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Review

Visceral Manipulation in Resources of Persian Medicine

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Abstract

Persian Medicine applies various types of treatment, from changing lifestyle (known as *Setteh-e-zarurieh*) to using medicines and manual interventions. Manual interventions have various types and indications in Persian Medicine. Visceral manipulation is one of them, which is defined as applying techniques to the viscera or the structures that support it in the case of disturbed motility or mobility related to a visceral system and the associated elements. Herein, Persian Medicine manuscripts were searched to find available information about visceral manipulation. There are many similarities between basic principles of visceral manipulation and Persian Medicine. Persian Medicine scholars have explained about anatomy of fascia and its components many years ago, which are very close to what today's knowledge is. Most probably, one of the very first scholars who has mentioned the idea of visceral manipulation is Avicenna (980–1037 CE). In his Canon of Medicine, Avicenna mentioned *Ghamz* as a treatment for liver injury. The available *in vitro* and animal studies support the positive effects of visceral manipulation. Persian Medicine scholars had detected nerve fibers and collagen which are fascia components. They are pioneer in this regard, too.

Keywords: Persian medicine; Fibroblast; Osteopathy; Manual therapy; Ibn-e-Sina; Massage

Introduction

According to principles of Persian Medicine (PM), there are three types of intervention for treating a person with an ailment. The First is changing lifestyle (known as *Setteh-e-zarurieh* including: foods and drinks, climate and weather, sleep and wakefulness, movement and rest, mental movement and repose, evacuation and retention). Prescribing medication and manual interventions are other therapies [1]. Manual

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therapy has various types and indications in PM, one of which is massage. *Dalk* and *Ghamz* are the words used for medical massage but it should be noted that sometimes the target is not only musculoskeletal or nervous or respiratory system, but also visceral organs. Thus, it is seen that visceral manipulation is mentioned in the manuscripts of PM scholars, especially Avicenna.

PM is an ancient school of medicine with many years of experience, that has different components to be used for prevention of disease, diagnose and treatment. According to this holistic school of medicine, exercise is the most important item of *Setteh-e-zarurieh* [1]. Also, the *Tabiat* (*Nature*) plays an important part to maintain health and restore health in ailments. Tabiat is an innate power of human being which manages all body features in the direction of the best affairs for the body .Tabiat is the wisdom force in human body [2]. It means that body can heal itself in many cases. In PM, human body function and constituents depend on each other, for example *Mizaj* (temperament) which is very important in maintaining health, is the result of interaction between the antagonistic qualities related to the four elements (fire, water, earth and air with four natures of warmness, coldness, dryness and wetness). The result is a new homogenous quality called *Mizaj* which has a key role in body functions. Human body's humors must have a flow in order to prevent complications such as fluid and substance retention, maltemperament, etc. [1]. PM uses different methods to keep this dynamism, including *Dalk* and *Ghamz*.

The French osteopath named Jacques Weischenck proposed the idea of visceral osteopathy or manipulation in the 1980s [3]. Two osteopaths of the same nationality named Jean-Pierre Barral and Pierre Mercier had a following publication in 1983 on which most osteopaths look to [4]. Visceral manipulation is applying techniques to the viscera or the structures that support it in the case of disturbed motility or mobility related to a visceral system and the associated elements [5]. This technique is concentrated basically on intra-abdominal organs and is explained in mechanical terms [3,4].

As any structure crossing a joint may restrict that joint, the same is true about muscles and internal organs [6]. So, movement of organs inside abdomen may be disrupted in the same manner that movements related to joints get disturbed [4]. Organ movements is restricted in case of a direct trauma such as falling, indirect trauma in which the force of a Motor Vehicle Accident is absorbed like seat belt trauma, a disease which may be chronic or acute such as pneumonia, post-infection or post-surgery [6]. considering physiopathological viewpoint, it is suggested that these disruptions may trigger, or intensify musculoskeletal (such as low back pain) or gastrointestinal (for example irritable bowel syndrome) problems [3, 4]. Visceral osteopaths suggest that palpation is able to detect these disturbances related to motion of organs and manipulation may treat them [3,4].

Due to similarities between the principles of osteopathy and Persian Medicine, and since probably one of the first evidences of this type of therapy has been mentioned by Avicenna, it may be useful to search PM manuscripts in

order to look for more probable evidences of visceral manipulation concept and applications. This paper, which is among the very few papers in this regard, aims at investigating Visceral Manipulation concepts and roots to find out the idea of PM scientists about this type of therapy.

Methods

Persian Medicine resources were searched to find available information about visceral manipulation. Canon of Medicine written by Avicenna, Kamel al-Sana'a al-Tebbiya written by Ahvazi, Al-Mansuri fi Al-Teb writen by Rhazi, Zakhireh Kharazmshahi written by *Jorjani*, Tebb-E-Akbari and Mizan-ol-tebb written by Arzani, Khulasah al-Hikmah written by Aghili, Masalih al-Abdan wa al-Anfus by Al-Balkhi, and Hedayat al-mota'allemin fi al-tibb written by Abu Bakr Rabee Ibn Ahmad *Al-Akhawyni Bokhari* were among the manuscripts dealing with the subject. In this regard, *Ghamz* and *Dalk* for visceral organs were considered. Since fascia plays a key role in visceral manipulation, related keywords to fascia were also used such as *Ghisha*, *Sifagh*, *Maraqq*, and *Tharb* [7-9]. Textbooks of Visceral manipulation in osteopathy were read. Also, PubMed, Google Scholar, and ScienceDirect databases were searched without time and language restriction and studies related to the concepts and keywords mentioned in PM, as well as related in vivo and *in vitro* studies and case reports were included.

Results

Osteopathy and visceral manipulation are based on five pillars [10] mentioned in Table 1. Also, corresponding concepts in PM are mentioned. In fact, there are so much similarities between these principles and concepts of PM.

Types of organ movements

Movement may be categorized based on different views. One of them is the category of active, passive and combined movements. There is also another point of view about internal organs. Research shows that all organs inside body have movement. There are three distinguished concepts in this regard. Every organ has motricity, mobility, and motility. Motricity defines passive changes related to place of the organs which happen due to arbitrary motor activity of the locomotor system. The movement which is between two organs or between an organ and the diaphragm, the wall of the trunk, or another part of the musculoskeletal system is known as mobility. The other type of movement, motility, is the intrinsic motion of each organ which has a narrow amplitude and low frequency [10]. All these three types of movement have a normal range. In addition to mobility and motility of organs, fascial movement has also a key role in visceral manipulation [10]. The term fascia used to be confusing for researchers due to inconsistence definitions. In June 2019, Fascia Nomenclature Committee (FNC) solved this problem by suggesting use of two different terms: "a fascia" and "the fascial system" [11]. The first term is proposed to be used when microscopic scale and histological aspects are considered. Fascia or "proper fascia", which is a subset of the fascial system, is described as a sheet or sheath of connective tissue that attaches and

separates muscles and other organs. The second term, fascial system or "fascial tissues", is used when functional characteristics are described. Fascial system, which is a subset of connective tissue system, includes soft, loose and dense fibrous connective tissues incorporating adventitiae and neurovascular sheaths, meninges, joint capsules, ligaments, periostea, retinacula, septa, tendons, adipose tissue, aponeuroses, deep and superficial fasciae, myofascial expansions, visceral fasciae, and all the intramuscular and intermuscular connective tissues [11]. It is interesting to know that many of these structures have been known to scientists hundreds of years ago [8]. Fascia is categorized as a seminal organ in PM manuscripts, which means related to semen or Manavi, and it is considered a type of nervous tissue [9]. In fact, simple organs -like fascia which are made of single material- are devided into two subgroups. This classification is done based on the material they are formed from, which is either blood or semen. Examples of the first group are flesh or adipose tissue, and bones or nerves belong to the latter subgroup [1,12].

Anatomy of fascia according to PM

The words *Ghisha*, *Sifagh*, *Maraqq*, and Tharb are related words to fascia in PM. *Ghisha* in Persian means curtain. The name implies *Ghisha* is as thin as a curtain. Some anatomical terms related to fascia are mentioned in Table 2. In Canon of medicine, Avicenna (980–1037 ce) has mentioned notes about *Ghisha* [1] that are interesting and consistent with today's knowledge. For instance, he writes that a *Ghisha* made up of nerve origin covers the lungs and he emphasizes that this *Ghisha* has in fact two layers [1]. This information is surprisingly consistent with today's knowledge [13]. As another example, Avicenna mentions that the *Ghisha* covering spleen is developed from *Sifagh*. According to modern medicine, the spleen has a thin capsule, which is enveloped by visceral peritoneum [14]. *Rhazes* (865–925 CE), another famous Iranian scholar, in Al-Mansuri fi Al-Teb [15] writes that after the skin and muscles of abdomen, there exist *Sifagh*, Tharb, and then organs of abdomen. Abu Bakr Rabee Ibn Ahmad *Al-Akhawyni Bokhari* (passed away 983 CE) [16] mentions the exact definition and order of these parts of body in his persian book, Hedayat al-mota'allemin fi al-tibb which has also an important role in history of PM. According to *Al-Mansuri fi* Al-Teb [15], *Sifagh* seems to be the *Ghisha* between skin and internal organs. *Maraqq* is a substance composed of skin and abdominal muscles and the underneath *Ghisha*. It envelopes organs. In this book, *Rhazes* writes that people know *Maraqq* as abdomen which contains the navel.

Haly Abbas (949–982 CE) in Kamel al-Sana'a al-Tebbiya [12] describes the pericardium in details. He also writes that the other organs of thoracic cavity are enveloped by a *Ghisha*a. He continues his descriptions with explanations about the *Ghisha* covering stomach, liver, spleen, kidneys, bladder, intestines, uterine, testis, arteries and veins, nerves and other organs. It is evident that he knew peritoneum completely. Moreover, *Ghisha* of brain and cranial bone is explained by him in details including this fact

that it has two layers, one layer covers brain and the other layer covers cranial bone. Esmail *Jorjani*, another Iranian scholar (1042-1137) also writes in his book, *Zakhireh Kharazmshahi*, about the two layers of meninges [17].

Haly Abbas mentions Tharb to be composed of *Ghisha*, vessels and fat, and it covers abdominal organs [12].

Arzani, who is another famous scholar of Iranian Traditional Medicine in 11th and 12th century, gives a complete explanation in his book Tebb-e-akbari which is written in Persian. He considers *Maraqq* as the external *Ghisha* of abdomen. Also, he mentions that there are two other *Ghisha*s, one of which is *Tharb* that is the internal *Ghisha* and in touch with stomach and intestine. The other one is external and is called *Sifagh*, which extends till groin and with a hole in each side of the body goes to genitalia and envelopes them [18]. In his *Mizan-ol-tebb*, Arzani notes that Tharb is a fatty curtain underneath *Sifagh* [19].

In addition, there exist valuable information about functions of fascia in PM resources, which are described below.

Components of fascia

Stecco et al. did a microscopic evaluation of fascia related to different organs in 2017 [21]. They studied the fascia of lung, oesophagus, liver, and visceral fascia of the abdomen. The thickest one belonged to heart which was 792 μm (± 132). Avicenna has also mentioned that most *Ghishas* are thin except for heart [1].

Collagen fibers were seen in exact spatial organization, and in different layers. Between these layers, Loose connective tissue full of elastic fibers was seen. Nerve fibers were present in all samples which were of both types unmyelinated and myelinated. The latter existed only in the fascia of the heart, liver, and abdomen while unmyelinated fibers existed in all specimens [21].

Aghili Alavi Shirazi (a scholar of 12th century) in one of his books, Khulasah al-Hikmah which is in Persian, counts Ghisha as an organ of body. About the nature of this organ, he writes that Ghisha is a wide organ which is made up of either nerve cells -like the Ghisha covering tympanic membrane- or ligament cells -like the membrane lining trachea- or both cells. Thus, generally, there are three types of Ghisha with different levels of sensation: the Ghisha composed of nerve cells are very sensitive and feel the senses; the Ghisha with ligament cells as their origin, don't sense anything; and the other *Ghishas* that are made of both cells are somewhere in between and can sense some of stimuli. Aghili mentions that Ghisha is soft, light and flexible and has a color like nerves. Moreover, it is not dense so that it doesn't influence the structure of the organ it covers and also the flow of fluids and substance is allowed through it [20].

The precise description of fascia by the equipment of 12th century is an interesting issue, counted as another confirmation of Persian scholars to be pioneer in the field of medicine at their own era.

Liver as an example

In Canon of medicine, Avicenna has a especial part about trauma and injury to liver. There he mentions: "If any injury or trauma happens to

the liver, it should be tended in order to prevent a swelling or bleeding event. If a swelling occurs, it should be treated with what we mentioned for treatment of swelling post- trauma. This swelling may happen due to displacement of one of the hepatic appendices from its place; and especially if it is large, there will be pain beneath the right ribs post-trauma or stroke. *Ghamz* will correct this" [1]. The last sentence is of great value because it shows that Avicenna mentioned the use of *Ghamz* as a kind of visceral manipulation. He is a pioneer in this field and probably he may be regarded as the first person worldwide to mention visceral manipulation.

Ghamz means pressing of the organs with fingers (reflexology) [22]. In Ghamz, fingertips are moved on the painful area using strong pressure [23]. It is different from *Dalk* , meaning rubbing or massage, in PM [24].

In a report by Salem from Egypt, liver enzymes of two children were reduced by use of visceral manipulation specifically liver technique. The children were taking anti-epileptic drug and thus, their Aspartate Aminotransferase (AST) and Alanine Aminotransferase (ALT) had increased. The normal enzyme level was reached after three months of manipulation.

Liver as the biggest exocrine gland with vasoelastic characteristic is under the umbrella of all visceral orders and laws. This may describe the outcomes of the techniques on the liver [25].

A recommended sport activity from visceral manipulaion point of view

As mentioned above, according to PM, doing exercise is the most important part of Setteh-e-zarurieh. In this regard, some sport activities are recommended by PM scholars in a especial way. One of them is horse riding. Apart from all benefits that are mentioned (being a general type of sport, affecting the whole body and mind, etc.), interestingly, Abu Zayd Ahmed ibn Sahl Balkhi (a Persian scientist polymath, physician, and mathematician, born in 850 CE) writes in his manuscript named Masalih al-Abdan wa al-Anfus that riding has mechanical advantages including the constant vibrational movements that are transmitted from the horse to its rider, which leads to the liver being pressed between the diaphragm and the abdominal muscles; this pressure is not very harsh and is similar to *Dalk* movements, activating bile secretion, and improving blood circulation in this part of body, in addition to increasing breathing speed in open air, and stimulating blood circulation, and if the rider adds movements, it will make an important sport, as Al-Balkhi pointed out [26].

Discussion and Conclusions

Bove et al. did a research in 2012 on rats. They examined the effect of visceral manipulation on prevention and lysis of peritoneal adhesions [27]. The rats were divided into groups of Preventive, Lysis, and Control and all were studied seven days post-operation. The Control group did not have any intervention. Visceral mobilization of abdominal wall was applied to the rats in the Lysis group. Visceral mobilization was applied to the Preventive group daily, beginning one day post-operation. The authors came to the conclusion that Preventive group had significantly less adhesion severity

and number. The Preventive and Lysis rats had damaged adhesions. From physiologic point of view, visceral manipulation disrupts fibrin and blocks migration of fibroblasts to the place of damage. Moreover, rise of fibrinolysis due to higher metabolic exchange as a result of fluid currency imrovement after manipulation could be another contributing factor of better results in this issue [27,28]. Apart from tissues, visceral manipulation affects fibroblasts, too. Meltzer and Standley have done an *in vitro* study on human fibroblast cells and found that cells treated with eight-hour repetitive motion strain and then 60-second indirect osteopathic manipulative techniques had better results compared to cells undergoing just one of these interventions. Fibroblast proliferation did not happen and inflammatory effects were reversed in these cells. This data may provide proof about the clinical effectiveness related to indirect osteopathic manipulative techniques [29].

Since manual interventions are a part of treatment in PM, knowing the ideas of Persian Medicine scholars about visceral manipulation is interesting. Here, in this study, these concepts were looked for by searching and reading manuscripts of Persian Medicine. Also, textbooks and articles about basic concepts and some evidences of visceral manipulation were read and added. This paper is among the very few papers about concepts of visceral manipulation in Persian Medicine. All in all, the following conclusions were reached.

In conclusion, there are many similarities between basic principles of visceral manipulation and Persian Medicine. About anatomy of fascia, it can be concluded from writings of great scholars of Persian Medicine that, Maraqq is possibly the parietal peritoneum and abdominal muscles and skin [1] or all layers of abdominal wall [17, 15]. Sifagh seems to be peritoneum and Tharb may be mesentry [18, 19]. Most probably, one of the first scholars who has mentioned the idea of visceral manipulation is Avicenna. In his canon of medicine, he writes about Ghamz or pressing of liver after a trauma happens. Abu Zayd Ahmed ibn Sahl Balkhi, another PM scientist, explains the reason of recommending riding as a sport and that is also the vibrations that are transferred to liver as a kind of *Dalk*. There are reports of effective visceral manipulation especially with liver techniques available, too. The available *in vitro* and animal studies support the positive effects of visceral manipulation in inflammation and peritoneal adhesions.

The other point is about components of fascia. PM scholars had detected nerve fibers and collagen. They named the latter as ligament-like cells. They are also pioneer in this regard. Thus, according to evidences, the history of visceral manipulation concept dates back not only to centuries ago in europe, but also to thousands of years ago in Iran.

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Conflict of Interest

None.

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References

[1] Avicenna. The Canon of Medicine. Bulaq Edition. University of Tehran Press. Tehran 1978.

[2] Kordafshari G, Mohamadi Kenari H, Nazem E, Moghimi M, Shams Ardaki MR et al. The role of nature (tabiat) in persian medicine. Trad Integr Med 2017;2:177-181.

[3] Weischenck J. Traité d'ostéopathie viscérale. Maloine sa 1982.

[4] Barral J, Mercier P. Manipulations viscérales 1 (French)[visceral manipulation 1]. Elsevier Masson. Paris 2004.

[5] American Osteopathic Association. Foundations of osteopathic medicine. Williams & Wilkins. Lippincott 2010.

[6] Russell J. What is Visceral Manipulation?Directions in Physiotherapy. 2008;3.

[7] Mastery Farahani R. Comparison of anatomical basis of anterior abdominal hernias from avicenna's canon of medicine with new medical resources medical history. 2011;4:109-128.

[8] Minaei B, Amini-Behbahani F, Bahrami M, Eftekhar B, Bahraini A et al. The relationship between peritoneum and body organs in Persian medicine. Iran J Public Health 2018;47:1063.

[9] Bahrami M, Shokri S, Mastery Farahani R, Dadmehr M. A brief historical overview of the anatomy of fascia in medieval Persian medicine. J Med Ethics Hist Med 2020;13:7.

[10] Hebgen E, Wilms S. Visceral manipulation in osteopathy Thieme Stuttgart Germany 2011.

[11] Schleip R, Hedley G, Yucesoy CA. Fascial nomenclature: Update on related consensus process. Clin Anat 2019;32:929-933.

[12] Ahvazi AA. Kamel al-Sana'a al-Tebbiya. Jalaluddin Publications. Qom 2008.

[13] Charalampidis C, Youroukou A, Lazaridis G, Baka S, Mpoukovinas I et al. Pleura space anatomy. J Thorac Dis 2015;7:S27.

[14] Mahadevan V. Anatomy of the pancreas and spleen. Surgery (Oxford). 2019;37:297-301.

[15] Rhazi MZ. Al-Mansuri fi Al-Teb. Al-Monazama Al-Arabia al-Tarbia va Al-Thaqafa va Al-Olum. Kuwait 1988; pp 112-113.

[16] Akhawayni A. Hedayat al-mota'allemin fi al-tibb (An educational guide for medical students). Ferdowsi University of Mashhad Publication. Mashhad 1992.

[17] *Jorjani* E. Zakhireh Kharazmshahi. Institute of Natural Medicine Restoration. Qom 2013.

[18] Azodi AM. Tebb-E-Akbari. Jalaluddin Publications. Qom 2009.

[19] Arzani MA. Mizan-ol-tebb. Sama cultural institute. 2001.

[20] Aghili Shirazi M. Khulasah al-Hikmah. Esma'ilian Publications. Qom 2006.

[21] Stecco C, Sfriso MM, Porzionato A, Rambaldo A, Albertin G et al. Microscopic anatomy of the visceral fasciae. J Anat 2017;231:121-128.

[22] Jaladat A, Atarzadeh F, Homayouni K. Ghamz therapy in Persian Medicine and its comparison with Reflexo Zone therapy. J Islam Iran Trad Med 2013;3:395-406.

[23] Khoramizadeh M, Hashem-Dabaghian F, Mohammadikenari H. Dalk and ghamz: an iranian traditional massage technique. Complement Med Res 2019;26:280-281.

[24] Jaladat AM, Attarzadeh F. Massage therapy in Iranian traditional medicine. J Adv Nurs 2008;63:430-439.

[25] Salem YS. Effect of viscéral manipulation on liver enzymes on a child with cerebral palsy. Curr Pediatr Res 2016.

[26] Al-Balkhi A. Masalih al-Abdan wa al-Anfus, ed. Ahmad bin Sahil Al-Balkhi Riyadh: Markaz al-Malk al-Faisal lil al-Buhus wa al-Dirasat al-Islamiyyah. 2005.

[27] Bove GM, Chapelle SL. Visceral mobilization can lyse and prevent peritoneal adhesions in a rat model. J Bodyw Mov Ther 2012;16:76-82.

[28] Seffinger MA, Martin AJ. The somatic connection january 2013 abdominal visceral manipulation prevents and reduces peritoneal adhesions. J Am Osteopath Assoc 2013;113:99-100.

[29] Meltzer KR, Standley PR. Modeled repetitive motion strain and indirect osteopathic manipulative techniques in regulation of human fibroblast proliferation and interleukin secretion. J Am Osteopath Assoc 2007;107:527-536.