

Concept of Intestinal Worms (*Deedane Ama'a*) in Unani Medicine and its Management

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Abstract

Intestinal worm infestation is the commonest form of helminth infections in human, which affect a great proportion of the world's population and children are the most vulnerable population among them. Intestinal worm infestation is the major risk to community health which adversely contributes to the prevalence of malnourishment in developing countries. The World Health Organization estimates that over two billion people are affected with helminthiasis. Unani physicians described intestinal worms as *Deedan e Ama'a* and they are of opinion that the excessive putrefied phlegm is the cause for the formation of intestinal helminthiasis and the presence of worms always depends on mal-temperament or imbalance of phlegmatic temperament and unhealthy living conditions. Exploration for further alternative therapeutic agents for the treatment and control of helminthic infections has become crucial at present. Various single and compound drugs have been described in Unani literature for the treatment of different types of worm infestations and Unani physicians prescribed them since antiquity. It has been observed in routine practice that the compound formulations are more effective compared to the single drug. This systematic study was focused to assess the scope of herbal medicine in the treatment of worm infection.

Keywords: Intestinal worm, helminth infections, *Deedan e Ama'a*; Unani Medicine; worm treatment.

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INTRODUCTION

Intestinal worms have been prevailing from the ancient times. Intestinal parasitic infections are amongst the most common infections worldwide. For example, the incidence of round worm infection is about one billion; whip worm infection is about 500 million; and hook worm infection is about 900 million per population worldwide. Furthermore, worm infestation is a public health problem in most developing countries [1]. Worm infestations are known to cause short term as well as long term adverse effects especially among children. These infections are well-known to impede the growth and cognitive development of children [2].

Epidemiological research carried out in different countries had shown that the social and economic statuses of the individuals were important cause in the prevalence of intestinal parasites. As such, worm control is difficult in developing countries due to poor environmental sanitation and personal hygiene, lack of health education, inadequate supply of potable water and low socioeconomic status of the people [3].

Roundworms, hookworms, and whipworms thrive in human communities in which poverty is entrenched and clean drinking water; sanitation, health care, and health awareness are inadequate. According to the global burden of disease, soil-transmitted helminthiasis (infections with the nematodes *Ascaris lumbricoides*, *Trichuris trichiura* and the two hookworm species *Ancylostoma duodenale* and *Necator americanus* causes the loss of 5 million disability-adjusted life years every year [4].

Intestinal worms were known as *Deedan e Ama'a* / *Aangtoong ke Keede* in Unani Classical texts. Hippocrate hypothesized the causes for worms as contaminated soil, food and water. The causes, types of worms and management had been studied in detail by Avicenna (980-1037AD) in his Cannon of Medicine and by Al Razi (864-925AD) in his book *Al Hawi Fit Tib* [5, 6].

Developing countries need to invest substantial amounts of resources for health problems associated with worm infestations. However, because of poverty,

ignorance and lack of discipline, it is not possible to apply all preventive measures simultaneously in these countries. As such, improving domestic hygienic practice is potentially one of the most cost-effective means of reducing the burden of worm infestation in children [7, 8]. Therefore, the present literature review looked at the concept intestinal worms with reference to causes, types of worms and herbal management mentioned in classical texts of Unani Medicine. The appraisal findings would serve to implement comprehensive and cost-effective intervention methods in the management of intestinal worms among high risk populations.

METHODOLOGY

Data were collected from various Unani text books namely; Al Qanoon Fit Tib, Al Hawee Fit Tib, Tarjuma e Kabeer, Shareh e Asbab, Firdausul Hikmat, Kamilussanah, Khazainul Advia, Bushanul Mufridath, Ramooze Azam etc. Indexed Journals were searched in various scientific databases like Scopus, PubMed, Elsevier, Google Scholar, Medline, Research Scholar, ResearchGate, Science direct, Orchid etc. using terms like Unani concept of deedan ama'a, Unani concept of intestinal worms and Unani management of intestinal worms. After a through literature review, the collected data were organized in a logical order to compile this review article.

RESULTS AND DISCUSSION

Unani medicine deals with four humours (*Akhlat*) in causation of disease (*Marz*), those are Blood (*Dam*), Phlegm (*Balgham*), Yellow Bile (*Safra*) and Black Bile (*Sauda*). The humors themselves are assigned temperaments: blood is hot and moist, phlegm is cold and moist, yellow bile is hot and dry, and black bile is cold and dry. The temperaments of individuals are expressed by the words sanguine (*Damavi*), phlegmatic (*Balghami*), choleric (*Safravi*) and melancholic (*Saudavi*) according to the preponderance in them of the respective humours; blood, phlegm, yellow bile and black bile. Every person is supposed to have a unique humoral constitution which represents his healthy state (*sehat*), and to maintain the correct humoral balance there is a power of self-preservation called medicatrix nature (*Quwwat-e-Mudabbira*) in the body. If this power weakens, imbalance in the humoral composition is bound to occur, and this causes disease [9].

Humoral Pathology of Intestinal Worms (*Deedan e Ama'a*)

Intestinal worms (*Deedan e Ama'a*) are formed in the abdomen (*Bathan*) similarly how it is formed in the external environment. Worm is not formed in red humour (*dam*) and black humour (*Sauda*) because of the heat and dryness of these humours respectively. Red humour (*dam*) is essential for life

therefore it does not get putrefies and it is also not directly in contact with intestinal lumen [5].

Morbid phlegm (*Ghair Taba'i Balgham*) in the intestine leads to *Deedan* formation. Pure *Akhlat* cannot be putrefied unless mixed with some impurities from outside (foreign body / *Ajsam e Khabeesa*) like in pure water. *Balgham* is a good culture media for *Deedan* because it provides nutrition. Habits such as taking cold water after meals, bathing after meals, food (*Ghiza*) such as wheat, *Baqila / Thurmus (Vicia faba)*, uncooked meat, vegetables, oily, moist and cold food can contribute to abnormal *Balgham* formation. Abnormal heat (*Hararat e Ghareeba*), abnormal cold (*Sue Mizaj Barid*) also predispose to *Deedan* formation in *Ama'a* [5].

Razi (864-925 AD) viewed that moist food such as *Toot / beans*, *Kamh / wheat*, *Lobia (Phaseolus lunatus)*, donkey's meat can cause worm. Putrefied food (*kharabi Ghiza*), rough food like wheat flour, excessive intake of fruits, contributes to worm formation [6]. (Al Razi 864-925 AD). Further Kabiruddeen postulated contaminated water, contaminated foods, contaminated vegetables, ingestion of worm eggs, tiny worms and meat can cause *Deedan*[10].

Therefore, according to Unani medicine, helminthes are formed due to abnormal or putrefied phlegm ie salty phlegm (*Namkeen Balgham*) in the gastro-intestinal system. This phlegm is produced by indigestion (*Sue e hazm*) and unhealthy dietetic factors; Consuming contaminated water, meat, excessive intake of sweets and contaminated leafy vegetables as well as moist environments also contribute to the formation of helminthes in the body.

Classification of worms (*Aqsam of Deedan e Ama'a*) [5, 6]

1. Earth worm like (*Tiwal / Hayat*)
2. Segmented like soft seed of green pumpkin (*Eraz / Habuul Qara / Kaddudana*)
3. Thread like (*Sighar / Khallia*)
4. Round shaped (*Al Musthadeera*)

Kaddudana is further classified as -

1. Less broad (*Zayyaq*) in pig meat
2. Broader (*Mutawassit*) in goat's meat (*baqri*)
3. Widest (*Areez*) rare (Razi 864-925 AD)

Classification according to internal structure:[11]

Worm With gastro intestinal tract (*Mujarrifah / with Ghizaki Nali*)-*Tiwal* and *Sigahr*

Worm without gastro intestinal tract (*Musamatah / without Ghizaki Nail*)-

Eraz / Habuul Qara / Kaddudana (Kabirudden 1916)

Avicenna's classification according to shape

Long (*Taweel*), short (*Mugahar*) and flat (*Areez*) [5]

General Symptoms of intestinal worms (*Umoomi Alamat e Deedan e Ama' a*) [5,6, 10, 11]

Indigestion (*Bad hazm*), patient consuming thick food (*Ghaleeze ghiza*), pale body, fever, increased salivation, wet lip during night and dry lip during day because moisture is absorbed by the *Deedan*, nocturnal irritability, abdominal distension, excessive sweating, loss of appetite or increased appetite (*Joo ul Kalb*), when lung involve dry cough (*Khusky kanshi*) is produced and when heart is affected palpitation (*Khafkhan*), irregular sleep, red eye, laziness, and occasionally diarrhoea.

Vapour is formed due to abnormal humours (*Ghair Taba'i Ahlat*) in intestine and it reaches the brain and causes difficulty in speech, epilepsy, yawning, grunting, nocturnal teeth grinding, increased thirst, nausea and vomiting (*Qai wa matli*), bad odor and sweating (*Badboo* with *Paseena*), vomiting of worms, passing worm with stool (*Payahra*), severe colicky pain (*Marood*), when the patient is in hunger presents with nausea, hiccough (*Hichky*). Diarrhoea (*Ishal*), anal pruritus (*Kharish*), weakness (*Quvvat e zaeef*), feels cold (*Sardi Mahsoos*), When the patient is hungry worms move around umbilicus. Severity of *Deedan* leads to syncope (*Ghashi*). Taking cold water leads to accumulation of clump of worm in intestine.

If live worm is passed, it indicates that *Tabi'at* is in good condition. Live *Deedan* expelled with fever is less dangerous, but if dead worm is expelled from body without treatment, worm expelled with blood in the absence of fever and dead worm expelled with vomiting are bad signs. This indicates Abnormal Humour (*Ghair Taba'i Akhlat*) in intestine and weak power of self-preservation (*Quwwat e Mudabbira*). In gall bladder condition worms are passed with bile (*Safra*).

Earth worm like (*Tiwal / Hayyat*): [5, 6]

Tiwal is a long worm. This worm lies deep in upper part of intestine closed to stomach and away from anus. symptoms (*Alamat*) of these worm infestations are irritation, increased wakefulness, discomfort, nausea, vomiting, teeth biting, loss of appetite, dry cough, fainting, mental weakness, sleep disturbances, fever, sweating even in cold weather, chest pain, low and irregular pulse. If worm is in upper part of stomach (*FAM e Meda*), patient feels to pull the worm out his body. It sometimes comes through the nose, and mouth, commonly in children with fever.

Segmented like soft seed of green pumpkin (*Eraz /Habbul Qara / Kaddudana*): [5, 6]

Habul Qra is the longest worm and lies all over abdomen. These worms are common in young

adult (*Sin e Saba*). It is uncommon in elderly and rare in children. *Habbul Qara* is found mostly in autumn season and its movement is more in the evening. Symptoms of this worm infestation are fever, increased appetite and weakness.

Thread like (*Sighar*): [5, 6]

Sighar is thread like white worm found in anal area. Less Humour (*Ruthubat*) is found in lower part of colon (*Ama ul Mustaqeem*), therefore small worms are formed. These worms are weak and it cannot attach to intestine therefore easily leaves from anus before defecation. *Sighar* can move up or downwards and less harmful but if stagnation is harmful. It is painful when *Sighar* moves about for food. *Sighar* causes anal itching.

Round shaped (*Al Musthadeera*): [5, 6]

Al Musthadeera is a round shaped worm found in Colon (*Awar*) and it is common in children. *Musthadeera* causes intestinal irritation, dry cough, palpitation, abdominal discomfort, soft, slow and deep pulse and high fever.

Line of treatment (*Usoole Ilaj wa Ilaj*) [5, 6, 12]

It is difficult to remove worms since it is attached to various parts of body. Vermicidal (*Qatal e Deedan*) herbs are given as first line treatment and then worm expelling (*Muhrij e Deedan*) herbs are administered. Usually bitter, dry and heat herbs are used in worm treatment.

Worm expelling (*Muhrij e Deedan*) and vermicidal (*Qatal e Deedan*) herbs are mostly unpalatable and bad smelling therefore it should be taken while the nose is closed. Vermicidal herbs are also correct digestion and appetite. If the patient presents with worm infestation along with diarrhoea, constipating (*Qabs*) herbs are also used, if resistant power of body (*Quwat e Mudafiya*) is in excess, oral liquid medicine can be used. It is easy to treat *Tiwal than Habb ul Qara*.

Following are recommended three days prior to worm treatment; Fresh milk, coconut (*Narjeel Kohana*) or *Kinbeel* 24g with sour curd (*Lassi*) are given for first three days. On 4th day vermicidal (*Qatal e Deedan*) treatment is recommended on empty stomach while closing the nose. When worm problem presents with diarrhoea, *Lisanul Hamal / Isabghol* (variety of mucilage drug) is given.

Qatal e Deedan Advia (vermicidal drugs) [5, 6, 12]

To kill the worms black gram (*Al Hamsil Aswad*) soaked in vinegar or *Qirdimana*, *Seeh*, *Thurmus*, *Salleeha*, *Afsantheen*, *Qamela*, *Baobadang* can be used (Tabri Al Bin Sahal Raban 1996).

Milk is given for 3 days prior to treatment and then the following prescription (*Nuskha*) is given. *Seeh*

Armani 10 dirham, *Sarhas* 5 dirham, *Qinbeel* 5 dirham, *Turmus* 7 dirham, *Turbud abyaz* 5 dirham, *Namak e hindi* 5 dirham, *Qust e mur* 7 dirham with *Khulanjan* water.

Muhreje Deedan Advia (To expel worms): [5, 6, 12]

Dead worms in the intestine can cause bad vapour and reach brain, to prevent this *Ayarij* is given to expel dead worms. *Abrang*, *Sarhas*, *Qinbeel*, ground in vinegar and taken on empty stomach. Boiled water (Matbookh) of *Hanzal* and *kalunji* can also be used to expel worms. Further gram (*Hams*) soaked in vinegar taken in the morning and patient is advised to fast till evening to expel the worm.

If the patient temperament is hot (Garmi Mizaj) following is given [12].

Ab e Barg e Shifthalu (*Trygeum persia*) and Ab e Poste e Daraht Sehtoot / Mulberry bark can be given orally. Posthe e Daraht Sehtooth and Posthe e Anar Thursare soaked in water over night, boiled next day Morning and filtered. Ab e Barg e Sifthalu 2 tea spoons is added to the Filtrate and given to drink and with same decoction Huqna is done. A Tila is made by dissolving Raswat in water and applying to meqad (Anus).

For Cold temperament (Sardi mizaj) patient having Kaddu dana [12]

Safoof e Habbun Neel is prepared by the following advia such as Baobadang, Kinbeel, Maghz e Karanjuwa (Gajga), Magz e Akhroot and Namak e Siyah.

Hospital treatment (Mamulath e matab) [13, 14]

Safoof of Itrifal e Deedan is prepared using the following. Baobadang, Darmina Turki, Turbud sufaid, Sarhas, Kameela, Habunneel and Namak e Lahori (rock salt). 1 Tola (12g) is given in the morning.

Raswat, Narkachoor and Baobadang are boiled in water and Huqna is done. Rohan e shifthalu mix with kameela is soaked in a cloth and inserted to anus as Humool.

Taking enough salt and milk is recommended but sugar, curd, meat, jugry, harab pani and unwashed vegetables should be avoided as precaution (Kabirudden, 1916 Tarjuma e Kabir).

Single drugs used as Anthelmintic (Qatal Deedan Shikum) [15-17]

- Post Nim (*Melia Azadirachta* bark)
- Beikh Bakain (*Melia azadrach* bark)
- Arusa (*Adhatoda vasica* leaf)
- Kamela (*Mallotus phillipinensis*)
- Ushba maghrabi (*Sarsaparilla europaea* herb)
- Maghz Narjil Kohna (*Cocus musifera* fruit very old)

- Nankhuah (*Carum capticum* seed)
- Baobarang (*Artemisia vulgaris* seed)
- Post Beikh Anar (*Punica granatum* root bark)
- Khurfa (*Portulaca oleracea*)
- Darmana (*Artemisia maritima*)
- Fofil (*Areca catechu* nut)
- Heeng (*Ferula foetida* latex)
- Chirata (*Swertia Chiratta* herb)
- Kalonji (*Nigella sativa* seed)
- Senna (*Cassia senna* leaf)
- Gilo (*Tinospora indica* herb)
- Bozidan (*Pyrethrum indicum* root)
- Berg Bedanjir (*Ricinus communis* leaf)
- Mur (*Commiphora myrrh* gum)
- Ispand (*Peganum harmela* seed)
- Babchi (*Psoralea corylifolia* seed)
- Revand (*Rheum palmatum* root)
- Saqmoonina (*Convolvulus scamony* root latex)
- Rasaut (*Berberis aristata* extract)
- Palas Papapda (*Butea frondosa* seed)
- Beikh Jalapa (*Ipomoea jalp* root)

Enema oils expel out the worms of stomach and intestine

- Roghan Tarpeen (Terpene oil)
- Roghan Bedanjeer (*Ricinus communis* oil)
- Roghan Zetoon (*Olea europaea* oil)
- Sirka (Acetic acid)

Muraqqabt (Compound Preparations) [18]

Qurse Deedan; Palaspapda, Maghz e tukhm e Karanj, Nankhua, Qinbeel, Baubadang, Turbud and Qandsiya. Majoone Talkh Deedani: Mur Makki (*Commiphora myrrha* nees), qand sufaid [19].

Majoon Sarakhs: Turbud [(*Operculina turpethum* (L.) *Silva Manso.*), 4576 for Sarakhs [(*Dryopteris filix mas* (L) Schott.)], 4577 for Muqil [(*Commiphora mukul* (Hook. Ex Stocks) Engl)] and 4572 for Baobarang [(*Embeliatsjeriam-cottam* (Roem. &Schult) [20].

Itrifale Deedan: Baobarang, Poste haleele zard, Poste haleele kalbi, Haleele siya, poste balela, amla, turbud, habbun neel, quate talkh, qinbeel, palaspapda, afsanteen, darmina turki, aftimoon, khardal, namak siya, shahanme Hanzal, sad kufi, asal and rohane badam Shireen [21].

Prevention of intestinal worms (Hifz e Matakaddam of Deedan e Ama'a) [5, 6, 14]

Regular food habits and taking easily digestible foods are recommended. Taking Diet - heat food (Garmi Ghiza) such as *Hammaz*, *Karnab*, Pigeon meat, and salt water are recommended.

To prevent recurrence of worm infestation bitter food can be taken.

If patient is not willing to take medicine, gram soaked in vinegar is taken regularly.

Avoid food like cabbage (*Karnab*), beet root (*Salk*).

To minimize the formation of worm, olive seed (*Zaithoon*) is taken with salt before meal.

Balghami food should be avoided in excess and evacuation (*Tankia*) of *Balgham*.

Bowel should be cleaned regularly to prevent the complication of worms.

Taking enough salt and milk is recommended but sugar, curd, meat, jugry, contaminated water (*Harab Pani*) and unwashed vegetables should be avoided as precaution. Regular exercise reduces worm formation.

Scientific studies which confirm the efficacy of Unani drugs

Shafeeque A *et al.*, confirmed in their study that powdered tablet of *Mallotus philippinensis* fruit (*kamela*) possess anthelmintic activity and are sufficiently safe to treat gastro-intestinal infection [21].

In a study conducted by Ghausia I *et al.*, reported that *Majoon Sarakhs* and its hydroalcoholic extract has profound anthelmintic activity. This study had validated the claims of Unani physicians that *Majoon Sarakhs* is an effective anthelmintic agent.

Khalil a *et al.* investigated the anthelmintic activity of a Unani Herbal Formulation D-Worm consisting of *Punica granatum* Fruit Peel: 300mg, *Azadirachta indica* Leaves: 100mg and *Trachyspermum ammi* seeds had shown efficacious in the treatment of intestinal worms.

A Randomized clinical trial conducted to test the efficacy of *qures deedan* comprise of *Palaspapda*(*Butea monosperma*), *Maghz e tukhm e Karanj* (*Pogamia pinnata*), *Nankhua* (*Carum capticum*), *Qinbeel* (*Mellatus philippinensis*), *Baubadang* (*Embelia ribes*) and *Turbud* (*Ipomea tarphetham*) found to be equally efficacious as *mebendazole* in treating intestinal worms.

CONCLUSION

It was evident through this review that a comprehensive description had been given in classical text of Unani Medicine on the concept and management of intestinal worms. It is possible control the intestinal worm infestation only by applying the correct line of treatment after detailed history, along with the improvement of sanitary conditions and appropriate personal hygienic practices among the community. Physicians of Unani system offer significant scope in the treatment of worm infection through the treatments

documented in *Tibbi pharmacopoeia* and *Qarabadhins* which need systematic clinical evidence-based approaches to scientifically validate the claims. Few studies had supported the empirical use of the crude plant as a deworming agent in Unani medicine, a sincere effort has to be made to study the efficacy of the herbal medicine by comparing with allopathic medicines in the treatment of worm infections. Further chemical and pharmacological studies on herbs which possess anthelmintic property must be conducted to decide the exact mechanisms of action of the active principles of the herbs.

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