Introduction to Neijing Classical Acupuncture Part III: Clinical Therapeutics

Abstract

Chinese medicine currently stands at a critical crossroad in its development, and today exists at a significant distance from the ideas that gave birth to its practice. Shared concepts and terms resonate through classical texts and modern theories, and yet - especially in the West - there exists a significant divide between what was originally envisioned and what is currently practised and taught. This poses significant challenges for the profession. Knowledge of classical principles allows for advanced clinical problem solving, the successful treatment of complex illness, theoretical innovation, meaningful collaboration with other healthcare professions and the ability to perform clinically relevant research. Without this knowledge, many of these activities are significantly compromised. The distinctions between classical and modern practice can be seen most clearly in the daily clinical care of patients. Part III of this series of articles examines some basic therapeutic principles of *Neijing* classical acupuncture and reviews several case histories to illustrate their clinical implementation.

By: Edward Neal

Keywords: Acupuncture, Neijing, classical, Chinese medicine, clinical practice, therapeutic principles, bi obstruction, ji mechanism.

Clinical case #1 - Disseminated coccidioidomycosis

One evening in late November, a 52-year old farmworker presented to his local hospital emergency department reporting three weeks of worsening haemoptysis, fever, fatigue, weight loss, arthralgias, skin rash and headache. The patient's symptoms had started as a flu-like illness that became progressively worse. At the time of the evaluation made by the hospital staff, the patient was febrile and diaphoretic, and had a recurrent cough productive of bloody sputum. Chest x-ray showed pulmonary nodules in both the right and left upper lobes. The patient was admitted to the hospital floor for observation and treatment based on a diagnosis of fever of unknown origin, acute haemoptysis and pulmonary nodules. After twenty-four hours the patient became lethargic and confused and was transferred to the intensive care unit for advanced support. Initial laboratory analysis was consistent with a diagnosis of acute pulmonary coccidioidomycosis and the patient was started on intravenous anti-fungal medications. After 72 hours, the patient's condition deteriorated and he became semi-comatose. Laboratory analysis showed worsening renal function and the patient had diminished urinary output. Analysis of the patient's cerebrospinal fluid showed a pleocytosis of lymphocytes. MRI scan of the brain showed a developing hydrocephalus. A diagnosis of disseminated coccidioidomycosis with secondary meningitis, hydrocephalus and renal involvement was made. After four days, the patient's condition remained unchanged and the family requested a Chinese medicine consultation as ancillary support for the patient's care.

At the initial Chinese medicine consultation, the patient was febrile, disoriented and diaphoretic. He had a recurrent cough productive of blood-tinged sputum. The patient's complexion was dirty-black like soot, with areas of washed-out white over the cheeks and nose. A rapid gou (鉤hook-like) pulse was felt in the distal regions of the maikou pulse regions with pernicious influences noted prominently on the left side.[1] renying cunkou pulse diagnosis indicated impairments in the foot yangming region on the left and the foot taiyang region on the right).[2] Sanbu jiuhou pulse diagnosis indicated the presence of pathogenic factors at the pulse over the temple on the left side and distally at Daxi (大谿 great stream - modern KID-3) bilaterally.[3] Examination of the forearm showed congestion in both proximal positions and deficiency at the middle regions on the right.[4] Physical examination showed fascial obstructions at the rear of the occiput that were greater on the right, and significant damage from previous soft-tissue injuries over the left anterior thigh. Here there was withering and hardening of the sinews, subcutaneous wasting, previous skin grafting and bony deformities of the femur from a previous fracture. A bilateral maculopapular rash was noted along the inner aspects of the calves and forearms. The upper taiyin region of the medial upper arm and radial forearm was wasted and diminished bilaterally. Past medical history (given by the family) revealed that the patient had recently migrated from Northwestern Mexico to begin work in the United States. During the time of his journey, the patient had become seriously malnourished and weak. The patient had been born one month prematurely and had spent three weeks in a hospital on respiratory support. At age 10 he suffered a broken left femur when a car rolled over on his leg. Significant soft tissue trauma in that area required surgical skin grafting, orthopaedic pinning and hospitalisation. Since that time he had walked with a limp. After this initial evaluation, a treatment plan was devised.

I. Background

The *Huangdi Neijing* (Yellow Emperor's Inner Classic) and related classical medical texts are perhaps best understood as being comprehensive treatises on the theories and clinical practice of classical space-time medicine. According to Chinese natural science, the world and the greater cosmos from which it arises derive from an infinite number of expansion and contraction cycles, fractally inscribed within one another in a complex array of relationships;[5] it is the composite sum of these patterns that generates all material and non-material manifestations of the universe (including those of the human body). In classical terminology, the expanding force of these cycles is called 'yang' (陽) and the contracting force is called 'yin' (陰).[6] Arising from an undifferentiated chaos lacking the dimensions of space and time, these motions circulate through different states of manifestation and complexity, existing first as a primary unity, then differentiating into a binary dimension and finally giving rise to a third quality (that is, the relationship generated between these two poles as they mature into a state of oppositional tension). As this basic configuration stabilises, a spiral/circular motion begins to form itself around an organising centre. This represents a basic pattern of the organised universe (see Figure 1).

In classical Chinese medicine, different terminologies were used to describe these phase motions, depending on which phenomena were being observed and which theories were being explained. One of the most basic ways was through association with the cardinal directions (see Figures 2 and 3, and Tables 1 and 2). For this reason, a clinical practice built around these principles may be characterised in Chinese terminology by the term 'fangyi' (方醫 directional medicine). Here, the term 'fang' (方direction) refers to the different phase circulations that move through the body's structure and physiology.[7,8] Once these primary phase motions are identified, different aspects of circulation may be described as flowing with or against the primary motions. In the *Neijing*, circulations consonant with these motions are called 'shun' (順 flow) and circulations counter to these motions are called 'ni' (逆 counterflow). Because the human body itself arises from nature, it contains these same basic patterns. In turn, external forces of the greater macrocosm affect the circulations of the body's inner physiology. In Chinese medicine, disease is seen to occur whenever these circulations are impaired and treatment is understood to be anything that restores these circulations to their normal balance.

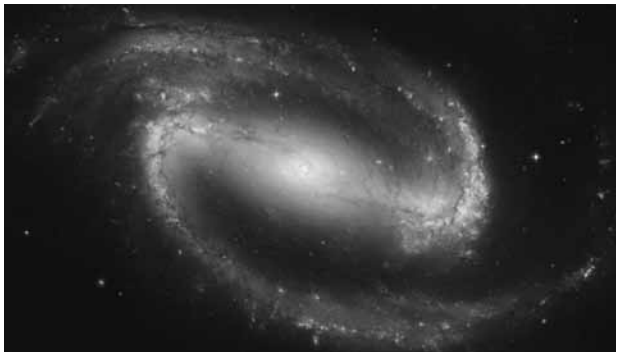

Figure 1: The circulation of the organised universe
As the cosmologic space-time breath comes into a state of oppositional tension, spiral or circular motions begin to turn around an organising. centre. In space, the primary phases of this rotation lack directional differentiation (an image of the NGC 1300 galaxy taken from the Hubble Space Telescope). [image from http://en.wikipedia.org/wiki/File:Hubble2005-01-barred-spiral-galaxy-NGC1300.jpg]

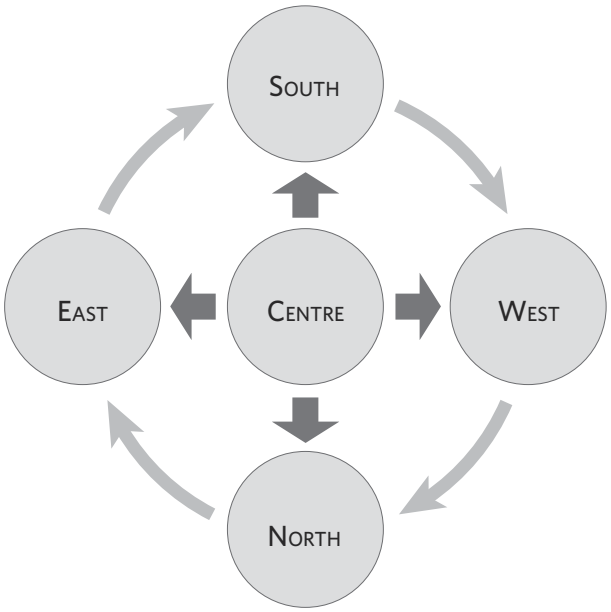

Figure 2: The primary phase motions
When these forces are observed on earth, they are associated with natural changes of nature. From the perspective of earth, one of the most generic ways of describing these cycles is through association with the four cardinal directions. A clinical medicine based on these primary phase circulations may be defined by the term 'fangyi' (方醫 directional medicine).

Directional Phase Motions	
PHASE DIRECTION	PRIMARY PHASE MOTION QUALITY
East	Opening, rising, expanding
South	Outward expansion, terminal transition
Centre	Pivoting, connection to the four directions
West	Closing, descending, contracting
North	Inward contraction, terminal transition

Table 1: The primary phase motions – directional qualities
In nature, each directional phase motion is associated with a specific quality of expansion or contraction of the yinyang breath.

Figure 3: Celestial patterns and earthly phenomena
In Chinese natural sciences, celestial rotations were correlated with natural changes occurring on earth. Here the oracle bone image representing the heavenly stem You (酉) shows a jug of alcohol used in the fermentation of grains after the fall harvest at the time of autumn. Similarly the oracle bone for the earthly branch Yi (乙) depicts a seedling stirring within the springtime soil. In turn these local changes were tied to movements seen within the stellar sky and climate (Image of the Milky Way galaxy from the Spitzer Space Telescope). [image fromavailable from http://commons.wikimedia.org/wiki/File:Milky_Way_IR_Spitzer.jpg]

II. The bi (痺 yin obstruction) and ji (機 intrinsic mechanism)

Two key concepts are required to understand the principles of *Neijing* space-time medicine: the bi (痺yin obstruction) and the ji (機 intrinsic mechanism). The bi (痺) obstruction was one of the most common pathologies described in the *Neijing* and was seen to be implicated in the vast majority of illnesses.[9] Bi (痺) obstructions are fixed impairments of regional physiological circulation. Qualitatively, a bi (痺) obstruction may be seen as being a 'local freezing of the space-time breath' that occurs within the body's three-dimensional anatomy. Bi (痺) obstructions can occur anywhere in the body and may cause a variety of clinical syndromes, depending on their location and the physiological processes impaired by them.

At the time the *Neijing* was compiled, environmental factors such as cold, wind and dampness were seen to be primary causes of bi (痺) obstruction. While external factors continue to generate a wide variety of illnesses, today environmental pollution, occupational exposures, medications, surgical interventions, hormone-disrupting agents and a host of other factors contribute to the development of bi (痺) obstructions and thus generate many chronic illnesses.[10] Once bi (痺) obstructions have become established in the body, they generate local areas of counterflow circulation with secondary heat patterns and associated inflammatory changes.[11] Bi (痺) obstructions also cause dead end cul-de-sacs within the body's physiologic circulation, where pathological factors remain trapped, causing chronic impairments for a surprising length of time. In summary, bi (痺) obstructions are fixed regional tissue-plane pathologies that hold the body in a 'configuration of illness' until correctly diagnosed and treated. Importantly, because bi (痺) obstructions reside 'frozen' within the

Natural Phenomena					
DIRECTION	EAST	SOUTH	CENTRE	WEST	NORTH
SEASON	Spring	Summer	Long-Summer	Autumn	Winter
COLOUR	Blue-green (青)	Red (赤)	Yellow (黄)	White (白)	Black (黑)
STELLAR SOUND	Jue (角)	Zhi (徵)	Gong (宮)	Shang (商)	Yu (羽)
QUALITY OF NATURE	Wood/plants	Fire	Soil	Metal	Water
CLIMATE	Wind	Heat	Damp	Dry	Cold

Table 2: The primary phase motions – directional qualities
In nature, each directional phase motion is associated with a specific quality of expansion and contraction of the yinyang breath.

body's tissues, the normal healing mechanisms of the body cannot access them and therefore the intervention of a trained practitioner is needed to treat them.[12]

Of the known medical therapies, classical acupuncture appears to be the singular most effective intervention for the resolution of bi (痺) obstructions. In properly trained hands, needles have the power to resolve such pathologies quickly and definitively, even when they have been present for a long time.[13] In contrast, other forms of medical therapy such as herbal medicine, bodywork, allopathic medicine, nutritional support and supplementation, qigong and exercise, while clearly conveying a host of other therapeutic benefits, do not appear - except perhaps in the most experienced hands - to have this same capacity to resolve bi (痺) obstructions.[14] This may be one reason why the authors of the *Neijing* portray acupuncture as being a primary medical intervention that is appropriate for the treatment of chronic and serious illness.

The concept of the ji (機 intrinsic mechanism) is somewhat more complex, and limited space precludes a full discussion of its meaning. However for the purposes of this paper, the ji (機) mechanism may be defined as: a) The totality of the body's circulations, or b) The expression (through these circulations) of the body's innate organising principle, or c) Specific areas of regional tissue-plane pathology, the release of which restores the body's circulations to a normal pre-illness condition.

III. Therapeutic principles of *Neijing* classical acupuncture

Most first-time readers of the *Neijing* experience the text as being simultaneously profound, yet difficult to comprehend-and virtually impossible to put into clinical practice. For these reasons it often sits on a shelf in the clinic, standing as a silent talisman to an ancient tradition, rather than being the well-thumbed treatise on clinical medicine originally envisioned by its authors.

Some of the principles that allow the theories of the *Neijing* to be put into clinical practice are outlined below.

Clinical principle #1

All structures and functions of the human body are direct expressions of the cosmologic yinyang breath.

東方生風風生木木生酸酸生肝肝生筋筋生心肝主目其在天為玄在人為道在地為化化生五味道生智玄生神神在天為風在地為木在體為筋在藏為肝在色為蒼在音為角在聲為呼在變動為握在竅為目在味為酸在志為怒

'The East generates wind. Wind generates wood. Wood generates sourness. Sourness generates the liver. The liver generates the sinews. The sinews generate the heart. The liver rules the eye. In heaven it is the dark void (玄). In man it is the dao (道). Within the earth it is the process of hua transformation (化). Hua transformation generates the five flavours (五味). The dao generates wisdom (智). The dark void generates shen (神). In heaven, shen is wind. On earth it is wood. In the body it is the sinews. Among the organs it is the liver. Among colours, it is blue-green. Among stellar harmonies, it is the note jue (色). Among earthly sounds, it is shouting. Its deepest expression [of illness] is to grasp. Its opening is the eye. Its flavour is sour. Its [outward] expression is anger. Anger harms the liver. Grief overcomes anger. Wind harms the sinews. Dryness overcomes wind. Sourness harms the sinews. Pungency overcomes sourness.'

- *Suwen*, Chapter 5
'Great Treatise on the Mutual Expressions of Yin and Yang'

In Chinese medicine, every aspect of the human body is believed to be a direct manifestation of the cosmologic yinyang breath. As non-material energies circulate through the world, they become increasingly tangible, first as the qualities of climate, then as the different expressions of 'wood', 'fire', 'earth', 'metal' and 'water'. In the *Neijing* these terms symbolise the materialisation of the primary phase motions as these forces move in and out of tangible form within the natural world.[15]

These same processes generate the different dimensions of the body's tissue-plane anatomy. Deep within the body, the zang organs reside like the roots of a tree, storing the jing (精) essence of the primary phase directions. From these, like the trunks and branches of the tree, different anatomical tissues planes emerge outward and differentiate. As nature's circulations begin to move through the body, different physiological processes come into existence. It is precisely here, at the intersection between form and function that nature's circulations and the somewhat esoteric principles of classical space-time medicine become something tangible and clinically relevant (see Table 3).[16]

Clinical principle #2

Every region of the body's anatomy expresses a unique set of diagnostic criteria.

足少陰之別名曰大鍾當踝後繞跟別走太陽其別者并經上走于心包下外貫腰脊其病氣逆則煩悶實則閉癃虛則腰痛取之所別者也

'The foot shaoyin bie (division tributary) is called Dazhong (大鍾 great bell). Arising behind the ankle, it wraps around the heel and divides to join taiyang. It then ascends to xinbao (心包 heart wrapper) and below circulates externally to pass through the waist and spine. When counterflow qi [within this tributary] causes illness, there is vexation oppression (煩悶). When there is excess, there is urinary obstruction (閉癃). When deficient, there is pain in the waist (腰痛). When treating, choose the area of the division.'

- *Lingshu*, Chapter 10
'Channels and Vessels

When affected by pathology, the various different areas of the body express unique clinical manifestations. In the

Anatomical Qualities					
DIRECTION	EAST	SOUTH	CENTRE	WEST	NORTH
ZANG ORGAN	Liver	Heart	Spleen/pancreas	Lungs	Kidney
FU ORGAN	Gall Bladder	Small Intestine	Stomach	Large Intestine	Bladder
TISSUE PLANES	Sinews & membranes	Mai (blood) vessels	Fat, subcutaneous tissue, digestive tract	Skin, respiratory tract	Brain & marrow
OPENINGS	Eyes	Tonge	Mouth	Nose	Ears
FLOURISHINGS	Nails	Complexion	Lips	Hair (body)	Hair (head)

Table 3: Primary phase directions paired with the human body
In classical medicine, all aspects of the form and function of the human body are believed to be direct tangible expressions of the cosmologic yinyang breath. This theoretical construct allows the complex expressions of human illness to be linked to the theories of classical space/time motion (a few examples are given here).

Neijing, descriptions of such pathological manifestations were both sophisticated and technical in scope and a significant percentage of the time required to learn classical acupuncture is spent learning the different pathways of the body along with their associated pathological symptoms and signs.[17] That these descriptions were highly detailed, and furthermore that they often correspond closely to Western descriptions of the body, counters the notion that Chinese medicine is based solely on clinician intuition or the placebo effect, as is sometimes suggested.[18]

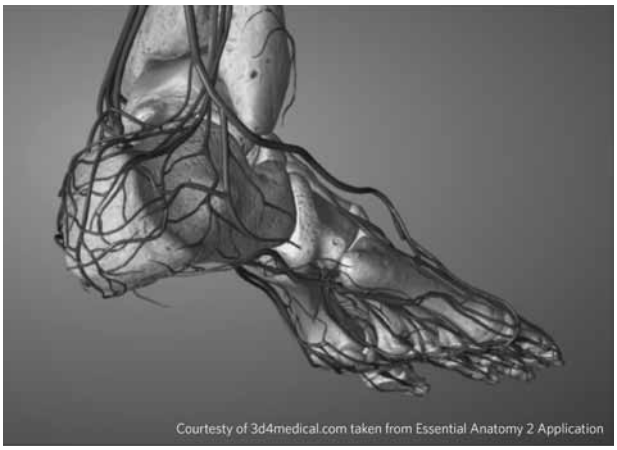

Figure 4: The foot shaoyin bie (division tributary) Dazhong (大鐘 great bell).
The *Neijing* describes division tributaries that separate from the primary circulation. These tributaries were large enough to have their own names and clinical indicators. Here a tributary of the foot shaoyin mai vessel wraps the heel to join the lower taiyang circulation at the lateral aspect of the ankle. As it passes the heel, it makes the impression of a bell and thus is called 'Dazhong' (大鐘 great bell). When counterflow turbulence occurs within this division there is vexation oppression of the Heart. Excess conditions within the division cause urinary blockage, whereas deficiency conditions cause pain in the waist.

In the passage cited above, a tributary of the Kidney foot shaoyin mai vessel divides behind the ankle, wraps around the heel, joins the taiyang pathway, ascends to xinbao (心包 heart wrapper) and passes below through the waist and spine.[19,20] As this network wraps the heel, it makes the impression of a bell and thus is called 'Dazhong' (大鍾 great bell - see Figure 4).[21] When counterflow motion exists within this tributary, there is oppressed vexation of the heart. When excess exists, there is urinary blockage. When deficient, there is pain in the waist.[22]

Classical indicator symptoms and signs were common to both the *Neijing* and *Shanghan Lun* (On Cold Damage), and offer critical diagnostic clues to the practitioner. For example, if a patient presents with heat in the mouth (口熱), dry tongue (舌乾), dry throat (嗌乾), heart vexation (煩心), profuse diarrhoea (腸澼), heat and pain beneath the foot (足下熱而痛) and has the constant desire to lie down (嗜臥), they are highly likely to have impaired blood circulation within the kidney foot shaoyin mai vessel originating from a primary impairment of the kidney zang organ. In contrast, if a patient lacks the desire to eat (不欲食), has a complexion like dark lacquered wood (面如漆柴), spits up blood (欬唾則有血), is thirsty and has difficult respiration (喝喝而喘), and finds it difficult to sit still or see (坐而欲起目如無所見), they are similarly likely to have impaired blood circulation within the Kidney foot shaoyin mai vessel, however in this case it is likely due to the presence of exogenous xie (邪 pernicious influences) causing turbulence within the mai vessel circulation.

A patient may have some of the signs and symptoms listed in the classical descriptions, but not others. They may also have other signs and symptoms not listed in the

Lingshu Needle Techniques		
PINYIN	CHINESE	DESCRIPTION
Banci	半刺	treats superficial skin bi (痹) obstructions, treats lungs
Bangzhenci	傍鍼刺	treats protracted bi (痹) obstructions
Baoci	報刺	treats migratory bi (痹) obstructions
Baowenci	豹文刺	treats luo collaterals, treats heart
Cuici	焠刺	uses fire needle to expel cold bi (痹) obstructions
Daxieci	大寫刺	drains large abscesses
Duanci	短刺	treats bone bi obstructions
Fenci	分刺	treats divisions of the rou (肉) flesh
Fuci	浮刺	treats tension and cold within the ji (肌) flesh
Guanci	關刺	treats proximal jin (筋 sinew) obstructions, treats Liver
Heguci	合谷刺	treats rou (肉) flesh obstructions, treats Spleen
Huici	恢刺	treats jin (筋 sinew) bi (痹) obstructions in the sinew body
Jingci	經刺	treats congestion at the junctions of the jing channels
Juci	巨刺	treats contralateral imbalances when pulse imbalance is on one side and illness on the other
Luoci	絡刺	bleeds small luo vessels to remove local obstruction
Maoci	毛刺	treats superficial obstructions of the skin
Ouci	偶刺	treats Heart organ bi (痹) obstructions
Qici	齊刺	treats cold bi (痹) obstructions at a deeper level
Shuci	輸刺 FIRST	treats benshu points to influence the zang organs
Shuci	輸刺 SECOND	treats heat expressing in a gathering abscess
Shuci	輸刺 THIRD	treats bones, treats Kidneys
Yangci	揚刺	treats spreading mid-level cold bi (痹) obstruction
Yinci	陰刺	treats cold reversal patterns
Yuandaoci	遠道刺	treats lower he regions to influence the fu organs
Zanci	贊刺	treats superficial abscesses
Zhizhenci	直鍼刺	treats superficial cold bi (痹) obstructions

Figure 5: *Lingshu* needle techniques
In the *Lingshu*, different needle techniques were described that were used to treat a variety of different tissue-plane pathologies. Most of these techniques do not describe the treatment of acupuncture point regions.

classical texts. However, when the classical indicator signs and symptoms are present, there is a high likelihood that the patient has the associated pathology.[23] In the *Neijing*, a variety of pathologies may generate the same symptom (e.g. 'dry throat'). Knowing which possibility is operative at any give time for any given patient is a pre-requisite skill of *Neijing* classical medicine.

Clinical principle #3

Specific techniques and tools are used to treat different types of pathology and different regions of the body.

凡刺有九應九變

'When needling there are nine [methods] that correspond with the nine bi an transformations (九變).'

凡刺有十二節以應十二經

'When needling there are twelve jie (節 nodes) that correspond with the twelve jing channels (十二經).'

凡刺有五以應五藏

'When needling there are five [methods] that correspond with the five zang organs (五藏).'

- *Lingshu*, Chapter 7
'Official Prescriptions of Needling'

Lingshu, Chapter 7 describes three distinct collections of needling techniques. Historically, these passages likely arise from related but slightly different medical traditions, as their descriptions and nomenclature overlap to some degree. In these passages, detailed advice is given for the treatment of a variety of pathologies. The majority of these techniques target the resolution of different regional bi (痺) obstructions.[24] It is interesting to note that in comparison to modern acupuncture, only two of these techniques mention acupuncture point regions (see Figure 5). The *Lingshu* also describes nine needles that were used to treat specific types of tissue-plane pathology. Taken as a whole, these descriptions support the thesis that at the time acupuncture originated within the *Neijing* tradition, it was essentially a type of external surgery used to restore targeted areas of compromised blood flow, and had not yet become the point-based system it is today (see Figure 6).

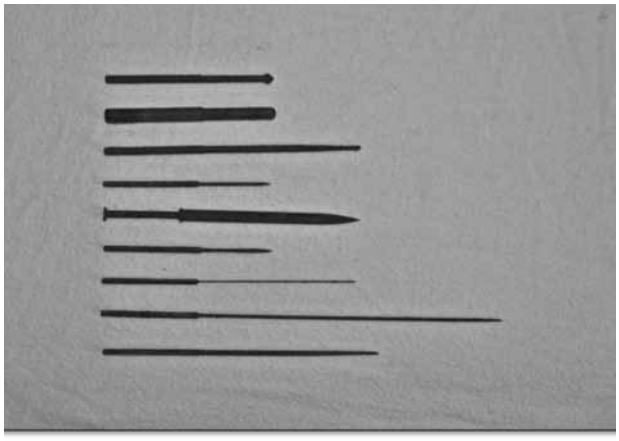

Figure 6: The nine ancient needles
In the *Lingshu*, nine different needles were described that treat different levels of specific tissue plane based pathology. Several of these needles were fashioned after needles in use at the time to work fabric and silk. Most of the needles were inserted into the skin but several were used externally. The large sword needle shown in the middle was used to drain abscesses.

Clinical principle #4

Zheng (正 ordered) and heng (横 transverse) motions describe directional phase circulations.

方直不曲謂之正反正為邪

'Upright and correct, not crooked, call it 'zheng' (正). Opposing 'zheng' is 'xie' (邪).'

Master Gu's Method of the Dao
贾子道术

Directional phase circulations may move in two interrelated ways: sequentially or non-sequentially. In the *Neijing*, sequential motions are called 'zheng' (正 ordered), and non-sequential motions are called 'heng' (横 transverse). When circulations are correctly balanced they proceed in an orderly and sequential fashion. Sequential phase circulations follow the basic generative cycle of the yinyang breath. For example, in nature spring follows winter, summer follows spring, late summer follows summer and so forth.[25] However, when different phase circulations become impaired (e.g. in illness), their circulation begins to migrate transversely through the various controlling cycles and the circulations of the body may become fixed in a configuration of illness. Transverse phase circulations characterise virtually every disease state, and a primary goal of classical medicine is to restore these lateral phase motions to more ordered zheng (正) circulation patterns (see Figure 7).[26]

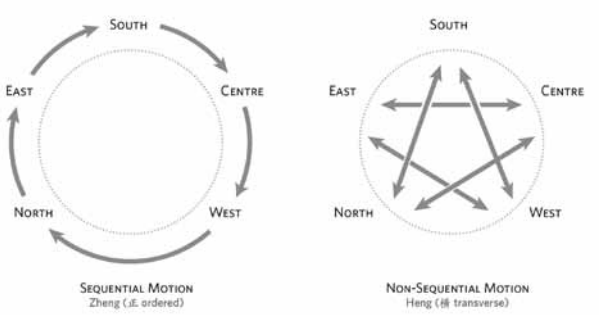

Figure 7: Sequential (正 zheng) and non-sequential (横 heng) circulations
Two interrelated motions characterise nature's circulation, sequential (正 zheng) and non-sequential (横 heng) phase motion. Normally, these move in a balanced way, but when the body's circulation becomes impaired (such as by illness) this circulation shifts predominately into a non-sequential transverse motion pattern and may become fixed in a pattern of chronic illness.

Clinical principle #5

Space, time and direction are the basic parameters of fangyi (方醫 directional medicine).

帝曰星辰八正何候歧伯曰星辰者所以制日月之行也八正者所以候八風之虛邪以時至者也四時者所以分春秋冬夏之氣所在以時調之也八正之虛邪而避之勿犯也

'The Yellow Emperor said, "What of the stars and the eight positions?" Qi Bo said, "When one understands the movement of the stars, they know the movements of the sun and the moon. When one knows the eight positions, they understand the circulation of deficiency xie (邪 pernicious influences) that moves through the different seasons. When one understands the movements of the four seasons, they know the qualities of qi that rise and fall in accordance with the spring, fall, winter and summer and may adjust their treatments accordingly. Attend to the xie of the eight winds [that move within areas of deficiency] and do not violate these principles."'

- *Suwen,* Chapter 28
'Treatise on the Eight Positions and the Shenming'

Three primary qualities define the practice of fangyi (方醫 directional medicine): space, time and direction.

a) Space

黃帝問曰余聞繆刺未得其意何謂繆刺歧伯對曰夫邪之客於形也必先舍於皮毛留而不去入舍於孫脈留而不去入舍於絡脈留而不去入舍於經脈內連五藏散於腸胃陰陽俱感五藏乃傷此邪之從皮毛而入極於五藏之次也

'When xie (邪 pernicious influence) first comes to reside like a guest within the form [of the body] it [first] resides within the skin and fine hairs. If it remains without being expelled it next comes to reside within the sunmai vessels (孫脈 floating collateral mai vessels). If it remains without being expelled it next comes to reside within the luomai (絡脈 collateral network mai vessels). If it remains without being expelled it next comes to reside within the jingmai (longitudinal mai vessels經脈). From there it may enter the five zang and spread through the changwei (腸胃 Stomach and intestines). If this occurs, both yin and yang are affected and the five zang are harmed. Therefore, from the skin and fine hairs, xie has come to enter within the five zang organs.'

Suwen, Chapter 63
'Treatise on Contralateral [Needle] Technique'

Human illness is not an abstract concept, but is rather something tangible that exists within a specific functional or anatomical location of the body. In the clinic, it is important to know the specific region of the illness for several reasons. First, different anatomical terrains require different treatment strategies and have different clinical implications. For example, a patient with renal cell carcinoma presents a potentially more complex clinical situation than a patient with a similarly severe skin disease (e.g. malignant skin cancer). In the first case, treatment would likely release pernicious influences directly into the deeper circulations of the body, and clinical strategies must be constructed to counter this possibility. In contrast, pathogenic factors residing in the skin typically vent directly to the environment and therefore do not carry the same inherent risk. Second, as noted above, different pathologies are associated with specific techniques and tools. If the practitioner does not understand the location of the illness, clinical decisions cannot be properly made or executed. The specific location of the illness is typically identified through the patient's history, physical diagnosis and often directly from modern diagnostic procedures used in Western medicine.[27]

b) Time

神乎神客在門未睹其疾惡知其原

'Shen oh shen, [when] the guest is at the door and the disease is not yet known, how does one know its source?'

Lingshu, Chapter 1
'The Nine Needles and Twelve Sources'

Each human illness has a narrative – striking suddenly like a thief in the night, or evolving gradually from an unseen event to the point where both patient and physician alike become aware of its existence. Additionally, every illness has a cause. According to the *Neijing,* the causes of illness are few and primarily involve invasions of external pathogens, improper lifestyle, congenital or constitutional factors and emotional disorders.

In the clinic, it is important to understand the initial cause and narrative progression of a patient's illness. External invasions require different tactics than emotional imbalances, congenital diseases or issues of lifestyle. If the clinician does not understand the original cause of illness and the long-term goals of therapy, they are often unable to craft an appropriate treatment strategy, and because chronic illness is typified by continual fluctuations in the patient's condition they may find themselves following the constantly changing experience of the patient like a boat that leaves a tortuous wake in its path. Without an understanding as to the cause of illness and the specific goals of therapy, achieving long-term clinical results can be difficult to achieve.

c) Direction

陰陽已張因息乃行行有經紀周有道理與天合同不得休止

'When yin and yang expand the breath begins to circulate. This circulation (moves according to) jing channel patterns (經紀) that circulate unceasingly along pathways that correspond to the patterns of heaven.'

- *Lingshu,* Chapter 81
''Abscesses and Ulcers''

In 'fangyi' (方醫 directional medicine), the term 'fang' is used to define the primary circulations of the yinyang phase motions as they move through the patient's body. In the clinic, this idea may be further be divided into three sub-categories: the direction of presentation, the direction of cause and the direction of treatment.

Direction of presentation

The direction of presentation represents the functional/anatomical region of the body from which the majority of the patient's signs and symptoms emanate. For example, the patient described earlier in this paper presented with findings of of haemoptysis, pulmonary nodules and a maculopapular skin rash. These clinical findings all suggest involvement of the Western phase direction.[28,29] Typically, the direction of presentation is the easiest direction to identify, and for this reason it is the region where most clinicians focus their attention and treatment.[30] Importantly, the actual cause of illness is rarely found within the direction of presentation, and this is one reason why, for the most part, Chinese medicine therapies remain symptomatic rather than definitively curative.[31]

Direction of cause

The direction of cause refers to a primary phase direction that impinges upon the direction of presentation, giving rise to the patient's symptoms and signs. The direction of cause may be identical to the direction of presentation, but most often is found in a different phase direction.

Direction of treatment

The direction of treatment represents the phase direction that contains regional pathology that holds the body in the configuration of illness. Correct resolution of specific tissue-based pathologies within this direction releases the holding configuration of illness and restores the ji (機) mechanism to its normal circulation. The direction of treatment may be identical to the direction of cause and/or the direction of presentation, or may exist as a separate phase direction.

To take a hypothetical illustrative case: A 34-year-old woman awaiting liver transplant presents to the clinic with a diagnosis of chronic autoimmune hepatitis, elevated liver function tests and progressive liver failure. In this case, because of the involvement of the liver, it is not difficult to see that this patient's illness presents primarily through the Eastern phase direction (here the direction of presentation). In this scenario, the patient's symptoms could arise from an over-control of the Eastern direction by the Western direction (here the direction of cause). Moreover, successful treatment of this patient might only be achieved by identifying and resolving specific tissue-based pathologies within the Northern direction (here the direction of treatment). In this scenario, this would allow the Western direction to circulate through the Northern direction and diminish its pathological control over the Eastern direction. Here obstruction in the Northern direction has shifted the Western direction into a 'heng' (橫 transverse) motion and given rise to the patient's clinical presentation of chronic liver inflammation. Although the Northern and Western directions remain clinically silent, in this case, the body would likely remain in a configuration of illness until specific regional pathologies within the Northern direction have been correctly addressed (see Figure 8).[32]

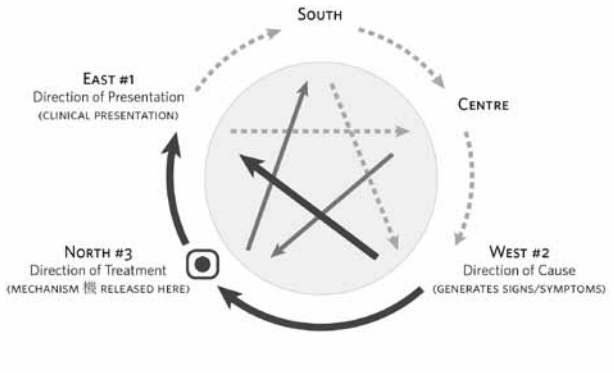

Figure 8: Hypothetical case of autoimmune hepatitis
Here, specific tissue-based pathologies within the Northern direction impair the circulation of the Western phase direction through its normal ordered pattern. This forces the Western direction to move transversely onto the Eastern direction, and leaves the patient susceptible to develop a serious disease of the Liver. Treatment of this condition will involve the resolution of specific tissue-based pathologies in the Northern phase direction (see Figure 9).

To summarise: in fangyi (方醫 directional medicine), illness may: a) present within any of the five primary directions; b) be caused by any of the five primary directions; and c) be treated through any of the five primary directions.[33] Furthermore, causes of disease typically arise within regions of the body that are clinically silent or only minimally expressive. Finally, illnesses typically remain in a configuration of illness until the ji (機 intrinsic mechanism) of the body has been restored through proper diagnosis and treatment - only then is the patient considered 'cured'.

Clinical principle #6

Global impairments arise from regional pathologies.

是主筋所生病者痔瘧狂癲疾頭項痛目黃淚出鼽項背腰尻臑踹腳皆痛小指不用

'Symptoms arising from the [taiyang mai vessel's] governance of the jin (筋 sinews) include hemorrhoids, relapsing febrile illness, mania, seizures, yellowing of the eyes, tearing, nasal bleeding, pain in the head, nape of the neck, back, waist, sacrum, back of the knee, calf and foot, and difficulty using the little toe.'

- *Lingshu*, Chapter 10
'Channels and Vessels'

In the clinic, global or non-local symptoms and signs often arise from specific localised regions of tissue-plane pathology. As noted above, these regions are typically clinically silent or else are only minimally expressive. Therefore in the clinic the practitioner usually sees the results of pathology rather than the primary pathology itself. Once the clinician has determined that a specific phase direction requires treatment, they must next examine the entire directional region to identify the presence of specific tissue-based pathologies. The watershed regions of the primary mai vessel pathways define these directional units.

For example, in the patient with autoimmune hepatitis discussed above, the Northern direction was identified as requiring treatment. The Northern direction has its roots within the Kidney zang. The Kidney is drained and energetically counterbalanced by the Bladder fu. The mai vessels of the lower shaoyin and taiyang pathways outline the general topography of the Northern phase direction. In turn, its watershed regions are associated with specific anatomical structures such as skin, sinews, collateral vessels, fascia, bones and fat, etc. A pathological change in any of these structures will typically impair the functioning of the entire direction, keeping the patient's illness held in check until properly resolved. For example, in this patient it is clinically possible that skin pathologies in the Northern direction are causing global impairments within this phase direction. This obstructs the Western direction's circulation through the Northern phase, and results in this patient's susceptibility to develop autoimmune hepatitis. In this case, it is only through the proper diagnosis and treatment of the skin disease, that this patient's autoimmune hepatitis will be resolved (see figure 9).

Figure 9: Northern directional pathology - psoriasis
In fangyi (方醫 directional medicine) any human disease may present through one of the five primary phase directions. Furthermore, depending on the specific directional equation of the patient, it may have its immediate clinical cause and its definitive treatment in any of the five primary phase directions. Here, in a hypothetical case of autoimmune hepatitis, a successful resolution of skin psoriasis distributed in the Northern phase direction may resolve the patient's disease within the liver. To treat this condition, specific classical needling therapies would be used to treat skin bi (□) obstruction. [Illustration from http://en.wikipedia.org/wiki/File:Psoriasis_on_back1.jpg]

Clinical principle #7

Classical acupuncture restores regional areas of the body to yinyang balance.

陰陽者天地之道也萬物之綱紀變化之父母生殺之本始神明之府也治病必求於本

'Yin and yang are the dao of heaven and earth and the guiding principle of the ten thousand things. They are the father and mother of bian (變) and hua (化) transformation, the root and origin of life and death and are the governing residence of the shenming (神明). When treating illness, you must seek within the root.'

- *Suwen*, Chapter 5
'Great Treatise on the Mutual Expressions of Yin and Yang'

The specific goal of classical acupuncture therapy is to restore targeted regions of the body to yinyang balance and thus restore global functioning. Within a given anatomical region, a variety of pathologies may exist that may impair this balance. For example, in *Neijing* classical acupuncture, when a clinician makes the clinical decision to 'treat' the benshu region Zusanli (modern ST-36), they must first examine the region of Zusanli and make a tissue-based diagnosis as to the cause of impairment in this area. For example, an external cold bi (痺) syndrome, existing within the bone beneath the region of Zusanli, might be the cause of yinyang impairments in this area. In this situation, the treatment of Zusanli would require the use of deep needling techniques to resolve the cold bone bi (痺) obstruction. In the *Neijing*, a variety of techniques are given to resolve different types of tissue-plane pathology within the body. Here, only when the region of Zusanli is restored to proper yinyang balance is the treatment considered complete.

Clinical principle #8

The primary goal of classical acupuncture is to restore the free circulation of mai (blood) vessels.

所謂平人者不病不病者脈口人迎應四時也上下相應而俱往來也六經之脈不結動也

'To say that one is a 'pingren' (平人 balanced human) means that one is not sick. To say that one is not sick means that the maikou (脈口 vessel mouth) and renying (人迎 man's welcoming) pulses correspond with the changes of the four seasons, that what is above and below follow that which is departing and arriving, that the mai vessels of the six channels all move without restriction.'

- *Lingshu*, Chapter 9
'Ends and Beginnings'

When any aspect of the body's tissue-plane anatomy is impaired, it is reflected in immediate impairments of mai vessel (i.e. blood) circulation.[34] A corollary of this is that when the mai vessels of the body circulate correctly, the rest of the body's tissue planes exist in a state of balance and health. From this perspective, the free circulation of mai vessels is a therapeutic endpoint of all classical acupuncture treatments (see Figure 10).

Clinical principle #9

The body has an innate governing force that allows it to rebuild and restore itself to health. This force is called shen (神).

用鍼之要在于知調陰與陽調陰與陽精氣乃光合形與氣使神內藏

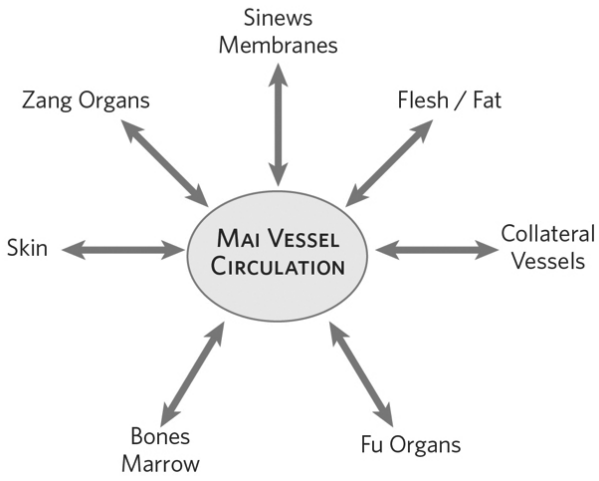

Figure 10: The free circulation of mai vessels - the therapeutic endpoint of *Neijing* classical acupuncture
In the *Neijing*, the mai (blood) vessels were viewed as rivers of the body. Pathological disruptions anywhere within the body's architecture cause immediate disruption in the complex vascular circulation. Conversely normal mai vessel circulation reflects a general state of health and is thus a primary endpoint of acupuncture therapy.

> 'The essentials of acupuncture practice lie in knowing how to regulate (調) yin and yang. When yin and yang are correctly regulated the jingqi (精氣) radiates illumination (光). When the form and qi are harmonised, shen (神) is contained within.'
>
> - *Lingshu*, Chapter 5
> 'Roots and Fruitions'

As has been previously discussed, the theoretical practice of classical acupuncture is based upon the concepts of shen (神) and shenming (神明).[35] In the *Neijing*, shen (神) and shenming (神明) are described as special qualities of organising illumination that regulate and give birth to natural systems. Together they represent a basic prerequisite for organised expressions of life to come into being. Directing the structure and functioning of the body, they are also believed to have the capacity to restructure the body back to a state of health along the lines of its original inception. In addition, it is primarily through the organising governance of shen (神) and shenming (神明) that the body remains free of illness. Although they are found everywhere, shen (神) and shenming (神明) circulate primarily within the mai (blood) vessel circulation. Specific tissue-plane based pathologies impair this circulation and thus leave the body susceptible to illness. By resolving specific areas of tissue-plane pathology, classical acupuncture restores the free mai vessel circulation, thus allowing the organising forces of shen (神) and shenming (神明) to circulate within diseased areas. This in turn allows the body to restore and rebuild itself along the lines of its original design and re-establish health and balance.

III. Clinical Cases

Clinical case #1 - Disseminated coccidioidomycosis

Commentary

The first patient described in this paper initially presented with an acute invasion of pathogenic factors that entered the body through the Western phase direction of the lungs. This was indicated by haemoptysis, chest x-ray findings of pulmonary nodules and skin rash. That it occurred in winter makes it likely that the illness involved an acute invasion of external cold. The illness migrated quickly into the Northern direction, as indicated by the evolving meningitis, hydrocephalus and direct involvement of the Kidney zang.[36] In the history, it was noted that the patient was born one-month premature and required immediate hospitalisation with respiratory support. This suggests a pre-existing impairment in the Western phase direction that was present from birth. Therefore, it is not surprising that this patient developed a life-threatening respiratory invasion in later years.[37] At age 10, the patient suffered a traumatic injury to the bones, sinews, subcutaneous tissue and skin on the lower yangming region of the anterior thigh. On initial examination, the patient's facial complexion showed marked impairments in both the Northern and Western phase directions. Maikou pulse diagnosis indicated a summer directional pulse quality presenting during the time of winter, with pathogenic factors noted on the left side. Renying cunkou pulse diagnosis indicated impairments within the left foot yangming region (here likely due to the previous damage to the thigh) and foot taiyang region on the right (likely caused by restrictions in the taiyang mai vessel outflow tract near the brain - see Figure 11). Sanbu jiuhou pulse diagnosis indicated the

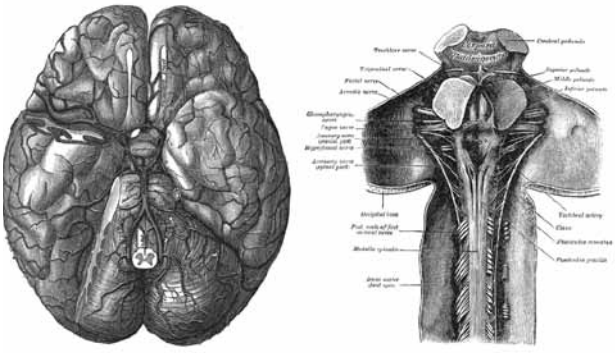

Figure 11: Taiyang mai vessel circulation of the brain
In the *Neijing*, the circulatory pathways of the body were first traced as the vascular circulation of the body and known as the mai vessel system. Later this connection to the vascular circulation was lost and acupuncture became a fascia-based system, with a series of modern channel pathways. Many of these channels were altered from their original descriptions. Here the taiyang mai vessel system is shown as it 'enters the vertex of the head and nets with the brain' (其直者從巔入絡腦) and 'turns to emerge, dividing and descending along the nape of the neck' (還出別下項) (taken from *Lingshu* Chapter 10). Descriptions such as these often show a direct correspondence between *Neijing* classical medicine and modern biomedicine. [illustrations from http://en.wikipedia.org/wiki/File:Gray792.png, http://en.wikipedia.org/wiki/File:Gray516.png]

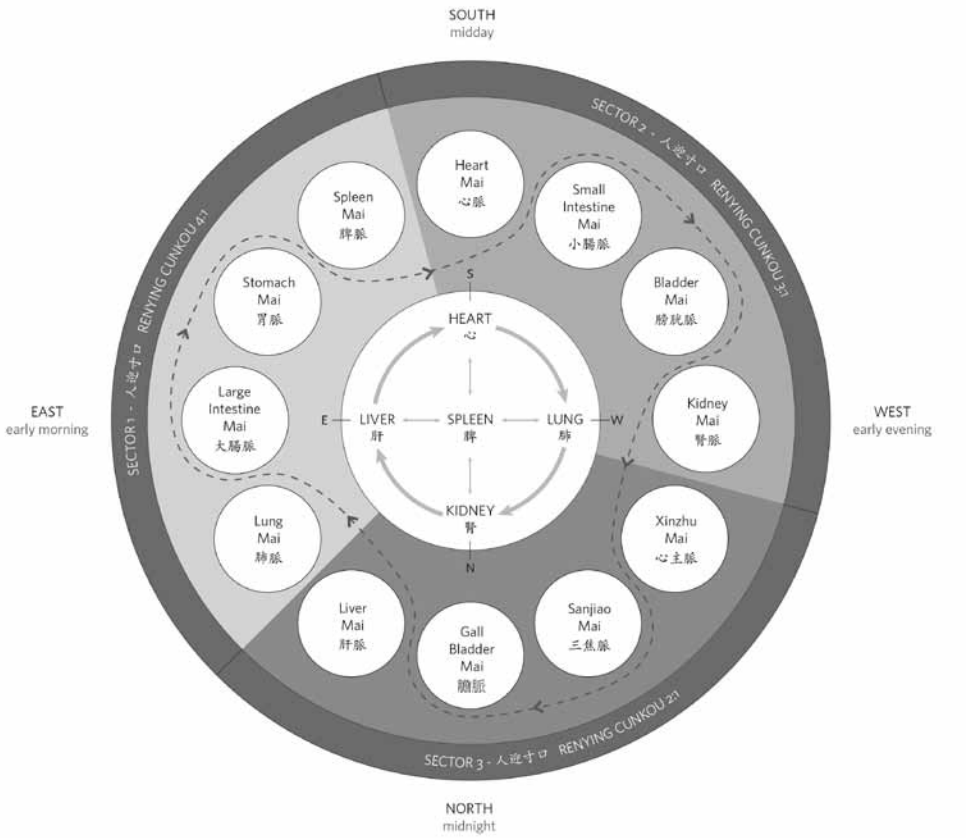

Figure 12: Mai vessel circulation
In the *Neijing*, mai vessel circulation was originally understood to flow through a circle beginning at the Lung mai vessel and terminating at the Liver mai vessel. These circulations occur in a basic yinyang tidal pattern, flowing in and out through the different structures of the body. In this scenario, the Lung zang organ was believed to be the primary driving force for vascular circulation. As such, pulse strength and flow dynamics were seen to be greater the closer the circulation was to the Lung. In contrast, pulse strengths were believed to be weakest in the Liver mai vessel system (although the volume of blood flow is high). This sequential attenuation of pulse strength is the theoretical basis for the renying cunkou classical pulse diagnosis system described in *Lingshu* Chapter 7. In later dynasties, this circulation became the theoretical basis for some forms of chronoacupuncture. In modern times, this diagram has been widely associated with the concept of the 'Chinese medicine organ clock'. It is important to note that the original classical descriptions refer to circulations within the body's vascular pathways, and did not refer directly to the zang organs.

presence of pathogenic factors residing in the upper region of the head and the region of the foot shaoyin. Physical examination revealed a fascial obstruction of the taiyang mai vessel terrain where it exits the occiput at the rear of the skull, weakness in the lung hand taiyin anatomical region, soft-tissue involvement of the upper and lower taiyin skin regions and significant skin, soft-tissue and bone damage over the left anterior thigh.

Directional analysis

This patient had a long-standing weakness in the Western direction. At the age of 10 he suffered significant trauma to the left leg impairing multiple tissue-planes of the lower yangming thigh region. The foot yangming joins directly to the Stomach fu organ and indirectly to the Spleen/pancreas zang organ.[38] Here, multiple specific tissue-plane obstructions impaired the functioning of the Centre direction. The Centre direction provides generative support to the West (here already weakened) and provides controlling support to the Northern direction to help ensure correct zheng (正 ordered) circulation of the West through this phase direction. When the Northern direction ceases to circulate sequentially, it begins to move transversely across its controlling cycle into the Southern direction. This might explain why the patient showed an abnormal Southern direction pulse quality during winter (a secondary heat syndrome generated by acute cold blockage is also likely). This may also explain why the illness showed a tendency to migrate directly into the Southern aspect of the Northern direction (i.e. the brain – the Southern aspect of marrow). In this case, the East lacked generative support from the North and met resistance in its controlling role from an impaired Centre direction. This generated counterflow inflammation within various connective tissue planes of the body (i.e. myalgias, arthalgias and meningitis).

In summary, the patient's directional diagnosis was made as follows: a) Direction of presentation: West, b) Direction of cause: North, c) Direction of treatment: Centre. In this patient, restoration of the Centre direction would: a) Increase generative support to the weakened Western direction, b) Re-establish appropriate transverse control over the Northern direction, which will, c) Allow the Western direction to transit the Northern direction, d) Diminish the Northern direction's control of the Southern direction, e) Diminish the Southern direction's control of an already weakened Western direction, and f) Allow the Northern direction to serve as

generative support to the East (see Figure 13).

In the clinic, understanding the directional equation for any given patient is only one aspect of the overall treatment strategy. Clinical therapies must be prioritised and applied in proper order to assure a safe and timely resolution of illness. In this case, the specific clinical priorities were addressed as follows:

a) Reduce fever and inflammation – *Suwen,* Chapter 61 'Treatise on Water and Heat Depressions' describes fifty-nine regional point depressions (五十九俞) located primarily on the head shoulders, chest, back and neck, that are indicated for the treatment of heat disorders (熱病). In this patient, regions were chosen from among these areas to quickly reduce the patient's fever and lessen the inflammation of meningitis and promote circulation through the brain.

b) Restore circulation to the brain – *Lingshu* Chapter 10 'Channels and Vessels' describes the course of the taiyang mai vessel as forming a net-like circulation around the brain and exiting the back of the neck beneath the occiput. In this patient there were several fascial-level bi (痺) obstructions adversely affecting the outflow tract of taiyang. Treating the region where the taiyang mai vessel exits the skull resolved these tissue-plane pathologies and helped to restore normal blood circulation to the brain.[39] This reduced the pressure from the evolving hydrocephalus, decreased the inflammation of meningitis, helped limit brain damage and helped restore the patient's mental status to normal.

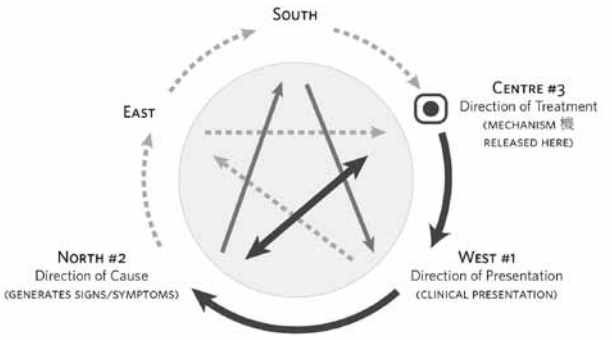

Figure 13: Case of acute disseminated coccidioidomycosis
The patient's illness presented primarily through the Western phase direction (here weakened since birth). This situation was complicated by impaired control of the Northern phase direction by a Centre direction previously weakened by extensive soft-tissue trauma affecting the lower yangming region of the thigh. The treatment of this patient's illness involved immediately resolving pathologies within the Northern phase direction, and over the longer term correcting pre-existing tissue-based pathologies within the Centre direction (Stomach-yangming) to re-establish support to the previously weakened Eastern phase direction.

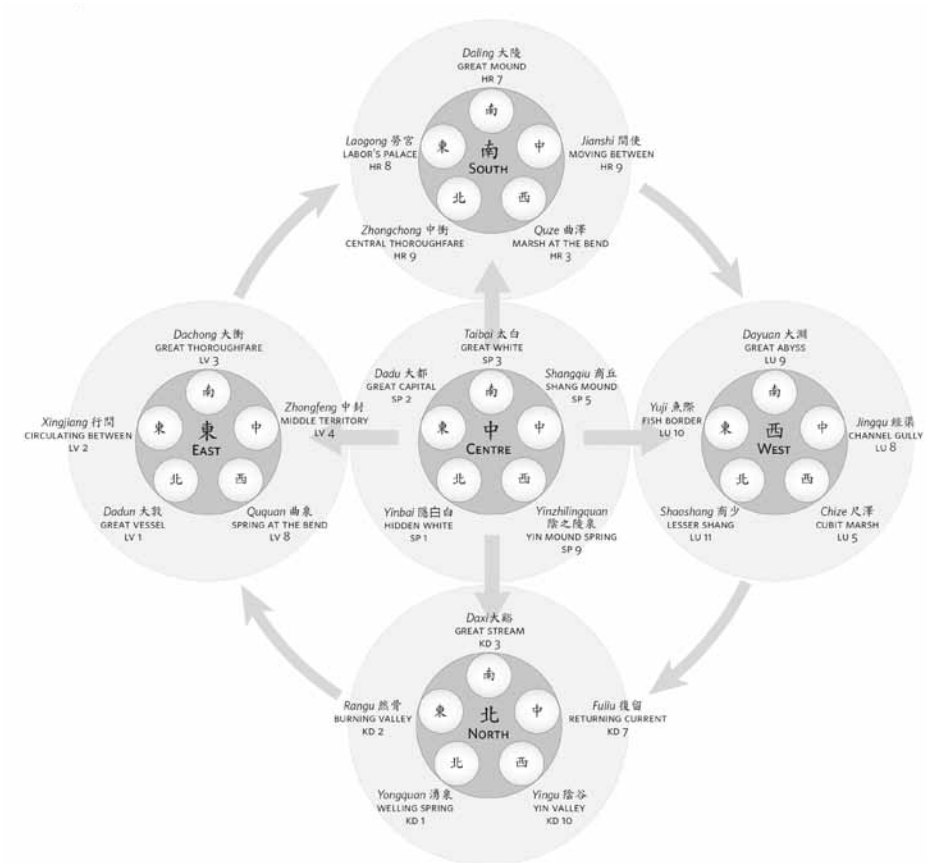

Figure 14: Benshu directional correlations
In the *Neijing*, all of the benshu point regions on the extremities were described as influencing different directional aspects of the internal zang organs. As such, all jing (井) points relate to the season of (Northern) winter within the related zang organ, all ying (滎) points relate to the season of (Eastern) spring, all shu (腧) points relate to the season of (Southern) summer, all jing (經) channel points relate to the season of (Centre) long-summer and all he (合) points relate to the season of (Western) autumn. These descriptions differ significantly from those given later in the *Nanjing*.

c) Restore the function of the Lung and Kidney – *Suwen* Chapter 55 'Treatise on Long Needling' advises the use of the back shu regions to treat conditions of mixed cold and heat that reside within the zang organs and abdomen. In this case, the patient suffered an acute invasion of external cold. This led to a clinical condition of mixed cold and heat that was best treated using the back-shu regions of the Lung and Kidney. Here, treatment was accomplished using the yangci (揚刺 lifting needle) technique as described in *Lingshu* Chapter 7, that is recommended for the treatment of spreading mid-level cold conditions.[40]

Needling of the benshu point regions was added to augment the above treatment. In the *Neijing*, the benshu point regions were described as being areas on the distal extremities that have a special influence over the five directional aspects of the internal zang. In the *Neijing*, all jing (井) points were associated with the season of winter and the direction of North, all ying (滎) points were associated with springtime and the direction of East, all shu (腧) points were associated with summertime and the direction of South, all jing (經) channel points were associated with long-summer and the direction of Centre and all he (合) points were associated with autumn and the direction of the West. In this case, the points Yongquan (modern KID-1), Rangu (modern KID-2), Shaoshang (modern LU-11) and Yuji (modern LU-10) were added to strengthen the Northern and Eastern directional regions of the Kidney and Lung zang (see Figure 14).[41,42,43]

d) Restore the ji (機intrinsic mechanism) to release the holding pattern of illness through targeted treatments of the Centre direction. – This patient suffered multiple previous tissue impairments in the lower yangming region of the left thigh. This resulted in the development of a jue (絕 severance) syndrome of yangming that impaired the function of the Centre direction (see Figure 15).[44] This degree of pathology typically takes some time to resolve. In this case, treatments were begun using the maoci (毛刺 hair needling technique) to treat superficial skin region obstructions.[45] The fengzhen (鋒 sharp-tipped or triangular) needle was also used according to recommendations given in *Lingshu* Chapter 1 and *Suwen* Chapter 54 for the treatment of chronic and obstinate diseases of the sinews.

Clinical course

During his hospitalisation, the patient was treated daily. After 24-hours, the patient's fever had fallen to nearly a normal temperature, and he had begun to awaken from his semi-comatose condition. Over the next week, his coughing decreased, he regained consciousness, his renal function returned to normal and he was transferred from the ICU back to the medical floor. After two weeks he was discharged home in a stable (but weakened) condition. Over the next month, the patient's energy and vitality returned to normal and he recovered without any significant sequalae. Over the next several months treatments were continued on his left thigh with improvements in overall tissue circulation and ambulation.

Figure 15: Jue (絕) severance syndromes
Like a dried up riverbed, jue (絕) severance syndromes describe areas of the body that have been extensively damaged and no longer support normal circulation. In these situations, the body must rely on its collateral circulations to maintain basic physiological processes. [illustration from http://commons.wikimedia.org/wiki/File:Craquelure_(2650813995).jpg]

Clinical case #2 - Stage 4 metastatic colon cancer and squamous cell cancer of the throat

A 50-year old female came to a recent teaching seminar with a diagnosis of stage 4 colon cancer, squamous cell cancer of the throat and metastatic disease in the liver. For several years, the patient had experienced difficulty swallowing and felt a growing lump in her throat. Seeking medical attention, she was found to have a primary squamous cell carcinoma of the right posterior oropharynx. During the initial evaluation she was also discovered to have a distinct secondary primary adenocarcinoma arising from the rectosigmoid junction that had metastasised locally within the abdomen and spread to the liver. Her physicians deemed her disease inoperable and her life expectancy (with chemotherapy) was expected to be approximately one year. She was started on chemotherapy (Fluoricil, Oxaliplatin and Leucovorin) in an attempt to limit the progression of her illness. This therapy was expected to slow the progression of the illness and was not intended to be curative. Her Chinese medicine practitioner had been treating her for a variety of digestive issues, with general improvement in these symptoms.

The patient had been born in Costa Rica. At the age of one, she had suffered from a dysenteric illness that resulted in an acute episode of Bell's Palsy with severe left-sided facial paralysis. Since that time she had experienced a variety of chronic stomach and digestive issues. Surgeons had previously attempted to release the left facial nerve using an incision that extended from the top of her head to an area over the left ear. Otherwise, the patient had been relatively healthy except for a previous appendectomy and difficulties with appetite and digestion. Physical examination showed an almost complete peripheral

facial paralysis on the left side with a large scar extending from the top of her head over the left ear (see Figure 16). A chemotherapy injection port was located above the left breast and an appendectomy scar was noted in the right lower abdomen. The upper yangming tissue regions were congested in the outer arms bilaterally. Palpable tumours were felt in the lower abdomen and below the right mandible. A xie (邪 pernicious influence) pulse quality was clearly evident at the left wrist and renying cunkou pulse diagnosis indicated impairments of the lower taiyang on the left and lower yangming on the right.

Figure 16: Surgery and tissue-planes
In a patient presenting with colon and throat cancer with metastatic disease of the liver, a large surgical scar cuts through the pathways of the left taiyang mai vessel, which allowed the illness to form and keeps it held in place.

Commentary

This patient presented with two primary tumours within the upper and lower taiyin regions (the colon is the fu organ of the Lung taiyin and the lower taiyin Spleen mai vessel is commonly implicated in diseases of the oesophagus).[46] After a childhood episode of dysentery, the patient had developed a severe case of Bell's Palsy. In the *Neijing*, Bell's Palsy is a prototypical diseases of the foot yangming jin (筋 sinew). That this occurred so quickly and severely after an episode of acute dysentery indicated the high likelihood that the patient had a significant constitutional weakness in yangming that had been present from birth. After the patient suffered facial paralysis an extensive surgical procedure was performed that further impeded the taiyang mai vessel circulation. As described in *Lingshu*, Chapter 10 'Channels and Vessels':

> 膀胱足太陽之脈起于目內眥上額交巔其支者從巔至耳上
> 'The Bladder foot taiyang mai vessel arises from the inner corners of the eye. Ascending the forehead it intersects at dian (巔 mountain summit).[47] A branch then divides to arrive above the ear.'

While this trajectory has been lost in later channel descriptions, it was present in the original texts and was likely influential in this patient's condition.[48]

Directional analysis

This patient presented with a constitutional weakness in yangming that had been worsened by an early episode of acute dysentery. This in turn was compounded by surgery that cut through the taiyang mai vessel terrain. When the Northern direction becomes obstructed, it impairs the controlling relationship between the Centre and the Northern phase directions and puts pressure on an already weakened Centre direction, leaving it susceptible to illness (here long-standing digestive issues and finally two separate primary cancers). A third presentation was seen in the Eastern phase direction as the metastatic disease of the liver (cancer typically spreads through directions that are already weakened and susceptible to illness). In this patient the directional diagnosis was therefore made as follows: a) Direction of presentation: Centre / West / East, b) Direction of cause: North, c) Direction of treatment: North (see Figure 17).

The highest clinical priority for this patient was judged to be the disease within the lower abdomen that expressed the highest degree of metastatic spread and thus represented the most immediate threat to the patient's life. To deal with this, the patient was first treated at the scar on the left side of the head. This lessened the impaired relationship between the Centre and Northern directions and allowed the abnormal maikou pulse pattern at the wrist to normalise. This was followed by abdominal needling of the inflow and outflow mai vessel tracts of the lower abdomen, along with distal needling as indicated. Her student physician continued these strategies and the patient was seen twice more at subsequent classes. At the four-month follow up visit with her oncology physician, CT (computed tomography) of the chest and abdomen showed complete resolution of the tumours in the lower abdomen. Three metastatic tumours of the liver, present on previous scans were again identified and were largely unchanged. However, PET (positron emission tomography) showed no evidence of active disease in the abdomen (including the liver). This indicated significantly reduced metabolic functioning of these tumours. The activity of the tumour in the throat had diminished by roughly 50 per cent. At this point, her physicians reversed their previous prognosis and deemed her to be a candidate for surgery, and therefore potentially curable. At the time of writing this article the patient is recovering from partial liver resection surgery. Interestingly, in this patient, the area that was not targeted for therapy by Chinese medicine (the liver) showed no significant change on CT imaging (although PET scan imaging showed the area to have a normalised metabolic function), while the area that was targeted by acupuncture (the disease of the lower abdomen) showed complete

remission. In this case, the liver can be seen to have served as a type of internal control to assess the efficacy of targeted Chinese medicine treatment.

Clinical case #3: Hyperproliferative B-cell tumours

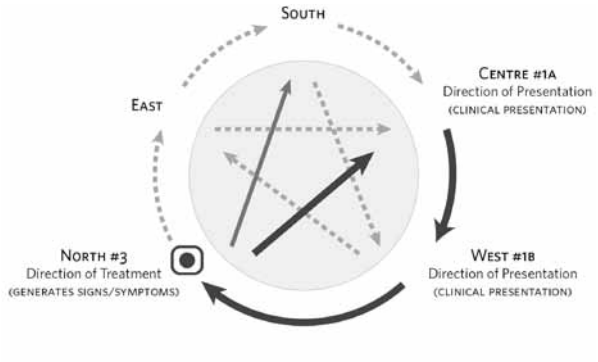

Figure 17: Directional diagnosis
In a patient presenting with colon and throat cancer with metastatic disease of the liver, significant constitutional weaknesses were present in both the Centre and Western phase directions since birth. These conditions were further weakened by surgical intervention that impaired the circulation in the lower taiyang mai vessel pathways. Here, initial treatment consisted of unlocking the ji (機 intrinsic mechanism) through targeted treatments of the scar, and treating local tumour occurrence in the lower abdomen.

A 46-year old female presented to a teaching clinic with a history of progressive hyperproliferative B-cell tumours, with multiple tumours located throughout the abdomen, liver and spleen, portal hypertension and significant ascites.[49] Because of this the patient had difficulty walking and lying flat. Her physicians believed she was reaching the end stages of her life and were discussing admission to hospice care. At the time of the initial classical acupuncture evaluation, the patient had been receiving regular Chinese herbal therapy and acupuncture, with only a partial relief of her symptoms. She experienced oesophageal reflux with diminished appetite, constipation and decreased urinary output. During the past several months, the patient had been evaluated repeatedly at the local Emergency Department for symptoms of difficulty breathing. At each visit evaluations had been negative for respiratory pathology and the patient was discharged home. At the initial diagnostic evaluation, the patient had severe abdominal distension with marked ascites that made it difficult for her to walk or speak in complete sentences. On physical examination a large amount of shifting water was noted in the abdomen consistent with ascites, and both the liver and spleen were noted to be enlarged and infiltrated with tumours. The patient's complexion was black and the skin over the inner aspect of the lower legs and shins was severely wasted and dessicated with advanced stasis dermatitis (see Figure 18).

Figure 18: Stasis dermatitis and jue (絕) severance syndrome
A case of stasis dermatitis represents a tissue-plane jue (絕) severance syndrome, here mostly involving the lateral lower foot yangming regions and partially involving the yin pathways of the inner leg. [illustration from http://commons.wikimedia.org/wiki/File:Stasis_dermatitis_(Gravitational_eczema).jpg]

Commentary

In the *Neijing*, detailed instructions were given for the care of patients with serious and life-threatening illnesses. As such, descriptions were also given as to how patients die when terminal impairments exist within specific regions of the body. *Lingshu* Chapter 9 'Ends and Beginnings' describes the clinical situation when a patient dies from taiyin expiration:

> 太陰終者腹脹閉不得息氣噫善嘔嘔則逆逆則面赤不逆則上下不通上下不通則面黑皮毛燋而終矣
> 'In taiyin expiration, the abdomen swells and obstructs (閉). The [body] no longer grasp the qi of the breath. There is belching and a tendency to vomit. When vomiting is present [it means] there is counterflow. When counterflow is present the face is red. When counterflow is absent [it means] that what is above and below no longer communicate. When this occurs, the face turns black, the skin and fine hairs appear scorched and death is imminent.'

This case represents a type of exhaustion or jue (絕 severance) syndrome of the lower taiyin region and is rapidly fatal. Here, the fact that the patient had symptoms of reflux (counterflow) was a positive symptom, indicating only a partial disruption between the upper and lower circulations of the body. On the other hand, her complexion was black and she had signs of severe wasting over the lower taiyin skin regions, which were both poor prognostic signs. Interestingly, this patient had been visiting the local emergency room describing the classical symptoms of this syndrome quite clearly (an inability to 'grasp the qi of the breath') but quite understandably, this went unrecognised by the hospital staff.

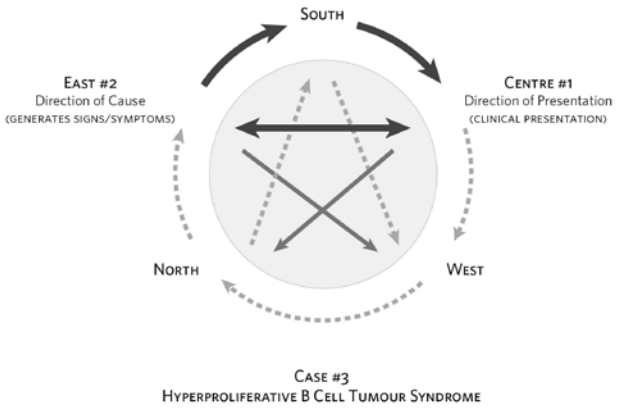

Figure 19: Directional diagnosis
In a case of hyperproliferative B-cell tumours (Castleman's Syndrome), a patient presented with multiple tumours and an expiration syndrome of the lower taiyin regions of the leg. In this case, tissue-based pathologies within the Centre direction were so severe that treatment was aimed solely at restoring these tissue areas.

Directional analysis

This patient presented with an advanced expiration syndrome of the lower taiyin Centre direction. Secondary findings were noted in the liver with invasive tumours noted on both sides.[50] Here the directional diagnosis was as follows: a) Direction of presentation: Centre, b) Direction of cause: East, c) Direction of treatment: not identified (See Figure 19).

In this patient there was an urgent need to rapidly reverse a terminal severance syndrome of taiyin. As noted above, in the *Neijing* the benshu point regions were originally indicated to regulate the directional phase circulations of the zang organs. Among the benshu points, the jing (井) points were specifically indicated for the treatment of the zang organs themselves. Here both the zang organs were directly infiltrated with tumours. Treatment consisted simply in needling Yinbai (隱白 hidden white) – modern SP-1, and Dadun (大敦 great vessel) – modern LIV-1. At one-week follow-up, the patient's ascites had significantly diminished and she had lost approximately 25 pounds of weight in water. Subsequent treatments focused solely on restoring the lower taiyin severance syndrome of the lower legs using various skin- and sinew-needling techniques along with the benshu points as described above. The patient continued to steadily improve and after several months was lost to follow up due to a change in the teaching clinic schedule, although she continued to receive Chinese medicine treatment from other staff practitioners. One year later, the patient was ambulatory, living on her own and had been able to take a long-distance vacation.

Summary

As originally envisioned, *Neijing* classical acupuncture was a comprehensive medical system to be used in the care of patients with serious and life-threatening illnesses. Classical acupuncture achieves its effects by diagnosing and resolving targeted areas of tissue-plane pathology that impinge upon the circulation of the mai (blood) vessel circulation and thus restores the ji (機 intrinsic mechanism) of the body. In modern clinical practice, the majority of this clinical knowledge has been lost. However, this information remains well documented within classical Chinese medical texts. As such, these texts represent a rich and comprehensive repository of knowledge that has the potential to fundamentally change the practice of both acupuncture and Western healthcare, and address a variety of global healthcare problems.

Note: The patients described in this article all suffered from serious medical conditions. Patients with this severity of illness may be seriously harmed if treated incorrectly. Descriptions from this article should not be used as a basis for such treatment without first obtaining proper training.

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Author Biography:

Edward Neal, MD, LAc, *has been involved in the practice and teaching of Chinese medicine for over 20 years. Originally trained as a Western allopathic physician, Dr. Neal first studied traditional acupuncture with Dr. Anita Cignolini of Milan, Italy. He is currently Director and Senior Researcher for Neijing Studies at the Xinglin Institute, a multi-disciplinary research and educational institute dedicated to the study of early Chinese medical texts. Using the tools of academic sinology and biomedical research, the institute works to identify classical treatment strategies that can be used to address a variety of global healthcare challenges. More information about the Xinglin Institute and their educational programmes can be found at www.xinglininstitute.org. Further information about Dr. Neal and can be found at www.edwardnealmd.com.*

Endnotes

1. In the *Neijing*, the maikou (脈口 vessel mouth) or cunkou (寸口 inch mouth) pulses assessed at the radial artery of the wrist are used to determine the different seasonal qualities of the zang organs. In regards to the seasons, five primary pulse qualities are identified: the xian (弦 wiry) pulse associated with spring, the gou (鉤 hook-like) pulse associated with summer, the ruan ruo (耎弱 soft, moderate) pulse associated with long-summer, the fu (浮 floating) pulse associated with autumn and the shi (石 stone) pulse associated with winter. In this patient, a gou (鉤 hook-like) pulse presenting during winter indicated a pathological intrusion of the Southern direction into a Northern direction season (see later in this article for further information on directional medicine).
2. The renying/cunkou pulse system described in *Lingshu* Chapter 9 compares different strength ratios and qualities between the carotid artery pulse at Renying (modern ST-9) and the radial artery pulse at the wrist. In this system different strength ratios and qualities are used to identify different regions of mai vessel terrain that require treatment. For example, if a patient has a pulse ratio that is four times greater at the wrist than the neck and is steady and rooted in quality, it indicates a pathological condition existing within the

lower taiyin (Spleen/pancreas) mai vessel terrain. Because acupuncture is performed at these external regions of body, this system of pulse diagnosis is particularly relevant to acupuncture therapy.

3. The sanbu/jiuhou (three regions/nine divisions) pulse system described in *Suwen*, Chapter 20 divides the body into three regional units (upper, middle and lower). These are further differentiated into three separate subdivisions. Comparison of pulsations and qualities within these areas identifies the presence of xie (邪 pernicious factors) and compares relative differences between the various mai vessel terrains.
4. *Neijing* forearm diagnosis, described primarily in *Suwen* Chapter 17 and *Lingshu* Chapter 74, is a form of physical examination in which different regions of the body are mapped onto the ventral surface of the forearms. Palpatory changes in these areas indicate pathology in different regions of the body. In this case, congestion in both proximal regions indicated pathological involvement of both Kidneys, and deficiency in the right middle region indicated pathology of the Stomach.
5. Fractals are mathematical sets that describe structures or patterns that result from the iteration of self-similar patterns. In classical Chinese natural science, the basic self-repeating pattern is the expansion-contraction cycle of the yinyang breath.
6. See Neal, E. (2012). "Introduction to Neijing Acupuncture Part I: History and Basic Principles". *The Journal of Chinese Medicine*, 100, pp. 5-14.
7. In constructing these theories, traditional Chinese scientists achieved something that Western science has yet been able to do – describe a unified theory of existence and of the greater cosmos.
8. Although the term 'fangyi' (方醫 directional medicine) does not appear in the *Neijing*, it is used here to describe a specific philosophical and theoretical approach to clinical medicine that is consistent with the theories described in the *Neijing*. It particularly refers to a clinical method that is based on the theories of yinyang science, where the term fang (方) refers to the different phase directions of the yinyang breath. In Chinese, the term fang has a variety of established meanings, including 'direction', 'method', 'side', 'square' and 'recipe'. The term 'fangyi' should not be confused with the tradition of the fangshi (方士 directional scholar) from the later Warring States period (475-221 BCE) and Han (206BCE-220AD) dynasty, which encompassed a variety of practices that included divination, alchemy, numerology and calendrical sciences, and longevity practices. These practices existed on a spectrum, from those based on observations of natural phenomena on one hand to practices of a highly occult nature on the other (the reputation of the practitioners varied accordingly). By the third to the fifth century CE most of these practices had been subsumed under the practices of occult Daoism. For further reading see Pregadio, F. (2006). *Great Clarity: Daoism and Alchemy in Early Medieval China*. Stanford University Press (USA), and Sivin, N. (2006). "Taoism in Science" in *Medicine, Philosophy, and Religion in Ancient China, Researches and Reflections*. Sivin, N. (Ed.). Variorum: Aldershot.
9. In later dynasties, the concept of the bi (痺yin) obstruction came to have the more restricted meaning of 'painful obstruction syndrome' (i.e. various conditions of pain and arthritis). This type of definitional evolution, from basic principle (in classical medicine) to specific manifestation (in modern practice), has been a common theme in Chinese medicine.
10. Western medications definitely have life-saving clinical applications. When they are given, several effects can be identified. The first is the expected therapeutic effect. Next are the undesired adverse effects. Third is the role the medications play as a metabolic by-products. In modern pharmcokinetics, it is understood that drugs are cleared from the body through the body's metabolic pathways at a rate determined by the drug's half-life profile and the body's physiologic profile. However, *Neijing* theory predicts that drugs and their metabolites tend to migrate into the circulatory backwaters involved in bi (痺) obstruction, where they become a form of xie (邪 pernicious influence). During classical acupuncture treatments, it is not uncommon for long-standing bi (痺) obstructions to be released along with the smells of medications or chemicals the patient was exposed to many years before. These observations may require adjustments in the modern theoretical understanding of pharmacokinetics. The release of medications and chemicals during treatment also has potential serious implications for the practitioner and patient. For the patient, a sudden release of chemicals or medications into the body's circulation may have a number of deleterious effects, especially when they are suffering from a serious or life-threatening illness. For the practitioner, this type of exposure represents a significant workplace hazard that at times requires the use of protective clothing, organic solvent respirators and properly ventilated treatment areas.
11. In *Neijing* classical medicine, inflammation typically results from yin-level blockage that obstructs the free circulation of yang. When yang accumulates it generates regional heat syndromes. In Western medicine this accumulation of heat is called inflammation.
12. From the perspective of the *Neijing*, the primary role of the practitioner is to skillfully remove obstructions to the body's innate healing capacity, not to take over and direct these functions.
13. Modern TCM therapy does not specifically target bi (痺) syndromes and thus has different therapeutic effects. Particularly, it should be noted that the concept of 'ashi' points is not synonymous with the concept of bi obstruction. Typically, bi obstructions reside outside the body's normal circulation, and thus do not cause local pain.
14. In older herbal traditions such as the *Tang Ye Jing* ('Classic of Decoction Methods') tradition, herbal formulas were constructed in a similar directional manner to *Neijing* classical medicine and may have achieved different effects than modern formulas.
15. Here the terms wood, fire, earth, metal and water refer to tangible natural phenomena as well as being symbols for the directional phase motions that generate these phenomena in nature. As noted in *Suwen* Chapter 66: '天地者萬物之上下也左右者陰陽之道路也水火者陰陽之徵兆也金木者生成之終始也.' ('Heaven and earth are the upper and lower [boundaries] of the ten thousand things. Left and right are the paths yin and yang take [as they circulate through the world]. Water and fire are the material expressions of yin and yang. Metal and wood are the growing and completion of the ends and beginning.').
16. Every part of the body contains different expressions of all the primary phase directions, albeit in differing proportions. For example, the abdominal omentum consists primarily of fat (a Centre direction tissue); however, within this structure are also blood vessels (Southern direction tissue), connective tissue (Eastern direction tissue), processes of catabolism and drainage (Western directional processes) and nerves/marrow (Northern direction tissue). This information is clinically relevant. For example, if a patient presents with an infarction of the omentum secondary to autoimmune vasculitis (inflammation of blood vessels) the directional diagnosis would be of a disease of the Centre, with pathology occuring within the Southern aspect of the Centre direction.
17. In *Neijing* classical acupuncture this is part of the study of jingluo (channels and collaterals). For further discussion see Neal, E. (2012). "Introduction to Neijing Acupuncture Part II: Clinical Theory". *The Journal of Chinese Medicine*, 102, pp. 20-31.
18. This is not to say that intuition is not important in clinical medicine, but rather that there exists a large body of technical information contained within classical medical texts that cannot be replaced by intuition. Most of the technical aspects of this knowledge are largely unknown in modern practice.
19. In *Neijing* channel and vessel theory, primary tributaries were seen to divide from each primary longitudinal jingmai system. In modern TCM acupuncture the dividing regions of these tributaries are now called 'luo-connecting points'. This likely represents a corruption of this term and for various reasons does not represent the way this term was originally used within the *Neijing*.
20. In the *Neijing* the term xinbao (心包 heart wrapper) likely refers to the coronary arteries (i.e. the collateral mai circulation of the heart). Later this term became associated with the Western concept of the pericardium. From the perspective of *Neijing* terminology, the anatomical pericardium is a type of mo (莫) or 'membrane' and as such

belongs to the tissue plane divisions of the East.

21. As has been previously described, for the most part classical acupuncture point nomenclature associates external topographic features of the body's anatomy with images of nature and daily life, and were not generally constructed from ideas of esoteric symbolism. For further reading, see Neal, E. (2012). "Introduction to *Neijing* Acupuncture Part II: Clinical Theory". *The Journal of Chinese Medicine*, 102, pp. 20-31.
22. The ability to accurately predict clinical syndromes that result from impairments of regional blood flow, and to prescribe specific treatments to counter these syndromes represents a remarkable clinical achievment that has no parallel in Western biomedicine.
23. As such, classical indicators are highly specific but not overly sensitive. In the terminology of medical statistics 'sensitivity' describes the ability of any given clinical parameter (i.e., test or symptom) to positively predict the presence of illness (e.g. if most patients with a disorder test positive for that specific disorder, a test is considered to have 'high sensitivity'). Specificity refers to the ability of a diagnostic indicator to correctly exclude a given disease (i.e. a test result is a true negative test for those without the disease).
24. In the *Neijing*, external cold is seen as a specific subset of bi (痺) obstruction that requires its own unique therapeutic interventions.
25. In TCM, the term zheng qi (正氣) describes the qi available to the body to fight illness and maintain health. While this is true, the reason zheng qi (正氣) has this capacity is that it represents the totality of the body's qi that is flowing correctly in regards to nature's circulations.
26. According to the *Neijing*, if the circulations of the body move freely and in harmony with the greater patterns of nature and a person follows fairly simple prescriptions of daily life, the average lifespan should be about 100 years. Such a person should remain healthy and vital, and live out their days without the need for medical intervention.
27. Because classical acupuncture describes physical anatomical structures such as blood vessels, fascia, bones and organs, it tends to share much in common with modern biomedicine, and the two systems tend to complement each other.
28. In the *Neijing* the skin is a direct espression of the lungs.
29. Secondary findings - the involvement of the inflammation of membranes (膜) and connective tissue - suggest involvement of the Eastern direction, but these findings are less pronounced.
30. As described in *Lingshu* Chapter 1: 'The lesser physician guards the [outer] barriers [of the body], the superior physician attends the critical mechanism (麤守關上守機).'
31. From the perspective of *Neijing* medicine, illness is not considered cured until the configuration of illness is released by a targeted restoration of the ji (機 intrinsic mechanism). In the clinic, many things can improve a person's symptoms. However, until the ji (機) mechanism has been restored these treatments are considered symptomatic, not curative.
32. It may be reasonably be asked why the direction of treatment is not always the primary focus of intervention to release the configuration of illness. There are several reasons why this is not the case, all of which relate to issues of clinical problem-solving and prioritisation. For example, a patient may present with a disorder within the direction of cause that is quickly resolved, but impairments within the direction of treatment take some time to reverse. In this situation, treatment of the direction of cause will immediately lessen the patient's symptoms and attend to the acute needs of the patient. As another example, take the case of a patient with a recurrence of a cancer who has a heavy build-up of chemotherapy associated with a local bi syndrome within the direction of treatment. In this case, treatment of this area may result in the sudden release of medications directly into the body's circulation. In this case, treatment may be better postponed until the patient's excretory pathways (lung, channels, digestion, urinary system etc.) have first been optimised so as not to further endanger the patient when released. Further, the configuration of illness may intentionally be left in place while patient undergoes certain therapies such as chemotherapy or bone marrow transplant. In these situations, it may be safer to leave such factors locked within the patient's tissues until after such therapies are complete.
33. This does not mean that any illness may be treated through any direction - only that the solution and treatment of any specific illness will be located within one of the five primary directions.
34. This is the theoretical basis for traditional Chinese pulse diagnosis. However, not all diseases are reflected in standard pulse diagnosis. For example luobing (絡病) or 'collateral vessel disease' occurs outside of the longitudinal mai vessels and is thus not identified by standard pulse diagnosis.
35. See Neal, E. (2012) "Introduction to Neijing Acupuncture Part II: Clinical Theory". *The Journal of Chinese Medicine*, 102, pp. 20-31.
36. That the disease occurred shortly after moving northward and during the time of the Northern season of winter also suggests involvement of the Northern pathological influences in this illness.
37. Coccidioidmycosis is a relatively common fungal illness endemic to parts of California, Texas, Arizonia, Northern Mexico and Central and South America. Although most patients afflicted with this disease only experience the symptoms common to upper respiratory illnesses, a small percentage of patients may have disseminated illness with significant morbidity and mortality.
38. In the *Neijing*, it is likely that the modern anatomical spleen was understood to be a 'left-sided Liver' and that the organ described by the character 脾 (pi - now translated as 'Spleen') originally described the modern anatomical pancreas.
39. The taiyang mai vessel outflow tract was originally described as flowing flow through the area of modern Fengchi GB-20.
40. Yangci (揚刺 lifting needle technique) is performed by shallowly inserting one needle into an area of mid-level spreading cold and placing four needles around it.
41. In the *Neijing*, the jing (井) benshu regions were specifically indicated for diseases of the zang organs. Here the ying (滎) benshu regions were added to decrease inflammation and help obstructed circulation in the zang organs flow forward through its normal ordered sequence.
42. In the *Neijing*, mai (blood) vessel circulation was described as flowing upward from earth to heaven or downward from heaven to earth. Ascending circulations were denoted by the character mu (木wood) and descending circulations were denoted by the character jin (金 metal). Later this idea was likely misinterpreted to mean that the first point on a yin channel is the 'wood' point, the second point is a 'fire' point, the third point is an 'earth point and so on. These descriptions are not found in the *Neijing* text. For further reading, see Neal, E. (2012). "Introduction to *Neijing* Acupuncture Part II: Clinical Theory". *The Journal of Chinese Medicine*, 102, pp. 20-31.
43. The *Lingshu* describes Rangu (然骨 burning valley) (modern KID-2) as lying posterior to its modern location.
44. In the *Neijing* a jue (絕 severance) syndrome is an area of the body's tissue-planes where the circulation has been completely interrupted. In these situations, the body must rely on collateral circulations to maintain its normal physiological processes.
45. Maoci (毛刺 hair needling) is a technique used to superficially needle bi (痺) obstructions of the skin.
46. Many channels and vessels intersect within this region.
47. Dian (巔 mountain summit) is an earlier name for Baihui (modern GV-20).
48. Originally the most important circulation used in acupuncture therapy was based on the circulation of mai (blood) vessels and closely followed the vascular pathways of the body. These original descriptions often differ significantly from modern descriptions of the acupuncture channel system. For further reading, see Neal, E. (2012). "Introduction to *Neijing* Acupuncture Part II: Clinical Theory". *The Journal of Chinese Medicine*, 102, pp. 20-31.
49. Angiofollicular lymph node hyperplasia, or 'Castleman's Disease' is a rare disease characterised by a hyperproliferation of lymphoid tissue and widespread tumour formation throughout the body.