Liver and gall bladder channel parallels in the Hippocratic Corpus and Huang Di Nei Jing with theoretical considerations

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**Article Info**

**Abstract**

Chinese history contains an abundance of records discussing contact with the outside world. In the ever elusive search for the origin of the meridian theory, an extended investigation into the Hippocratic Corpus reveals parallels with the Huang Di Nei Jing (黄帝内经) medical text of the Chinese tradition that provide an alternative perspective into the origins of meridian channels theory. Though this topic has been discussed in the past, this paper provides new and developed insight into theories associated with the liver and gall bladder channel systems of each tradition. Condensing the scope of the analysis between the Huang Di Nei Jing and Hippocratic text traditions and focusing on the liver and gall bladder channels aids to expound on the theoretical background required to advance the comprehension and understanding regarding the origins of each tradition. This paper reveals content that further the relationship between the two traditions, including demonstrating the existence of theoretical parallels existing between the liver and gall bladder channels of these two texts.

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1. Introduction

After numerous years investigating the development of Chinese medicine, the only valuable breakthroughs occurred after comparative research. This view is shared by Scheidel, whom in his Comparative history as comparative advantage: China’s potential contribution to the study of ancient Mediterranean history (2006) enumerates the important advantages of comparative world history.

Chinese scholars have acknowledged the existence of the Hippocratic channels and the similarities with the Chinese meridian system. However, the scholarship is divided concerning whether or not there was communication between the two groups. Some scholars from the mainland declare that the two systems developed independently, while others in Taiwan, such as Fu, claim immediate influence. From the western perspective, Craik, a Hippocratic scholar, concludes that there must have been interaction between the two cultures between 1000 and 500 BCE, and that there indeed are parallels between their channel systems, treatment methods, and philosophy.

Upon encountering the initial apparent resemblance between the two systems, further inquiry leads to numerous intriguing parallels: cauterising, phlebotomy, cupping, physiology, and philosophy. Another intriguing facet of Hippocratic medicine are the distal treatment methods, something which is often considered unique and particular to the Chinese meridian system. These methods include phlebotomy at the ankle to resolve pain at the hip, bleeding behind the knee for pain at the back, bleeding at the elbow for pain at the spleen, and cauterization behind the ear resulting in sterility. Both the Hippocratic and traditional Chinese medicines speak of a liver channel. How could two distinct and unrelated systems of medicine both have recognised a liver pathway that extends through the superior and inferior divisions of the body? Indeed, this suggests an interrelationship that is in concord with the conclusions of earlier scholars such as Craik and Fu.

There have been numerous accounts of the interaction between China and western cultures along the infamous Silk Road throughout history. The procession of Turkish speaking countries from Turkey through to Kazakhstan, Uighur, and Mongolia exhibits remnants of the ancient Silk Road that extended from Turkey into China. A museum in Uighur, China, displays tapestry discovered at
the Sampul cemetery of a soldier with Caucasian features and the residence of Hippocrates, was a centre of sericulture. Thus there is ample evidence to suggest Sino-Hellenic intercultural communication and influences.

Once the apparent commonalities between the two cultures have been established, questions arise concerning their relationship. Is it possible that the Chinese meridian theory originated outside of China? To what extent are their medical theories related? If relations between these two cultures did in fact exist, further analysis could reveal undiscovered facets of their medicine. There are many uncertainties regarding both the Hippocratic channel pathways and the Chinese meridian system that are unanswered, especially if considering the comparisons. How could both systems have claimed similar observances regarding channel pathways? If their pathways are different, then what are the reasons for the discrepancies?

If these two medical traditions did derive independently, then there are striking resemblances of physiological phenomena across cultures that require further investigation. This would imply that two completely distinct systems of medicine came to similar conclusions concerning an intriguing but enigmatic system of channel pathways.

The first step in this process would be to analyse the parallels between these two channel systems. For this, we will examine the features of the liver channels in each system, which already have been established, and further explore proximate philosophical and theoretical relationships utilising the representative medical texts for each culture: the Hippocratic Corpus and the Huang Di Nei Jing (黄帝内经). The gall bladder is attached to the liver, and both of these organs are classified as wood element organs in the Huang Di Nei Jing. This provides a fundamental, systematic framework for analysing the gall bladder and liver channels while further exploring their associating theoretical features. Accordingly, the line of reasoning is as follows: (a) obvious corresponding associations existing between the two texts (Hippocratic Corpus and the Huang Di Nei Jing), (b) correspondences existing within each, individual system of medicine (e.g., liver and gall bladder with element relationship), and (c) individual correspondence relationships compared between the two systems (e.g., element correspondences between the two systems).

2. Hippocratic channels overview

The two primary sources for the channel system recorded in the Hippocratic Corpus are within the treatise Nature of Man XI and Nature of Bones. There are eight pathways mentioned within the Hippocratic treatise Nature of Man XI and recounted in Aristotle’s History of Animals. Symmetry is a particular characteristic of the classical view of the channels. Generally, the pathways transverse the upper and lower, outer and inner, left and right portions of the body: (1) from the head to the outside ankles and feet, (2) from the head to the inside ankles and feet, (3) from the head to the left and right sides of the torso, (4) vessels from the head transverse the upper part of the arm in one pathway, and the underside of the arm pit on the other. Galen confirms the tradition of octonary channels, though he firmly expressed his disapproval towards this viewpoint.

In a recent interpretation of the Hippocratic vessels, Chinese scholars recognised the association of the lungs and large intestines pathways, a particular characteristic present in the Chinese system of meridians. Other researchers have postulated that the system of channels circulating among the Greeks of the classical period refers to the actual vascular pathways of modern anatomy. However, the term vessel does not adequately represent the complete system of pathways recorded in the Hippocratic Corpus. The various vessels, ducts, cords, or channels can carry or transport sensible information, phlegm, bile, blood, air, marrow, spinal fluid, and semen.

Terminology for the channels within the Hippocratic Corpus include various types:

- ‘vessels’ (φλέβες),
- ‘ducts’ (πόροι),
- ‘passages’ (όδοι),
- ‘conduits’ (ἀχετεώτατα),
- ‘pathways’ (ἀγγείοι),
- ‘artery’ (ἀρτηρία),
- ‘vascular pathways’ (φλεβιβώδους ἀγγείου),
- ‘blood vessel’ (ἐνείμον φλέβα),
- ‘neuron’ or ‘cord-like’ (ψυρών),
- ‘cords’ (τόνοι) and
- ‘wind-pipe cords’ (ἀρτηρίης τόνος).

Some describe quality: ‘hollow’ vessel (κωλή φλέψ), ‘thick’ artery (ἡ παχεία ἀρτηρία), or ‘thin’ (λεπτά). Others are metaphorical: ‘sacrificial’ (σφαγία), and ‘ancient’ or ‘original’ (ἀρχηγία). The two most prominent channels pathways of the Hippocratic Corpus refer to organs: the spleen vessel (ἡ φλέψ ἢ σφαγίας) and hepatic vessel (ἡ φλέβα ἢ ἠπεριτης). The texts of the Hippocratic Corpus are predominantly heterogeneous, representing a compilation of medical works from various authors dating around the fifth and fourth centuries BCE. Attempting to amalgamate and reconstruct the medical theory of the authors can be challenging. Furthermore, according to the author of the treatise On Laws V, certain doctrines were only taught to initiates; it was prohibited to instruct certain aspects of the
medicine that were considered holy. This could imply that there exists a certain degree of veiled theory and secrecy throughout the corpus texts.

3. Chinese meridians overview

The earliest records of the Chinese meridian theory discovered in 1972 within the collection of Ma Wang Dui Silk Texts (馬王堆帛書 mà wáng duī bò shū), the Cauterization Canon of the Eleven Foot and Arm Channels (足臂十一脈灸經 zú bì shí yī mài jiù jīng) and the Cauterization Canon of the Eleven Yin and Yang Vessels (陰陽十一脈灸經 yīn yáng shí yī mài jiù jīng), displaying a system of eleven mài vessels. These texts are dated ca. 215 BCE and are thought to represent an early stage in the development of the Chinese channel theory. Modern scholars have agreed that the eleven vessels were an early stage in the development of the Chinese meridian theory. This could imply that there are systems of eight, twelve, and twenty-eight pathways. The various vessels transport qi (气 qì), blood (血 xuè), and fluids (津液 jīn yè), throughout the body.

Unlike the Hippocratic Corpus, the Huáng Dì Néi Jìng presents the most organised, systematic, and comprehensive presentation of ancient basic medical theory. This is one of the great values of the Huáng Dì Néi Jìng and the traditional Chinese medicine and is most likely one of the reasons why it has endured the test of time. The meridian theory recorded in the Huáng Dì Néi Jìng was not only a basis for medical theory, but also integrated with theories of physical exercise and health practices. Therefore, a revival of the meridian theory can impact a vast range of practices that was very real for the Chinese culture for over a millennium. There has been continuous work in attempt to discover the origins of the meridian theory in China. However, these efforts have largely overlooked the chance of a possible outside origin. This is an important fact that we will attempt to explore in the following text by further analysing the parallels between the traditional Chinese meridian pathways with that of the Hippocratic Corpus.

4. Liver and gall bladder channel parallels

The first thing someone might notice when analysing the Hippocratic Corpus and the Huáng Dì Néi Jìng is that both texts utilise elemental analogies in reference to the organs: both compare the stomach and uterus to earth and the heart to fire.22 If paired with other accounts within the Greek tradition, records within the Hippocratic Corpus strongly indicate that the liver was an essential component of a vegetative soul analogy, adding yet another layer of correspondence with the wood element organ found within the Huáng Dì Néi Jìng. Closer inspection reveals that the wood element channel pathways are parallel in both traditions. The description of the hepatic channel pathway in the Hippocratic treatise The Sacred Disease VI, matches the general pathway of the liver meridian in the Conduit Vessels (經脈 jīng mài) chapter of the Líng Shū (靈樋): numerous of which are identical.23 Parallel anatomical structures that intervene along the liver pathway in both traditions are the following: large toe, inner thigh, liver, ribs, diaphragm, lung, neck, nose, and eyes. There are substantially more correspondences than there are differences. Moreover, the contrast of the brain and the governing channel is just a terminological difference and not an anatomical difference. Therefore, there are a total of ten parallels along the liver pathways of both traditions.

Liver Channel Pathway

| The Sacred Disease VI | Conduit Vessels (經脈 jīng mài) |
|-----------------------|-------------------------------|
| foot (足 jī) (large toe, see Loc. Hom. 3) | large toe (大趾 dà zhǐ) |
| inner thigh (內膝蓋 shū gài) | instep (內踝 nèi huái) |
| kidney (腎 yīn) | inner thigh (陰股 nǐn yīn) |
| liver (心 héng) | inner edge of the hollow of the knee (膝內廉 xīn nèi lián) |
| joint (關節 guān jié) | liver (肝 guān) |
| diaphragm (隔 hé) | diaphragm (膈 gě) |
| lung (肺 fèi) | ribs (肋 xià leí) |
| neck (項 xiàng) | lung (其支者 qī zhī zhě) |
| eye (目 mù) | windpipe (咽喉 yīng huó) |
| brain (腦 nǎo) | eye (目 mù) |
| governing channel (上頜 gòu jīng) | governing channel (上頜 gòu jīng) |

Liver Channel Parallels

(1) large toe, (2) inner thigh, (3) liver, (4) ribs, (5) diaphragm, (6) lung, (7) neck/windpipe, (8) nose/nasopharynx, (9) eyes, (10) brain/governing channel
Striking parallels between the liver pathways of both cultures are readily noticeable. The similarity of channel descriptions between the two traditions, along with the resemblance of other channels, has been recognised by modern Chinese scholars Huang C., Liang J., Zhang Q., and Lu T. in their paper: A Comparative Study on ‘Mai’ and ‘Blood Vessels’ in Early Chinese and Western Medicine24; which illustrates not only the similarity of the pathway trajectory and the joining points for each of the channels, but also allude to their associations with corresponding organs. Though these and other previous observations noticing the parallels between the channel pathways of the two systems are commendable, further detailed analysis into the nuances of the Hippocratic texts reveals more than what previously had been discovered. Comparing the other wood element organ of the Chinese system, the gall bladder, with the other pathways within the Hippocratic Corpus leads to further revealing discoveries. Specifically, between the gall bladder channel within the Conduit Vessels, chapter of the Ling Shù, and a pathway present in the Hippocratic treatise Internal Affections XVIII.

Initially, there are three main points for the argument suggesting the similarities between the gall bladder pathway within the Conduit Vessels, chapter of the Ling Shù and the pathway mentioned in Internal Affections XVIII: (i) both pathways meet with the eye, (ii) both intervene with the hip–joint, and (iii) both terminate at the mid of the hallux.25 Mere intervention with the hip would be inadequate for consideration. However, the termination at the eye on one end and specific reference to the middle of the hallux on the other end in both cases are striking correspondences that appear to be alluding to the same pathway. Another clue arises if taking into consideration that the Hippocratic author, in the same passage, points out that ‘when the vessels are invaded by […] bile (γολήγας),’ indicating that the channel corresponds to the gall and thus possibly the gall bladder.

A similar channel in Places in Man III describes a vessel that ‘presses’ (πικέομεν) against the eyes as does the channel mentioned in Internal Affections XVIII.26 This same channel: begins at the peak (κορυφήδες) of the head,27 passes the temples, ears, links with the ‘hollow vessel’ (κοιλόν φλέβα) that descends downward, and eventually terminates at ‘the large toes.’28 This vessel, the author of Places in Man III claims, ‘makes a person sterile if cut.’ The difference between the channel in Internal Affections XVIII and Places in Man III is that the former transverses the outer malleolus of the foot on its pathway to the large toe, and the later passes through the medial aspect of the leg before reaching the large toe. It appears that these two texts were not referring to the same pathway, however, both were aware of the effect that these pathways have on sterility.

According to the above account, it would be unreasonable not to consider the channel mentioned in the Hippocratic treatise On Generation II, which the author holds that an incision made along the ear may cause a person to become sterile. His theory in On Generation I adopts the encephalogenetic view that has a portion of humour descending from the brain into the loins and the whole body (ζυγὸν τὸ σῶμα), which is very similar to how the author of Internal Affections XVIII concludes the passage (τὸ σῶμα, both likely referring to the panspermic theory).29 If this is the case, this pathway would then be associated with the seed theory present within the Hippocratic Corpus and, therefore, the vegetal analogy. The pathways and terminating points of the two channels compared above are equivalent to the liver and gall bladder meridians of the Huáng Di Néi Jíng. Their combined association with the vegetal analogy, and thus the wood element of the Chinese system, are no less than significant. Therefore, aside from the three points already mentioned above, there are three additional points to take into consideration: (iv) relation to the seed theory and hence the wood element of the Chinese system, (v) relation to bile and hence the gall bladder, and (vi) a superior to inferior descent and termination of both pathways. Together, the six points are as follows:

(i) both pathways meet with the eye,
(ii) both intervene with the hip–joint,
(iii) both terminate at the mid of the hallux,
(iv) relation to the seed theory and hence the wood element of the Chinese system,
(v) relation to bile and hence the gall bladder,
(vi) a superior to inferior descent and termination of both pathways.

Of the six points, iv and v are debatable. However, though the correspondence of the seed concept to the channel mentioned in Internal Affections XVIII is not explicitly defined, the utilization of a botanical metaphor to a similar channel is very probable.30 Lonie compared the channels of Internal Affections XVIII and On Generation II, noticing the apparent consistencies and inconsistencies of these two channels; most notably is the panspermic theory used in both texts. Lonie further points out that Polybus alluded to a σφυγτήριος (sacrificial) vessel that is recognised in On Generation as σφυτήριος.31 In relation to this correspondence, Sophocles, a contemporary of Hippocrates, in his Antigone 1009–1025, portrays a sacrifice in which gall is scattered into the air.32 The term bile or gall in the Hippocratic Corpus is an ambiguous term, but there are not any indications in the text that would entirely rule out an association with the gall bladder.33 However, seed theory and bile are secondary to the crucial determining factor in the synthesis: both pathways specifically terminate at the mid of the hallux. Therefore, these two points still hold valid considerations that tend more towards probability than presumption, especially if considering the other factors.

| Gall Bladder Channel Pathway | Conduit Vessels (經脈 jīng mài) |
|------------------------------|-------------------------------|
| Internal Affections XVIII    |                               |
| eye (目睛 jīng mù)           | • canthus of the eye (目絨 mǔ rú zì) |
| throat (項 qīng)             | • temples (头角 tóu jiǎo)       |
| spine (脊 qǐ)               | • behind the ear (耳 hóu)       |
| acetabulum (恥骨關節口) and the hip-joint (股關節) | • neck (頸 jǐng)                |
| outer malleolus of the foot (腓骨後端) | • chest (胸中 xióng zhōng) |
| middle of the hallux (太陽關節) | • diaphragm (橫隔)             |
|                              | • liver (肝 gān)                |
|                              | • small ribs (季肋 jì xiè)      |
|                              | • hip joint (臀部 tún bù)       |
|                              | • outer edge of the knee (膕外關節 wài lián) |
|                              | • inside of the metatarsal (大趾骨內 dà zhǐ qǔ nèi) |
|                              | • (mid and tip of) hallux (大趾之間 dà zhǐ zhī jiān) |

Gall Bladder Channel Parallels

1. meet with the eye, 2. intervene with the hip–joint, 3. terminate at the mid of the hallux, 4. relation to the seed theory, 5. relation to bile, 6. superior to inferior descent and termination.
5. Theoretical considerations

After having confirmed the channel parallels between the two systems, it could be possible that these two systems happened to have noticed anatomical structures as suggested by Crivellato. Therefore, it is important to take theoretical aspects into consideration, and also to conform to the line of reasoning mentioned in the introduction, section one, of this paper. For this, there are three main theoretical points (A, B, and C) corresponding to the liver and gall bladder within the Huang Di Nei Jing that when viewed through the lens of the Hippocratic tradition only further demonstrates the affinity of these two systems: (A) soul and blood relationship, (B) botany analogy applied to the liver, (C) the wind aspect of the wood element and its relationship to the liver. These points are common and well known within the traditional Chinese medicine and thus do not need to be elaborated in this section. What is not common or well known are the Hippocratic equivalents to these theoretical points, therefore, only these points will be introduced. Moreover, an additional fourth point of focus (D) proposes an argument for a wood element system of categorization within the Hippocratic Corpus.

A. Concerning the interrelation between soul and blood, the treatise Nature of Man, a text that is presumably attributed to Polybus of Cos, states the following: ‘Those whom say that man is composed of blood […] see men who are cut bleeding from the body, and so they think that blood composes the soul’. He then follows this account by providing two examples in which the final composition, occurring after phlegm and bile, that is evacuated from the body before death is blood. In a third example with blood exiting the body, being followed by bile and phlegm, there is no mention of death, however, Polybus does follow this account by relating death with blood and seems to concord with the statement. From the initial perspective, Polybus appeared to be siding with the pre-Socratic Hippo, whom, according to Aristotle, argued against the belief that the soul is in the blood. Aristotle then follows this account by mentioning a group, which he does not identify, that does hold to the belief that the soul is in the blood because perception is due to the nature of the blood, an opinion that is not entirely contrary to that of Aristotle. Nevertheless, a strong argument against this assumption can be taken from Aristotle’s observations of bloodless animals, cephalopods, which have the motive and perceptive capacity, but not as a result of blood.

B. The channel pathway of Generation I includes a seed theory, and it resembles the channel pathway of Internal Affections XVIII. Generation II states, ‘the greater part of the seed travels from the head past the ears into the spinal marrow’. Having analysed the resemblance of these two channels, Lonie further compared them to a channel mentioned in Nature of Bones XIV. This vessel, the author of Nature of Bones explains, is entwined like ivy (Ἐγκυσμένη ἐνθέκτι) to the marrow of the back and rooted in the genitals. Thus both the authors of Generation and Nature of Bones adopt a botanical analogy to their channel theory. Disseminated components of the botanical analogy are present at Humours XI and Nature of the Child XXVI, in which it is said that the soil is to a tree as the stomach or belly is to animals. This is an early account that would later explicitly compare the stomach to the earth and the mesentery to the roots of a plant, as Aristotle did in Parts of Animals II.3.

Regardless of which portion of the mesentery Aristotle referred to, both accounts assign the root to the lower diaphragm: the treatise Nature of Bones XIV to the genitals, and Humours XI and Nature of the Child XXVI to the belly. Therefore, in these particular accounts, if one end of the tree is below, the root in this case, then the other end, the branches and leaves, must either be above or somewhere out towards the exterior of the body. These accounts already provide a strong indication that the liver, an organ that is situated in between the transition of nutriment from the mesentery towards the heart, would be the likely and logical conclusion for the trunk or substantial portion of the botanical analogy. This indeed was the conclusion of both Galen and Plotinus, whom, undoubtedly concluding from their predecessors, explicitly referred to the liver as the seat of the vegetative faculty.

C. For the ancient Greek tradition, it was commonly observed that winds occur externally and internally within the body. Wind within the body is produced during digestion as flatulence in a process likened to concoction. The consumption of sweet wine was said to cause inflammation in the spleen and liver, which then produces wind in the intestines. Blood can also be a cause of wind; in the treatise Breaths VIII, wind in the body arises from warm blood. As the wind arises out from the blood, it strikes the various channels throughout the body. In the treatise Ancient Medicine XXII, the liver is particularly responsive to the internal wind due to its nature. A later work of the Aristotelian Corpus, On Breath, goes as far as claiming that death ensues as a result of the liver not having a passage of air.

Of these three instances within the Hippocratic Corpus, two associate internal wind with the liver. The other, the treatise Breaths VIII, states that wind arises from the blood. In enumerating the qualities of the liver, the treatise Ancient Medicine XXII points out that the abundance of the blood contained within the liver and its lack of porosity are the causes for the obstruction of wind within the body. Therefore, not only does the Hippocratic Corpus associate the liver with blood and wind, as does the Chinese tradition, it further provides the reasons and cause for their relationship.

D. The Hippocratean treatise Nature of Man VII holds that warmth and spring are most akin to the nature of the blood, claiming that blood within the body increases during the spring. Together with the other postulations, though scattered throughout the corpus, this statement proposes a fusion: the warmth of spring is most like the nature of the blood; blood is abundant in the liver; wind arises from warm blood and the nature of the liver, and the nature of the liver is responsive to wind; the abundance of blood and the impermeable quality of the liver hinders the path of wind in the body. In summary, the qualities associated with this grouping are the following: (1) wood, (2) spring, (3) warm, (4) blood, (5) wind, and (6) liver.

Elsewhere in the Greek tradition, the relation between soul and liver dates as far back as Homer. This correspondence is clarified in the Timaeus, one of the late dialogues of Plato, in which the liver is explicitly identified as the location of the soul (71a-b); Galen would later identify this as the nutritive or vegetative soul. Furthermore, both Homer and Plato compared the soul to an apparition, and the Chinese term for soul, 鬼 hún, contains the radical for an apparition: 鬼 guì; testimonies from a couple of the most prominent ancient Greek authors that existed previous to and following the time of Hippocrates suggest that Hippocrates could have been aware of this doctrine.

A postulation for a vegetative soul in the Hippocratic Corpus has already been established and could readily be developed to a much greater extent. It is evident that the author of the Hippocratic treatise Regimen, though holding that water and fire are sufficient for everything, implements the conception of firewood or coals to kindle the flame of the soul. This conception is actually in
concordance with the modern Chinese tradition, which believes that the wood element concept derives from analogical ordering. The crucial aspect of the firewood analogy is the correspondence between wood and the soul. Keeping in mind that there is a strong argument for a vegetative or nutritive soul within the Hippocratic Corpus, Aristotle would later explicitly claim that the vegetative or nutritive soul is that from which all other parts of the soul derive. Therefore, the vegetative or analogically the plant or wood type component of the body also kindles the soul in Aristotle’s physiology.

Though numerous other instances within the Hippocratic Corpus can reinforce this premise, enumerating all the points would take several lengthy discourses. Undoubtedly, it is safe to associate the liver with the soul and include the soul into the group: (1) wood, (2) spring, (3) warm, (4) blood, (5) wind, (6) liver, and (7) soul. This exact grouping within the Chinese system is a category classified as the wood element. The grouping infers that this system either arbitrarily manifested through the combined authors of the Hippocratic Corpus, which is unlikely, or that the authors were aware of the associations, and it was also considered a category within early Greek medicine of that time.

6. Conclusion

Though a disassociated or apparent antithesis exists between the two systems, there has been a considerable amount of conclusive synthesis. Particularly in regards to the theory and philosophy within Hippocratic Corpus. Concluding by decisively synthesising ten main points in total: six channel related (i, ii, iii, iv, v, vi), and four theoretical (A, B, C, D) which include seven points of identical correspondences. In practically all of these cases, and far more if considering other factors observed during this study, generally, what is true in one case in this class is true for another. Therefore, there are two possibilities for this occurrence: (a) either two completely unrelated systems of medicine had discovered almost identical channel pathways and corresponding theories for the liver and gall bladder organs of their systems, or (b) they are not distinct systems of medicine, but do in fact originate from a common source.

a. Both the Hippocratic Corpus and the Hoàng Di NTREE JING represent the achievements of the most prominent physicians in each of their cultures. The fact that two distinct systems of medicine discovered almost identical liver and gall bladder channel pathways that travel across the body along with corresponding theories could reflect the degree of scientific development and ontological beliefs of their time, or resulted as a matter of natural order.

b. If these two systems do originate from a common source, then each should serve to complement the study of the other. The early Greek and Chinese sources contrast in their method of presentation. Early Greek records display elaborate dialectical inductive reasoning and logical analysis, many of which do not arrive at conclusions, while the ancient Chinese records tend to exhibit a concise system of deductive principles often expressed aphoristically and arranged into categories. An example of this would be the relationship between wind and the liver. These associations are often paired together within the Hoàng Di NTREE JING, but do not offer much explanation, reason, or examples for their pairing. On the other hand, the Hippocratic Corpus does offer such explanations, but does not conclude to organise and group the associations together into categories as seen in the Hoàng Di NTREE JING. Similarly, even though the liver and gall bladder are associated with a botanical metaphor, the Hoàng Di NTREE JING does not provide adequate examples of botanical analogies, whereas they are prevalent within the Hippocratic Corpus. The transition of knowledge can suggest that portions of information were altered during translation or interpretation. It could be that entire doctrines or explanatory causes were excluded for the adoption of certain methods of presentation in which there could be many discoveries concerning unanswered questions in both systems.

This paper serves to further and develop on the notable work and conclusions of previous authors. While valuing the importance for the analysis of particulars, it is important to consider proximate interrelationships. Even with the possibility of two distinct cultures arriving at similar conclusions to the degree already presented up to this point of development, we believe that this argument is futile. We feel it is important that the rapprochement and synthesis of these two traditions only assist to further comprehend and understand each. We hope this study will eventually lead to discoveries of possible lost knowledge and improve the understanding and quality of these medical traditions.

Declaration of competing interest

All authors sincerely declare that there are no conflicts of interest.

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30. There are twelve conduit network vessels, however, the Huang Di Nei Jing has accounts of twelve (see, Unschuld. Sū Wèn. 2011: 59), fourteen (ibid.), and fifteen network vessels (脉络 luò mài; see, Unschuld. Ling Shù. 2016: 46), depending on the interpretation; these run transverse to the conduit vessels. Others include the (extraordinary diverging) network vessels of the supervisor and controlling vessels, the large network vessel (大脈 dà mài), and the tertiary network vessels (絡脈 luò mài), that diverge from the network vessels (脉络 luò mài).
31. The Twenty-Eight Vessels correspond to the Twenty-Eight Lunar Mansions (二十八宿 Ē Shí Bā Shòu).
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33. Elsewhere, Hp. Int. 18 [L. 7.210] speaks of a vessel that runs from the head, for stomach and earth analogy in the Hippocratic Corpus, see Humours. 11 and The liver meridian joins with the peak of the head in the Hu R.F. Paulo and Q.C. Zhang Journal of Traditional and Complementary Medicine 12 (2022) 384–390
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