

THE LOCATION AND FUNCTION OF THE SANJIAO

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Abstract

Chinese medical classics describe the location and function of the Sanjiao (the Triple Energiser). Chinese medicine's conception of the Sanjiao is examined in this paper using references in the classical texts. Classical material presents the Sanjiao as the "unique fu": a hollow organ whose unusual structure includes all kinds of cavities and spaces in the body. The three biggest cavities in the trunk - the chest, abdominal and pelvic cavities - are associated with the upper, middle and lower jiao (the "three burning spaces"). Other spaces in the extremities and muscles are called *cou* in the *Neijing* and these are as important as the "three burning spaces" in understanding the Sanjiao's physiology and pathology. Part 1 of this paper explores classical medical sources concerning the Sanjiao's location, shape and structure.

Part 2 extends this discussion to include the Sanjiao's role in Chinese medical physiology. The cavities and spaces that comprise the structure and location of the Sanjiao form a network of fluid and qi passageways extending in all directions throughout the body. The cavities and spaces are a point of juncture and passageway for the qi, the body fluids, and their transformations. The Sanjiao's network of spaces therefore provides a site and a thoroughfare, enabling the ascending and descending movement of qi and fluids, and the movement between interior and exterior - the coming in and going out of yin and yang. Chinese medicine's classical sources describe the Sanjiao's locations and functions in detail: they support traditional Chinese medicine (TCM)'s viscera-based concept of the Sanjiao, and explain less well-understood aspects of its nature and physiology.

Key Words: Jiao, the Sanjiao, triple energiser, *couli*, cavity, space.

Introduction: what is the sanjiao?

"The Sanjiao has a name but no shape".

Nanjing, difficulty 25 & 38¹

Chinese medicine's system of internal organs, the *zangfu*, is a key component of its conceptual frameworks. Of the hollow organs (*fu*), the Sanjiao (三焦) is the most problematic. Ancient medical texts such as the *Nanjing* (Classic of

Difficulties) discuss the Sanjiao and its unique features at some length. In particular, the *Huangdi Neijing* (The Yellow Emperor's Classic of Internal Medicine) and *Jinkui Yaolue Fanglun* (Synopsis of Prescriptions of the Golden Chamber), systematically describe the location and function of the Sanjiao.

The Sanjiao is one of the six *fu*. The ancients regarded it as the biggest of the organs inside the body. In fact its location is given as inside the body and outside the other *zangfu*, in a sense enclosing or holding the other organs². The *Lingshu* (Spiritual Pivot) called it "a unique fu", and divided it into three parts:

"The upper jiao comes from the pylorus to the throat above, distributing in the chest and reaching the armpit, and follows the branches of the taiyin as it travels. It turns to reach yangming, ascends to the tongue, then descends the leg yangming. The middle jiao is also together with the middle of the Stomach. It comes from the Stomach under the upper jiao. The lower jiao separates around the intestine, water comes out from the lower jiao and permeates the urinary Bladder ... the functional state of the upper jiao looks like mist, the middle jiao, soup; the lower jiao, ditch". *Neijing Lingshu, chapter 18*

The different states of body fluids circulating and transforming in the upper, middle and lower jiao are called "mist", "soup" and "ditch", and are generally understood to mean "the Sanjiao is located in the chest and abdominal cavities"³. The consequence for modern TCM students and practitioners is that we often do not fully understand the Sanjiao.

The common explanation of the text quoted from *Lingshu* (chapter 18) is that the upper jiao includes the Heart and Lung, the middle jiao the Spleen and Stomach, the lower jiao the Kidney, Liver and Bladder. The "three burning spaces" then are the three regions of the body - the chest, and the upper and lower abdominal areas. But the text actually describes the regions or cavities that envelop and hold the *zangfu*. What we can see from the description is that, for example, the upper jiao is located in the region of the thoracic cavity and therefore that the Heart and Lung must be located within the upper jiao. This is why upper jiao functions include those of the Heart and Lung.

Whereas the fu generally are said to have form, shape, and colour, to be measurable, and to be able to be filled and emptied, the Sanjiao is clearly exceptional. When the *Lingshu* calls the Sanjiao “a unique fu”, this refers to its unusual characteristics: it is the largest fu, it doesn't have a fixed or common shape or size, and it holds all the other zangfu.

Furthermore, the *Lingshu's* description in chapter 18 includes not only the major cavities in the trunk, the three burning spaces, but the Lung and Spleen channels (taiyin) and their “coat and lining” or yin-yang channel partners the Large intestine and Stomach (yangming). This implies that body areas at the level of the main channel system, including the skin and flesh and the extremities themselves, are involved in the location and function of the Sanjiao.

Part 1 of this paper will discuss the location of the Sanjiao. The upper, middle and lower burning spaces that hold or enclose the zangfu within the trunk of the body are well understood, at least in terms of their location. The Sanjiao's shape and structure however will be shown to be a system of cavities and spaces comprising the three large cavities as well as smaller spaces. The small spaces include those associated with the zangfu internally, as well as those in the limbs and in the more superficial or external layers of the body. Part 1 will also attempt to provide a clear description and explanation of these structures.

Locational and structural information is an important guide for understanding TCM physiology. Part 2 of the paper will use the discussion of location and structure given in Part 1 to support established conceptions, and to explain less well understood applications, concerning the Sanjiao's physiological influences.

Part 1: The Sanjiao's locations, shape and structure

Establishing the Sanjiao's location may be akin to describing it anatomically. In fact, and despite the historical arguments about the Sanjiao's ‘formlessness’, classical authors do not shy away from doing this to some extent. Of course our expectations for anatomy or physiology have their basis in modern scientific materialism, which is inappropriate for ancient Chinese conceptions. And, although some modern authors have made a case for aligning the Sanjiao with concrete anatomical structures⁴, we propose to focus solely on the information available in classical Chinese medical sources.

In ancient times the Sanjiao was written as jiao (臑). The entry for jiao in the *Cihai* gives: “jiao: 1. special word for the Sanjiao; 2. muscles fail to fill shell”⁵. Jiao therefore signifies the idea of spaces where the muscles fail to fill the shell of the body. These spaces form large cavities in the trunk and small spaces throughout the body including the extremities.

Whilst the three main regions in the trunk are usually taken to represent the Sanjiao - the “three burning spaces” - the Sanjiao actually encompasses all of the body's cavities and spaces. The upper, middle and lower jiao (spaces or

cavities) are located in the thoracic, abdominal, and pelvic cavities. The other small spaces, which are distributed throughout the body, are called cou (腠 spaces).

In the body trunk, the smaller cou-spaces are primarily associated with the zangfu, and in the extremities they are associated with more superficial tissues - the skin and muscles or flesh. The Sanjiao's large cavities and smaller spaces form a cohesive network connecting the zangfu, their tissues, the muscles, flesh and skin.

The location of the three burning spaces (jiao), in terms of the cavities of the trunk of the body, is well known. The emphasis in this paper is therefore placed on discussing the “cou” and the relationship between the couli and the Sanjiao.

The relationship between the Sanjiao and the couli

Couli (腠理 space and texture) is a term that is often used in the *Neijing*, and Zhang Zhongjing explains its meaning and importance:

“Cou is a place of the Sanjiao where there is a passageway of circulation and convergence of yuan qi and zhen qi, filled by blood and qi; li is texture of skin and zangfu”⁶.

Jinkui Yaolue Fanglun, clause 1-2

One of the Sanjiao's principal functions is to circulate yuan qi throughout the body, whereas zhen qi circulates mainly in the channels¹¹. Zhang draws our attention to this important convergence, which takes place in the cou and ensures the normal metabolism and function of the zangfu and other body tissues.

By Neo-Confucian times the meaning of li (理 texture, or grain) had evolved to include a philosophical concept corresponding to universal principle, to the idea of form, or to the essence of a thing. However, “... in its most ancient meaning, [li] signified the pattern in things, the markings in jade or the fibres in muscle; as a verb it meant to cut things according to their natural grain or divisions”⁷.

Donald Harper's study of the Mawangdui medical manuscripts discusses the meaning of physiological terms in use during the historical period consistent with the development of ideas presented in the *Neijing*. Two occurrences of li in these texts are associated with early conceptions of the physiological structures holding qi and blood called mai (脉 vessels). In these instances, Harper interprets li as “network” (as in “network of vessels”), which conveys the idea of li as a pattern or system⁸.

By the time of the *Neijing* and later medical classics, both ideas (the ‘pattern in things’ and ‘network’) are present in the use of the term. In the medical context, li means a pattern of textures that apply to the zang, fu, tissues, muscles, and skin areas: the idea supports the relatedness of particular organs, tissues, and body areas consistent with five phase (wu xing) associations. The term neatly includes the notion that these structures, the couli, are a networked system which is distributed throughout the body. The li-textures, their associations and distribution, thereby connect upper and lower, external and internal, shallow and deep. The cou, the spaces, are located between the body tissues and

their textures: their existence is dependent on this association.

Couli therefore is an anatomical term associated with the grain or texture (li) of the skin, flesh, muscles, zang and fu, and the interstitial spaces (cou) that exist between these structures/textures. Their relationship with specific structures and textures means that, firstly, the cou vary in size and shape, and secondly, that collectively they form a special system of the body. This system is what is meant when the Neijing refers to the couli, "space and texture".

According to the Neijing, the superficial couli are associated with their respective zangfu. The skin and muscle couli are therefore differentiated according to their zangfu association, and their layer or depth, and named accordingly (as for example 'skin texture', 'skin space', 'muscle texture', 'muscle space').

"People's diseases take place in the skin spaces. External cold attacks the spaces under the skin resulting in fever, headache, carbuncles and skin infections".

Neijing Suwen, chapter 71

"The cold evil attacks the channels and lodges in the muscle spaces; ying qi circulation is blocked in the muscle textures causing cysts and suppurative swellings. When the body tissues are clear and quiet, the skin and muscles [the spaces of muscles] are closed and protected. Strong wind and toxins cannot injure the body".

Neijing Suwen, chapter 3

Muscle tissue is distributed extensively throughout the body. The Neijing divides muscle textures and spaces into fen rou (分肉 a sheaf of muscle) and fen cou (分腠 the space between the sheaf of muscle).

"In Spring when the wind pathogen begins, shallow needling to the [luo] collateral and the sheaf of muscle is needed, and in summer to the yang channel. ... yang qi accumulates and overflows to make heat evil smoke the spaces between the sheaf of muscle".

Neijing Suwen, chapter 61

The sheaf of muscle is divided again into xi (溪 brook) and gu (谷 valley) according to its size:

"... a big convergence of muscle [where bundles of muscle meet] is called gu; a small convergence, xi; these large and small clefts collect and channel the qi".

Neijing Suwen, chapter 58

According to body-tissue / zangfu relationships, the couli in the extremities and superficial layers of the body correlate with different zangfu. The flesh and muscles belong to the Spleen, whilst the skin and soft body hair, at the most external layer of the body, belong to the Lung.

Because the Lung relates primarily to the couli of the skin, Lung qi deficiency will lead to weakness in the body's exterior defenses. This lowers resistance against external pathogens, which can attack the exterior and penetrate inwards to the Lung itself.

The Lung and Spleen are already associated for us by their six channel pairing⁹. This pairing alerts us to the vertical (upper and lower) linking of physical and energetic structures: the ascending (Spleen) and descending (Lung)

of qi and body fluids is implied. The correspondences between the zang and their body tissues show how the couli form a network linking the interior and exterior.

These relationships describe a structural, three-dimensional network operating throughout the body. The energetic ramifications of the Sanjiao's structural network (upper and lower, interior and exterior) describe the Sanjiao's physiological influences (ascending and descending, taking in and giving off). And, at the body surface, the couli help form the main line of defense to resist external attack.

Summary

The Sanjiao is said to contain and to mediate all the effects or physiology of the interior, the zangfu. This is supported by its location, which is not restricted to a particular organ or region of the body but includes the body trunk, zangfu tissues, muscles and skin.

The sixth fu organ actually consists of a system of large cavities and smaller spaces, the couli, which exist throughout the body. These form a structural network that supports the Sanjiao's physiological role:

- to provide a passageway for qi (氣道 qi dao);
- to provide a passageway for fluids (水道 shui dao);
- to provide a site for qihua (氣化 qi transformation) functions and effects;
- to transmit transformed materials, and discharge turbid qi.

Its location and structure enable the Sanjiao to distribute, to permeate and diffuse, these influences throughout the body interiorly and to the exterior (surface) structures and tissues. The physiological features of the Sanjiao's unusual form, or formlessness, are the subject of Part 2: The Sanjiao's Functions.

Part 2: The Sanjiao's functions

In general, the fu organs move and transport transformed materials without storing them. Their movement must be smooth and unobstructed. The Sanjiao's structure and location provides a passageway for qi and fluids, and a site for qihua and for the transmission of transformed materials (clear and turbid) produced by the zangfu and their tissues.

As a hollow organ, providing smooth transportation, transmission, and discharge without storing, the Sanjiao is classified as a fu organ. But, although it moves transformed materials, the Sanjiao does not connect directly with the external environment. The discharge of turbid qi then must be carried out by associated structures and fu. When the Lingshu says that the Sanjiao "responds to the Bladder below and to the couli superficially", this means that the Sanjiao discharges turbid qi through urination and sweating: this is why the Sanjiao is called the "middle ditch"¹⁰.

The Sanjiao's physiology therefore includes transportation of body fluids, regulation of temperature by sweating and urinating, as well as transportation of yuan qi, zhen qi and wei qi¹¹.

These "three qi", coupled with the zangfu qi existing in

their respective textures, form a powerful defense against pathogenic qi. The three qi, especially the wei qi, travel throughout the body's cavities and spaces to protect against disease. The zangfu qi tenaciously defend their functional areas.

The Sanjiao qi passageway (三焦气道)

"The spaces (cou) are a place of the Sanjiao where yuan qi and zhen qi circulate and converge, the spaces are suffused with blood and qi".

Jinkui Yaolue Fanglun, clause 1-2

"Big convergence of muscle is called valley; small convergence of muscle is called brook, circulation of ying wei¹² and convergence of big qi take place in between the sheaf of muscle and joint of valley and brook".

Neijing Suwen, chapter 58

"The Sanjiao is a place of qi starting and ending. The Sanjiao is in charge of passing through the three qi that go through the five zang and six fu".

Nanjing, Difficulty 31 & 36

Here, "big qi" and "three qi" refer to yuan qi, zhen qi, and wei qi. Whilst wei qi is concerned with defense against pathogenic influences, the yuan qi and zhen qi transmit the functional aspect of jing-essence from ming men to the zangfu and body tissues. Yuan, zhen, and wei qi circulate and converge throughout the body, and the Sanjiao supplies a site and thoroughfare for this.

Coming from the "gate of life" (ming men), yuan qi is the primary dynamic qi for life and the body's vital activities. Its distribution around the body is achieved by passing through the Sanjiao. It pours into the zangfu to stimulate their physiological functions, and into the spaces and cavities and muscles to resist pathogenic qi. When disease is so serious that the body's zheng qi (anti-pathogenic or upright qi) cannot withstand the attack, yuan qi may be called upon to assist with the fight, and this is why we say that yuan qi may be damaged by serious illness. Therefore yuan qi is an important part of zheng qi.

Zhen qi circulates mainly within the channel system including its internal branches. Transmission and exchange of physiological information between the zangfu is achieved by the zhen qi. This regulates individual zangfu functions and coordinates their collective functions. If the qi of one of the zang or fu is deficient, this will weaken the zhen qi in its channel. Pathogenic evil will enter and follow the weakened channel and may go deeper attacking the channel's zang or fu organ.

"External evil attacks the skin causing the soft hair on the body to stand. It opens the spaces and textures, lodges [firstly] in the collaterals and changes their colour, and [then] lodges in the channel moving deeper following the deficiency. External evil attacks the skin to open the spaces and textures and lodge in the collateral. Having filled the collateral, the evil pours into the main channel, when the main channel is filled, the evil attacks the fu and zang".

Neijing Suwen, chapter 56

So the zhen qi circulating in the main channels is also an important part of zheng qi, but more importantly, the zhen qi resists evil attacking the zangfu.

Wei qi is the most active qi among the "three qi". It is light and fast-moving in nature and is also an important component of the zheng qi. Wei qi distributes extensively in the spaces, textures and between muscles in order to fulfil its function of opening and closing the couli. When external evil attacks the surface of the body, wei qi first fights the evil (pathogenic) qi here. In the case of external attack, the couli associated with the superficial tissues, the skin and muscles, are the battlefield where pathogenic qi and anti-pathogenic qi meet.

"Wei qi has functions of warming the sheaf of muscle, filling the skin, nourishing spaces and textures. Abundant and harmonious wei qi will smooth the sheaf of muscle, and soften the skin, compact the spaces and textures".

Neijing Lingshu, chapter 18

"External wind evil attacks the taiyang-Bladder channel and scatters between the sheaf of muscle, the channel and point. Here it interacts with wei qi, and obstructs the qi. This causes swelling of the muscle and flesh, or boils and carbuncles. Stagnation of the wei qi also can cause tingling and numbness of the muscles".

Neijing Suwen, chapter 42

Yuan qi, zhen qi and wei qi therefore are essential for the body's response to pathogenic influences. Because the Sanjiao's qi passageway ensures the ascending and descending, coming in and going out of qi, the three qi together fill the spaces and cavities of the Sanjiao to maintain normal function and health. When the three qi are strong, the couli are compact, the sheaves of muscle are smooth, the five zang and six fu are in harmony, and evil qi cannot attack and penetrate the body.

When one of the three is deficient, zheng qi is weakened. This will loosen the couli and disorder the tissues at the level of the flesh and muscle, and at the level of the zangfu. In this case pathogenic evil can come from either the exterior or the interior.

Therefore, in pathology the Sanjiao is a gate for external evil to attack the body, a battlefield for pathogenic and anti-pathogenic qi, and a passageway for pathogenic qi to penetrate from the exterior. There is a close relationship between opening and closing the couli and the symptoms of fever, sweat, circulation and discharge of body fluids (hydration and fluid metabolism).

"The spaces and textures are opened to make the body shiver, and they are closed to make the body hot and stuffy".

Neijing Suwen, chapter 42

Pathogenic cold is one of the six external evils. The nature of cold evil has the effect of contracting and stagnating, and this effect often closes the couli at the level of the skin causing fever without sweating.

External wind evil on the other hand has the nature of opening and dispersing, so external wind often opens and

loosens the couli causing sweating. As wind penetrates the exterior its dispersing effect, coupled with the effect of obstruction in the channels and collaterals¹³ disrupts the harmonious movement of ying and wei. Sweating with aversion to wind is due to disharmony of ying and wei.

Zhang Zhongjing established general principles for the treatment of external disease according to the pathologic nature of the evil qi:

“Where external cold evil attacks the body causing cough or oedema with absence of sweating, he prescribes Ma Huang Tang (Ephedra Decoction) to open the pores (couli of the skin). Ma Huang Tang causes sweating to dispel the external cold evil”.

Shanghan Lun, cl.35

“Where external wind symptoms include sweating, Gui Zhi Tang (Cinnamon Twig Decoction) is given to regulate and harmonise ying and wei”.

Shanghan Lun, cl.12

In the case of internal diseases, pathogenic qi is located in the interior of the body and may move from one organ to another. Here the main pathway for this transmission is again provided by couli.

“A preponderance of yang leads to heat in the body, the couli are closed, the person breathes quickly [panting] with their shoulders rising, they have fever with no sweat, dry teeth and gums, and restlessness”.

Neijing Suwen, chapter 5

“If after drinking, the water flows to the four limbs where it cannot be sweated out causing generalised aching and heaviness, this is diffuse fluid-retention [yiyin] syndrome”.

Jinkui Yaolue Fanglun, clause 12-1

In good health, couli are suffused with qi and blood produced by the Spleen. When qi and blood are strong, transmission of evil qi in the interior can be limited or prevented.

Maintaining a healthy abundance of qi and blood has therefore always been a tenet of TCM. In his *Pi Wei Lun* (Treatise on the Spleen and Stomach, c.1245), Li Dongyuan gave primary importance to the health of the Spleen and Stomach in terms of internal/zangfu health and function. Furthermore, Li maintained that the key factor in preventing external attack is abundant qi and blood produced by a healthy Spleen and Stomach.

The Sanjiao water passageway (三焦水道)

“The Sanjiao is the officer who is in charge of drains and irrigation: it is the place from which water pathways emerge”.

Neijing Suwen, chapter 8

“After entering the Stomach, liquids are refined to become body fluids and these are transmitted up to the Spleen, where they are refined again. The Spleen ascends pure fluids to the Lung, and the Lung’s descending function conducts fluids down to the Kidney and Bladder. The Lung is responsible for dredging and regulating the water passageway. The refined body fluids circulate in all direc-

tions. The channels of the five zang circulate harmoniously to keep body fluids relatively constant, adapting to the four seasons and to the yin-yang of the zang”.

Neijing Suwen, chapter 21

The beginning of fluid metabolism and the entrance of the Sanjiao’s water passageway is the Stomach. We have discussed how the Sanjiao is filled with yuan qi, zhen qi and wei qi, but their main functions are not primarily to do with water. It is the zangfu qi that deal with fluid metabolism.

For example the Lung, the upper source of water, is in charge of dredging and regulating the water passages. The Spleen in the middle burner is in charge of transporting and transforming water and dampness. Kidney, the water organ, is in charge of the transformation (qihua) of water. The body fluids in turn moisten and nourish the zangfu and their tissues.

Body fluids are also a medium for carrying the qi and for discharging waste. Fluids are discharged via sweating and urinating. Sweating and urination also cool the body and regulate body temperature, and these processes change according to environmental cycles and changes. This accounts for the Sanjiao’s function of helping to maintain optimal body temperature for healthy physiological processes.

“Cold weather or thin clothes make water transform into urine and qi [yang qi to keep the body warm], hot weather or thick clothes make water transform into sweat”.

Neijing Lingshu, chapter 36

The skin is at the exterior of the body and is the largest of the body’s organs - it is certainly a much bigger organ than the Bladder. Chinese medicine (and here, the *Lingshu*) says that this is why sweating consumes more yang qi than urination. Therefore TCM emphasises that excess sweating exhausts the yang qi.

The Sanjiao’s water passageway co-operates downward with the Bladder’s excretory function to balance body fluid, and it co-operates externally with the couli at the level of the skin and flesh to balance body temperature by sweating.

“Kidney co-ordinates the Sanjiao and Bladder, the Sanjiao and Bladder respond to the spaces, textures and soft hair on the body”.

Neijing Lingshu, chapter 47

When the couli open, water comes out via the skin and soft body hair by sweating; when they close, water is excreted from the body via the Bladder. The former process emphasises temperature regulation, the latter emphasises regulation of body fluid.

The Kidney is pivotal in the whole process, especially the qihua function of Kidney yang. The *Lingshu* (chapter 47) tells us that the Sanjiao has a close energetic relationship with the Bladder and the Kidney. Interestingly, the proximity of the lower he-sea points for the Sanjiao and Bladder at Weiyang BL-39 and Weizhong BL-40, and the back-shu points for the Sanjiao and Kidney at Sanjiaoshu BL-22 and Shenshu BL-23 respectively, make perfect sense in the light of these relationships.

We can summarise the whole thoroughfare of transporta-

tion, transformation, and discharge of water from the interior to the exterior thus:



If one of the links in this “thoroughfare” is disrupted, whether by external or internal evils, water metabolism becomes disordered causing various diseases of dampness and phlegm.

“Counterflow of qi obstructs and stagnates zheng qi. The yin and yang qi passage and the four seas are obstructed and this makes the Sanjiao fail to discharge water, causing oedema. Water and food stagnate in the Stomach, intestines and downward to the lower jiao. Water cannot permeate to the Bladder, causing distention in the lower jiao. Floating [untransformed] water causes oedema”.

Neijing Lingshu, chapter 36

Because sweating and urination are how fluid is normally excreted, Zhang Zhongjing formulated a general treatment principle for diseases caused by water and dampness involving sweating and diuresis.

“When symptoms of dysuria and diarrhoea or loose stools [from internal dampness obstruction] are observed, this should be treated with diuresis¹⁴.

Jinkui Yaolue Fanglun, clause 2-14

“If wind-dampness becomes lodged in the superficial regions of the body [causing general body aches] this should be treated with mild sweating to remove both wind and dampness¹⁵.

Jinkui Yaolue Fanglun, clause 2-18

Pathogenic dampness must be expelled, but the treatment principles for damp diseases vary depending on the location of the problem. Sweating expels external damp, whilst internal stagnation of fluid is removed by diuresis. Similarly, diaphoresis or sweating is indicated for upper body oedema, whereas oedema below the waist is treated by diuresis.

Because external damp lodges in the couli of the skin, muscles and joints, the more efficient method to remove it (the method consuming less zheng qi) is sweating. Clearly, internal and lower body damp diseases are more effectively treated by diuresis. Because yang qi plays an important role in water metabolism, Zhang also emphasised treatment to warm and tonify yang qi to promote fluid metabolism.

Even a basic understanding of the physiology of body fluids alerts us to the fact that the upper, middle and lower jiaos’ metabolic activities extend beyond the trunk (the interior) of the body. The Sanjiao serves as a passageway for body fluids and their metabolism: it supplies a site and route for water circulation and transformation.

The Sanjiao qihua

The Sanjiao qihua is a TCM term referring to the function of regulating body fluids and water metabolism performed by the Sanjiao. The qi and fluid passageways governed by the Sanjiao are intimately related - body fluids follow qi circulation, and fluids carry the qi. Qi stagnation therefore

causes water retention, and depleted fluids (for example from excess sweating) cause qi deficiency.

The Sanjiao’s qi and water passageway functions complement and support each other but are however distinct. The qi passageway transports the three qi to resist disease evil and maintain healthy life processes. The water passageway enables moistening of the zangfu, and keeps body temperature and body fluid requirements in relative balance. Although the Sanjiao is said to govern the waterways, body fluid metabolism is actually carried out by the other zangfu. But, the Sanjiao supplies the site and passageways for fluid metabolism.

The site or location of the Sanjiao includes all the cavities and spaces of the body, and when in good health, the cavities and spaces provide for the Sanjiao’s water passageway function. This means that the circulation and transformation of water takes place, not only in the three burning spaces containing the zangfu, but throughout the body.

Verification for the Sanjiao’s shape and structure can be drawn from clinical observation of body fluid pathologies and their locations. Water circulating in the Sanjiao in qihua states is essential for healthy fluid metabolism. When out of the qihua condition, water turns into stagnations and accumulations of liquid evils (damp pathogenic factors). Water circulating out of the qihua condition means that the water passageway functions are compromised, and this means that dampness, phlegm, and other waste material secreted by the textures of different organs and tissues pool and obstruct the Sanjiao’s cavities and spaces, and inhibit other physiological processes.

Zhang’s analysis and differentiation shows that damp, phlegm-liquid, and oedema diseases occur when water metabolism is disrupted, causing fluids to accumulate or stagnate. Chapters 2, 12 and 14 of the *Jinkui Yaolue Fanglun* describe these diseases.

His examples include “wind water” (which is similar to acute glomerulonephritis), “pi water” (similar to common oedema or chronic glomerulonephritis), and “yiyin” (a kind of oedema). “Xuan yin” (similar to hydrothorax) is caused by water accumulation in the pleural cavity. “Zheng shui” and “shi shui” are similar to some kinds of ascites - water stagnation in the abdominal cavity.

According to classical theory and to common clinical observations, pathologies of fluid metabolism manifest in the body’s cavities and spaces. These cavities and spaces are the same as the locations, shapes and structures for the Sanjiao presented in Part 1. Examples of fluid pathology demonstrate that the Sanjiao’s shapes and structures have a close relationship with the cavities and spaces of the body - where the water circulates, the diseases of water take place.

Conclusion

The Sanjiao is one of TCM’s fu or hollow organs. Unlike other fu organs such as the Stomach or Bladder, the Sanjiao can be difficult for the student of TCM to fully understand. This is the case firstly, because there is no discreet anatomi-

cal equivalent as there are for the other fu organs (the Stomach, Bladder, and so on). Secondly, Chinese medicine's classical literature is often compact and difficult. Translations and commentaries available in English tend to be of variable quality, and on this subject in particular are diverse and unclear.

Examples from classical sources however reveal the Sanjiao to be a system or network of passageways connecting upper and lower, interior and exterior of the body. The Sanjiao's passageways furthermore are shown to consist of the cavities, spaces and interstices that exist throughout the body. These provide a passageway for qi and fluids. The network also establishes a site and a thoroughfare for qihua and the movement of vital substances between the interior and exterior, ascending and descending - for yin and yang coming in and going out.

In the *Neijing*, the three biggest cavities in the trunk of the body, the chest, abdominal and pelvic cavities, are given as the physical location of the upper, middle and lower jiao - the "three burning spaces". The *Neijing* also describes the small spaces in the extremities, muscles, and surface tissues. These are called cou (spaces).

Zangfu qi circulates in its respective channels. Following the li-textures of the different zangfu and tissues, the cou-spaces are divided into skin spaces, muscle spaces, and so on. Zangfu qi circulate here as well according to their textures and tissues.

The system of couli (spaces and textures) is the structure and location of the Sanjiao, providing for its qi and water passageway functions. The couli constitute a network throughout the body connecting upper and lower, deep and superficial. This is where the yuan, zhen, wei and zangfu qi converge and circulate.

The Sanjiao's cavities and spaces serve as the body's water passageway. The zangfu and their tissues are thereby moistened and nourished, body fluids and temperature are regulated by sweating and urination, and the balance of yin and yang is maintained.

All facets of the the Sanjiao system co-operate together to form a powerful defense system that maintains a healthy internal environment, resists the attack of external evils superficially, and prevents their transfer deeper into the body. It is the Sanjiao, or more specifically the couli, which enable the three qi to concentrate easily at the place where the evil attacks. This is the reason why the Sanjiao is a passageway and battlefield for the zheng qi and pathogenic qi encounter.

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Notes

- 1 Quotations from Chinese medicine's classical literature are not attributed to a particular translator or English-language publication because, where possible, a variety of Chinese and translated sources have been consulted. By not using any single or "authoritative" edition, the authors intend to avoid the inference that there is consensus as to interpretation, and advise that quotations given here are derived from Chinese sources in the first instance: see, for example, Shang & Zhai.
- 2 *Lingshu*, chapter 2; *Nanjing*, difficulty 25.
- 3 Yin, 1984, p.46
- 4 For example Matsumoto & Birch (1988), Nielsen (1995), and see Ho & Knight (1998)
- 5 Cihai Editorial Board, 1979, p.3485
- 6 Cou zhe, shi san jiao tong hui yuan zhen zhi chu, wei xue qi suo zhu; li zhe, shi pi fu zang fu zhi wen li ye.
- 7 Needham, Vol.2, 1962, p.558.
- 8 Harper, 1998, p.83.
- 9 Lung and Spleen are the taiyin division.
- 10 *Neijing Lingshu*, chapter 2.
- 11 Yuan is usually translated as "original", zhen as "true" or "channel", and wei as "defense".
- 12 Ying (nutritive) qi and wei (defense) qi are the main components of zhen (channel) qi.
- 13 Any "evil" qi will disrupt normal or healthy movement of qi. In Chinese medicine "evil" (xie邪) has the connotation of "intruder", and refers to any qi where it does not belong.
- 14 Shi bi zhi hou, xiao bian bu li, da bian fan kuai, dan dang li qi xiao bian.
- 15 Ruo zhi feng shi zhe, fa qi han, dan wei wei si yu chu han zhe, feng shi ju qu ye.

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