reham* and *khafqan* (palpitation). These symptoms are in accordance to the classical literature of Unani medicine are very resemblance of Iron deficiency Anaemia.

LITERATURE REVIEW

Unani Concept

Su-ul-qinya also means term of *Faqruddam*, which is attributed fasad-e-mizaj. *Su-ul-qinya* means destruction of the assets of blood. The assets of liver are taken in this context as resembling to the assets of blood. Destruction of blood has been described as cause of *Su-ul-qinyahence* terms as *Faqruddam*¹. In classical Unani literature Avicenna described the disease *Su-ul-qinya* which is similar to iron deficiency anaemia with clinical features of weakness, palpitation, pallor, fatigue, amenorrhoea².

Su-ul-qinya is the condition in which there is decrease in the amount of blood and alteration in its constituents. Also, there is decrease in the number of *kuriyat-e-humra* (RBCs)⁷. Abul Hasan Bin Mohammad Tabri also described that abnormal cold temperament of liver is responsible for dryness and decrease of blood, which causes paleness of the body. Development of all clinical features was considered due to any defect in the blood. Various Unani physicians have described the changes in blood in their own ways. According to them, excessive bleeding, cessations of menstrual bleeding, pathology in the liver and stomach etc. are responsible for the production of deficient blood and development of *Su-ul-qinya*^{8,9,10,11}. Ismail Jurjani, in his book *Zakhira-e-Khwarezam Shahi* described that the disease *Su-ul-qinya* develops when liver becomes functionally weak, leading to alterations in the temperament resulting in the deterioration of the whole body, mimicking anasarca¹². The disease *Su-ul-qinya* is also associated with deranged cold temperament of the liver leading to production of immature and defected blood which is inadequate to nourish the body and to maintain its innate heat¹³. Abul Hassan Ali Bin Sahal Rabban Tabri (810- 895 A.D) wrote, "liver is the reservoir of blood; if there is excessive bleeding in menses, the blood supply in the liver decreases and its functions deranges". Under the heading of liver disease, he wrote, "When the temperament of the liver alters due to coldness, the blood in the body becomes deficient, paleness dominance and lips become pale, pulse become weak, appetite increases urine become whitish and desire of hot food increases¹⁴. Abul Hasan Ali Bin Abbas Al Majoosi (10th century A.D), in his book *Kamil-us-Sana* wrote, disability of blood formation is either due to any problem in the liver, which is the factory of blood formation and where the digested nutrient of food could not be transferred into blood or there is any problem in the stomach. Al Majoosi said that excessive bleeding is the main cause of diminished blood formation¹.

Pathogenesis

Abul Hassan Ahmed Bin Mohammed Tabri, described that “ill cold temperament of the liver alters the normal parenchyma causing disturbance in its functions. This disturbed functioning leads to drying and deficiency of the blood resulting in development of paleness. According to Shaikh and Jurjani, change in temperament of liver causes inability of formation of pure blood in the liver leading to Su-ul-qinya. Along with this debility of the liver, excessive use of cold and wet temperamental diet there is production of partially metabolized phlegm. This partially metabolized phlegm disperses to the whole body and penetrates into the each and every pore leading to development of anasarca¹.

Aetiology

1. *Zof-e-jigar*: When there are changes in the mizaj of the jigar it leads to zof-e-jigar resulting in Su-ul-qinya and it is not possible that while Su-ul-qinya is present all functions of jigar are in normal condition. According to Sheikh Ibn Sina and Jarjani, when the Zoaf-e-jigar (debility of liver) occurs along with fasad-e-jigar, a condition occurs before the condition of istusqa and is called as Su-ul-qinya/fakarud-dum^{15,16, 17,18,19}.
2. Sometimes, due to stoppage of tabaee haiz, (normal menstrual cycle) if there is any obstruction in the flow of blood in these cases then also Su-ul-qinya occurs.
3. Saudawi asbab: Gaseous waste product of black bile can produce Su-ul-qinya (anaemia).
4. Sometimes it occurs due to taaffun-e-hawa (polluted and contaminated air), then the patients may die due to inhalation of this (infected air) or living in impure air (nasaf -hawa).
5. Naqras nafusd-dam, qaiud-dam, ishalud-dam, boulud-dam, fasad-e-meda, ishal-e-muzmin, tuberculosis and physical as well as mental stress are also common causes.
6. Menstrual disorders (haize ki kharabi) like usur-e-tams, kasrut-tams, auram-e-reham^{15,16, 20,21}

Pathology

Changes in the temperament of liver, excessive burudat (cold temperament), decreased production of normal blood or toxemia(fasaduddam) leads to disturbance of the function of organs and it produces hararat and quwwat gets dissolved, due to which there will no production of normal blood^{22,19}. When any person's drinks water after exposure from sunlight or before drying of sweat, after exercise, after hard work, intake of cold drinks due to this Zof-e-jigar occurs and then excessive production of balgham occurs. This balgham is raw, due to this ghiza will not digest and absorbed properly then Su-ul-qinya can occur²³.

Signs and Symptoms

Face:

Pallor and puffiness of face are present.

Eyes:

Conjunctiva-pallor and puffiness of eye lids are present.

Oral cavity:

Ulcerated, spongy and inflamed gums, bad breath sometimes there is inflammation of mucous membrane Skin: smooth and loose skin sometimes pitting type of oedema pimples. and boils occurs and qillat-e-arq (lack of sweating).

Limbs:

Always cold extremities.

Nabz (Pulse):

Mutawatir, sari-e-muziwa sageer. Pulse gets increase due to light work. Sometimes it will become a gyarmuzi^{10,17,18,19}. Temperature: Always low badani-e-hararat i.e. hararat-e-ghareeziyah is depleted.

Respiratory system and cardiovascular system:

Breathlessness even give to small activity, ikhtlaz/khafkhan (palpitation occurs).

Gastro intestinal system:

As a mentioned in “Al-Akseer” the following symptoms are found as zof-e-hazam/tukhma, zof-e-isteha, zo-ul-baqar (jhooti bhok/ pseudo hunger), harkat-e-doodi (peristaltic movement) are disturbed. Qaraqar is present with increase production of riyah(Gas) and qabz is also present.

Urino-genital System:

Killat-ul-boul (decrease in urine output / oligurea), sometime bol-e-abiyaz/safaid boul (albuminuria), raqiq (liquid) sometimes kasratul-boul (increase frequency and quantity).

Central nervous system:

Qillat-o-noum (insomnia), aayia (fatigue/stress), dawaar (vertigo) and tinnitus, suda (headache), gash (syncope), pust himmat (depression/lack of confidence), zof-e-girani (general weakness), sustee (laziness) and uneasiness in all activities.

In female:

They feels pregnant (pseudo pregnancy/falls pregnancy) due to haiz ki kharabi (menstrual disturbance). This directly affects the jigar (liver), so these diseases occur in female. They hate to eat meats. They have the habits of eating bad things like mud, clay etc. they develop abnormal temperament and they had a complaint of usr-e-tams (dysmenorrhoea), Qillatul-tams

(oligomenorrhoea), sailanur-rehm (leucorrhoea) is present and also ikhtenaq–ur-rehm badi (hysteria) in some of the cases^{10, 17, 23, 24}.

MODERN CONCEPT OF ANAEMIA

Oxford dictionary defined anaemia “as a deficiency in the number of red blood cells or in their haemoglobin contain, resulting in pallor, shortness of breath, and lack of energy³. Anaemia is defined as reduction in total circulating red blood cells leads to decrease in total oxygen carrying capacity of blood. Since the oxygen carrying capacity of RBC’s cannot be measured, therefore anaemia has been defined as a decrease in haemoglobin concentration in the blood below the normal lower range with respect to age and sex. Lower level of haemoglobin (Hb %) concentration 13.0gm/dl for male and 11.5gm/dl for female. While new born infants have higher haemoglobin level and therefore lower level in infants is 15gm/dl whereas at 3 months these level goes down to 9.5gm/dl because of destruction of RBC’s at early age of life. Even though Hb% plays an important role in majoring anaemia red cell count, haematocrit (PCV) and absolute values (MCV, MCH and MCHC) also provide alternate means of assessing anaemia⁴.

Iron deficiency anaemia is a common type of anaemia and is known as Sider the Who defined anaemia as haemoglobin below 13g/dl in men over 15years, below 12g/dl in non-pregnant female over 15 years, and below 11g/dl in pregnant female. Iron deficiency anaemia is one of the most common nutritional disorder worldwide, especially in India other developing countries. Young children and female in the reproductive age group are the most vulnerable to Iron deficiency anaemic¹. Similarly, Harsh Mohan described that “A haemoglobin concentration in blood below the lower limit of the normal range for the age and sex of the individual is termed as anaemia’ (in the lower extreme of the normal haemoglobin is taken as 13.0g/dl for male and 11.5g/dl for female. New-born infants have higher haemoglobin level and therefore, 15g/dl is taken as the lower limit at birth, whereas 3 months the lower level is 9.5 g/dl. Although haemoglobin value is employed as the major parameter for determining whether or not anaemia is present, the red cell counts haematocrit (PCV) and absolute values (MCV, MCH, & MCHC) provide alternate means of assessing anaemia²².

The problem of iron deficiency anaemia is prevalent in under developed and densely populated areas because of many factors, including malnutrition, infestation with parasites and multiple pregnancies with the concomitant increased occurrences of malignant disease (specially gastro intestinal cancer) and iatrogenic illness specially gastro intestinal bleeding resulting from ulcerogenic medication. Iron deficiency anaemia is a disorder of blood which refers to deterioration in the quality and quantity of blood due to decrease amount of iron in the body. This

disorder is termed as Faqrud-dam sabab-e-qillat e faulad by the modern Unani physicians but such terms is present in old Unani literature²⁵.

Causes & Pathogenesis:

The causes of anaemia may be classified as impaired red blood cell production, increased RBC destruction (hemolytic anaemias), blood loss and fluid overload (hypervolemia). Several of these may interplay to cause anaemia. The most common cause of anaemia is blood loss, but this usually does not cause any lasting symptoms unless a relatively impaired RBC production develops, in turn most commonly by iron deficiency.¹⁷

Impaired production:

- Disturbance of proliferation and differentiation of stem cells
- Pure red cell aplasia²⁶
- Aplastic anaemia affects all kinds of blood cells. Fanconi anaemia is a hereditary disorder or defect featuring aplastic anaemia and various other abnormalities²⁷.
- Anaemia of kidney failure due to insufficient production of the hormone erythropoietin²⁷.
- Anaemia of endocrine disorders
- Disturbance of proliferation and maturation of erythroblasts
- Pernicious anaemia is a form of megaloblastic anaemia due to vitamin B₁₂ deficiency dependent on impaired absorption of vitamin B₁₂. Lack of dietary B₁₂ causes non-pernicious megaloblastic anemia²⁷.
- Anaemia of folate deficiency, as with vitamin B₁₂, causes megaloblastic anemia²⁷.
- Anaemia of prematurity, by diminished erythropoietin response to declining haematocrit levels, combined with blood loss from laboratory testing, generally occurs in premature infants at two to six weeks of age.
- Iron deficiency anaemia, resulting in deficient haeme synthesis²⁷.
- Thalassemias, causing deficient globin synthesis²⁷.
- Congenital dyserythropoietic anaemias, causing ineffective erythropoiesis
- Anaemia of kidney failure²⁷ (also causing stem cell dysfunction).
- Other mechanisms of impaired RBC production
- Myelophthistic anaemia or myelophthisis is a severe type of anaemia resulting from the replacement of bone marrow by other materials, such as malignant tumors, fibrosis, or granulomas²⁷.
- Myelodysplastic syndrome²⁷.

- anaemia of chronic inflammation²⁷.
- Leukoerythroblastic anaemia is caused by space-occupying lesions in the bone marrow that prevent normal production of blood cells²⁸.

Increased destruction:

Anaemia of increased red blood cell destruction are generally classified as haemolytic. These are generally featuring jaundice and elevated lactate dehydrogenase levels.

- Intrinsic (intracorpuseular) abnormalities¹⁸ cause premature destruction. All of these, except paroxysmal nocturnal haemoglobinurias, are hereditary genetic disorders.²⁹
- Hereditary spherocytosis¹⁸ is a hereditary defect that results in defects in the RBC cell membrane, causing the erythrocytes to be sequestered and destroyed by the spleen.
- Hereditary elliptocytosis¹⁸ is another defect in membrane skeleton proteins.
- Abetalipoproteinemia,¹⁸ causing defects in membrane lipids
- Enzyme deficiencies: Pyruvate kinase and hexokinase deficiencies causing defect glycolysis, Glucose-6-phosphate dehydrogenase deficiency and glutathione synthetase deficiency, causing increased oxidative stress²⁷.
- Hemoglobinopathies: Sick cell anaemia, Hemoglobinopathies causing unstable haemoglobin's¹⁸, Paroxysmal nocturnal haemoglobinuria²⁷.
- Extrinsic (extracorpuseular) abnormalities:
- Antibody-mediated:- Warm autoimmune haemolytic anaemia is caused by autoimmune attack against red blood cells, primarily by IgG. It is the most common of the autoimmune hemolytic diseases.³⁰ It can be idiopathic, that is, without any known cause, drug-associated or secondary to another disease such as systemic lupus erythematosus, or a malignancy, such as chronic lymphocytic leukemia.^{31,32}
- Cold agglutinin hemolytic anaemia is primarily mediated by IgM. It can be idiopathic or result from an underlying condition³³.
- Rh disease,¹⁸ one of the causes of hemolytic disease of the new-born
- Transfusion reaction to blood transfusions²⁷
- Mechanical trauma to red blood cells:
- Microangiopathic hemolytic anaemias, including thrombotic thrombocytopenic purpura and disseminated intravascular coagulation¹⁸
- Infections, including malaria²⁷
- Heart surgery

- Haemodialysis

Blood loss:

Anaemia of prematurity, from frequent blood sampling for laboratory testing, combined with insufficient RBC production

- Trauma¹⁸ or surgery, causing acute blood loss
- Gastrointestinal tract lesions, causing either acute bleeds (e.g. variceal lesions, peptic ulcers) or chronic blood loss (e.g. angiodysplasia)²⁷.
- Gynaecologic disturbances,¹⁸ also generally causing chronic blood loss
- From menstruation, mostly among young women or older women who have fibroids
- Many type of cancers, including colorectal cancer and cancer of the urinary bladder, may cause acute or chronic blood loss, especially at advanced stages.
- Infection by intestinal nematodes feeding on blood, such as hookworms and the whipworm *Trichuris trichiura*.³⁴
- Iatrogenic anemia, blood loss from repeated blood draws and medical procedures^{33,34}

Clinical Features:

In symptomatic cases of anaemia, the presenting features are: Tiredness, easy fatigability, generalized muscular weakness, lethargy and headache⁴.

- General features: Smooth tongue, brittle nails, some patients develop pica (unusual craving for special foods like mud, eating of rice etc)
- Pallor: Pallor is the most common and characteristic sign which may be seen in the mucous membranes, conjunctivae and skin.
- Cardiovascular System: A hyper dynamic circulation may be present with palpitation, tachycardia, collapsing pulse, cardiomegaly, mid systolic flow murmur, dyspnoea on exertion
- Gastrointestinal System: Anorexia, flatulence, nausea, constipation and weight loss may occur
- Renal System: Mild proteinuria and impaired concentrating capacity of the kidney may occur in severe anaemia.
- Reproductive System: Menstrual disturbances such as amenorrhoea and menorrhagia are some of the manifestations involving the reproductive system in anaemic subjects
- Central Nervous System: faintness, giddiness, headache, tinnitus, drowsiness, numbness and tingling sensation of the hands and feet^{35,36,37}

RESULTS AND DISCUSSION

Iron deficiency anaemia is the most prevalent and the most common form of anaemia worldwide and is more commonly seen in adolescent age. Over 1/3rd of the world's population suffers from anaemia, mostly iron deficiency anaemia. India continues to be one of the countries with very high prevalence. National Family Health Survey (NFHS) reveals the prevalence of anaemia to be 70% - 80% in children, 70% in pregnant women and 24% in adult men³⁵.

Development of all clinical features was considered due to any defect in the blood. Various Unani physicians have described the changes in blood in their own ways. According to them, excessive bleeding, cessations of menstrual bleeding, pathology in the liver and stomach etc. are responsible for the production of deficient blood and development of Su-ul-qinya^{3,5,6}. Su-ul-qinya (Anaemia) is the condition in which there is clear evidence of iron deficiency in the body. Ancient Unani physicians and philosophers have neither described any condition specific to iron deficiency anaemia nor its pathogenesis. They have mentioned the aetio-pathogenesis of some other condition in which there is deficient blood with defects in the blood.

In ancient Unani literature "Ibn-e-Sina" described the clinical features of Su-ul-qinya, which is similar to "iron deficiency anaemia", such as pallor, yellowish discolouration of the body, swelling of eye lids, dysmenorrhoea in female and sometimes constipation, sometimes diarrhoea. Su-ul-qinya is the preceding condition of anasarca (istisqa-e-lahmi) with the clinical features of "pallor of the body and mouth" swelling and puffiness appearance on face, eyelids, hands and feet and sometimes all over the body itching and wounds on gums and root of the teeth (gingivitis), wounds on angle of lips (cheilosis), flatulence, abnormal bowels habits, abnormal sleep accompanied by weakness of liver and indigestion. Along with all the clinical features mentioned above there are few general features such as, weakness, lassitude, malaise, early fatigue, mild exertion dyspnoea, and pale tongue, white nails with increase flatulence and bowel sound. Hakeem Ajmal khan described the clinical features of Su-ul-qiniya as, initially the body colour changes to whitish then yellowish, prominently visible on face, conjunctiva. Sometimes the whole body swells up, which can form pits on pressure with finger, there will be decrease micturition with decrease sweats. Inflammation of gums and oral cavity with indigestion, sometime appetite get increased.

According to Mirza Mohammad Mehdi, clinical features of Su-ul-qiniya are 'the colour of the skin becomes yellowish and whitish. In this condition the phlegm and fluid dominate on blood due to weakness of digestion with weakness of liver resulting in appearance of swelling on face especially on eyelids and feet. Most of the Unani physicians have mentioned that female, who experiences menarche below the age of 14 years faces lassitude and early fatigue on later period

of life. Temperament becomes cold and dry, with thin and narrow blood vessels. Since this is the adolescent period, body needs more blood to grow, therefore menstruation at early age leads to weakness of the liver and body. This condition is characterized by paleness with lean and thin body. Mohammad Ayyub Israili has mentioned that anaemia in female is not due to amenorrhea, but amenorrhea is due to anaemia. The digestive power and appetite decrease with increased desire to eat substance like acrid and sour foods, clay and coal; now a day's which is called as PICA (11). Nails become white and brittle, because of iron deficiency anaemia, that condition is known as "Talqia".

Hakeem Mohammad Kabeeruddin described the clinical features of Su-ul-qinya as "paleness on lips, mouth, tongue and nails". Pulse becomes fast and short, dyspnoea on exertion, weakness; malaise; palpitation and early fatigue are the prominent features, swelling over the whole body with pitting oedema on pressure with finger. If anaemia is not treated on time it may develop ascites which is the most dangerous form of Su-ul-qinya. The term Khizra is the condition of Su-ul-qinya characterized by decrease appetite, greenish white skin and Pica. Sayyed Haider Ali Jafri described the term Faqrud-dam, which is caused by defect in iron metabolism mostly seen in women of 35 years of age, with clinical features of headache, lassitude, early fatigue, and palpitation, dyspnoea on exertion. The RBC's shows hypochromic, microcytic appearance.

Iron deficiency anaemia is not a disease, but it is the manifestation of other diseases. The clinical presentation may include the clinical features of underlying the pathophysiology. With advancement in laboratory investigations, it helps to diagnose iron deficiency anaemia. Since there is no such terms, like iron deficiency anaemia mentioned in Unani literature, so there are no clinical features mentioned in Unani literature under heading of iron deficiency anaemia, but most of the clinical features of iron deficiency anaemia are mentioned by great Unani physicians under the heading of Su-ul-qinya, Su-e-mizaj of the liver, qillatud-dam, fasadud-dam and faqrud-dam. In modern literature iron deficiency anaemia has few specific features related to iron deficiency anaemia but most of the features are common in all types of anaemia.

CONCLUSION

Ancient Unani physicians have not mentioned any condition specific to iron deficiency or its aetio-pathogenesis. Although they have mentioned aetio-pathogenesis of a certain condition where there is deficient blood under the heading of Su-ul-qinya, faqrud-dam, qillatud-dam, fasadud-dam, khizra (chlorosis) etc. But actually, Iron deficiency anaemia is the condition in which there is lack of blood and clear evidence of deficiency of iron in the body. In modern literature iron deficiency

anaemia has few specific features related to iron deficiency anaemia but most of the features are common in all types of anaemia.

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