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ASIAN MEDICINE 12 (2017) 86–118

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Vulnerable Parts

Locating and Defining Vital Areas of the Body in Tibetan Medicine

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Abstract

In Tibetan medicine, 'vulnerable parts' (*gnyan pa gnad*) are bodily structures which should not be damaged. Most of these anatomical locations are important in terms of surgical care and the management of wounds. They are described in the primary classical text of the Tibetan medical tradition, the *Four Treatises* (*Rgyud bzhi*), and in far more detail in its respective commentaries. A list of these more than three hundred delicate spots is included in at least two sixteenth-century commentaries, but its origin remains unclear. With the help of the medical 'scroll paintings' (*thang ka*) accompanying the seventeenth-century *Blue Beryl* (*Vaiḍūrya sngon po*) commentary to the *Four Treatises*, we can identify the locations of many of these vulnerable anatomical structures. However, it is uncertain if these identifications have remained consistent over time. With increasing integration of Tibetan medical practices into the Chinese health care system, it became necessary to find and define new terms. A veritable revolution in Tibetan medical terminology has taken place over the past several decades. Through a careful examination of these 'vulnerable parts' of the body, including an exploration of three examples, this article examines the shift of anatomical designations and the coining of new terms for anatomical details in classical and modern publications. Correctly identifying the vulnerable parts matters a great deal, especially with regard to patient safety.

Keywords

anatomy – bloodletting – medical terminology – Tibetan medicine

 | DOI 10.1163/15734218-12341392

Introduction

In the chapter on body metaphors in the *Explanatory Treatise* (*Bshad rgyud*)—itself the second volume of the classical Tibetan medical text *Four Treatises* (*Rgyud bzhi*)—'vulnerable parts' (*gnyan pa gnad*) of the body are described as "important envoys deployed by the king."[1] This metaphorical description indicates that these vulnerable parts are essential for the physical integrity of the individual human being and should not be damaged. Most of these anatomical locations are important in terms of surgical care and the management of wounds, particularly those resulting from military interventions or accidents. Despite their importance to Tibetan anatomy, the locations of these vulnerable parts have not remained stable over the course of Tibetan medical history. For example, names for the vulnerable parts mentioned in commentaries on the *Four Treatises* can be found in the early work, *Biji's Yellow-edged Volume* (*Bi ci'i pu ti kha ser*), but the organization of this text is very different from both the section in the *Explanatory Treatise* and its commentaries.[2]

There is a strong and vibrant tradition of writing medical commentaries on the *Four Treatises*, and this can also be seen with respect to examinations of vulnerable parts. Detailed knowledge about the vulnerable parts circulated in Tibet in the sixteenth century, and this knowledge does not seem to have changed much over the next four centuries. The seventeenth century has been described as the "golden century" in Tibetan medicine. These years saw the rise to prominence of Desi Sanggyé Gyatso, the regent of the Fifth Dalai Lama, and his commissioning of the medical scroll paintings (*thang ka*) which illustrate the *Blue Beryl* (*Vaiḍūrya sngon po*) commentary, a major accomplishment during this time. These paintings provide crucial visual references to, and conceptual illuminations of, Tibetan medical theory from the *Four Treatises* forward.[3] Later xylographic depictions of the body from the eighteenth or nineteenth century written by Sumpa Khenpo Yeshé Penjor (Sum pa mkhan po Ye shes dpal 'byor, 1704–88) and Jampel Dorjé ('Jam dpal rdo rje, dates uncertain)[4]

1 *Gnyan pa'i gnad ni rgyal pos mnga' bskur 'dra*: *Rgyud bzhi* 21/6; Yuthok Yonten Gonpo 2011, 58; Parfionovitch, Gyurme Dorje, and Meyer 1992, 183, no. 37.

2 Yang Ga (2010, 60, 232–33) regards this text as a very important source for the section on wounds in the *Instructional Treatise* (*Man ngag rgyud*; the third part of the *Four Treatises*); it is believed to have been composed or compiled during the Tibetan Empire but the origin of the text is still unclear.

3 E.g., Meyer 1992, 2003; Schaeffer 2003; Kilty 2010; Gyatso 2011, 2015; Sabernig 2012.

4 *Gso dpyad* 130, 131; *Mdzes mtshar mig rgyan*, vol. 1: 304–7, 336–39, 344, 345; *Mdzes mtshar mig rgyan*, vol. 2: 21–23.

remain consistent in their descriptions of the locations of vulnerable parts; instead of revealing further developments in anatomical knowledge, they present what we might call an orthodox view inherited from previous centuries. There are indications that unpublished private paintings within family medical lineages may have provided further anatomical details about these anatomical locations, but this remains speculative. Only in the twentieth century, when Tibetan medical knowledge began to encounter biomedical ideas more intensively, did anatomical terminology begin to transform more overtly.

In recent decades, Tibetan scholars have intensely debated how to identify anatomical structures in classical texts *and* how to name certain biomedical structures precisely in the Tibetan language when traditional vocabulary proves insufficient. Non-Tibetan scholars have engaged in critical discussions about the aims, problems, and possibilities of translating Tibetan medical terminology as well.[5] These scholars use textual and ethnographic examples to illustrate epistemological conflicts and doubts about the challenges of using biomedical terms to gloss Tibetan medical expressions. Does a too-precise translation of a general term veil the original meaning? Does a too-facile biomedical equivalent erase Tibetan medical epistemology and anatomical knowledge?

This article shows how shifts in Tibetan anatomical terminology for 'vulnerable parts' at once reflect and deepen this scholarly debate.[6] First, I provide an inventory of the written sources that describe these vulnerable parts. Next, I discuss challenges of identification and translation of these anatomical terms. In order to set the scene for an examination of historical and contemporary Tibetan *terminologia anatomica*, I then summarize information on these vulnerable parts as represented in medical dictionaries and atlases which include anatomical terms. Finally, I provide examples of several questionable identifications to demonstrate how Tibetan anatomical knowledge has continued to shift, particularly through the creation of modern anatomical words in Tibetan. I have chosen to describe the cases of vulnerable vessels of the neck, the anatomical structure known as *mig dmar* (literally 'red eye'), and parts related to *rmen bu* (which is often connected to the lymphatic system), not only because each is considered important in classical texts but also because they represent three different types of fundamental issues with regard to translation. Located at the neck and in proximal parts of the extremities, these vital locations are

5 Unkrig 1936; Adams 2000; Samuel 2006; Garrett and Adams 2008; Gerke 2011, 2013; Ploberger 2016. For a similar account, but in much more detail, with regard to traditional Chinese medical literature, see Unschuld 1989; Hsu 2008.

6 The research for this article has been supported by the Austrian Science Fund (P 26129-G21).

not only sites for therapeutic intervention but also typical sites of cut and stab injuries suffered by soldiers fighting in close combat.

Vulnerable Parts: Texts, Translation, and Descriptive versus Depicted Anatomical Knowledge

The principal structure of Tibetan anatomy has been described by various scholars and will not be repeated in this article.[7] However, at the outset, it is important to locate my analysis in relation to relevant commentaries on the *Four Treatises*, to explain my choice to translate *gnyan pa gnad* as 'vulnerable parts,' and to discuss the differences between descriptive and depicted anatomical knowledge in relation to the different types of vulnerable parts as found in Tibetan medical texts.

The major commentaries that discuss vulnerable parts are as follows.

1. *Transmission of the Elders*, by Zurkhar Lodrö Gyelpo (Zur mkhar Blo gros rgyal po, 1509–79);[8]
2. *Commentary to the Four Treatises: A Treasure of Benefits for Others*, a text structuring the content with the help of unfolding trees by Losel Wangpo Pema Karpo (Blo gsal dbang po Pad ma dkar po, 1527–92?);[9]
3. *Blue Beryl*, compiled by Sanggyé Gyatso (Sangs rgyas rgya mtsho, 1653–1705);[10]
4. *Unfolded Trees of the Explanatory Treatise*, by Darmo Menrampa Lozang Chödrak (Dar mo sman rams pa Blo bzang chos grags, 1638–1710?);[11]
5. *Commentaries to the Anatomical Chapter of the Explanatory Treatise*, by Tsangmen Yeshé Zangpo (Gtsang sman Ye shes bzang po, 1707–85?);[12] and
6. *Great Commentary to the Four Medical Treatises: Instruction of the Wise*, a modern commentary by Troru Tsenam (Khro ru tshe rnam, 1928–2005).[13]

7 See the sources cited in n. 5 above, plus Gyatso 2015; Sabernig 2016.

8 *Mes po'i zhal lung.*

9 *Rgyud bzhi'i 'grel ba.*

10 *Vaiḍūrya sngon po.*

11 *Sdong 'grems.*

12 *Zhal rgyun.*

13 *Drang srong zhal lung.*

Vulnerable parts are described in various Tibetan medical texts with greater or lesser degrees of detail. They are also translated as 'vulnerable spots'[14] or 'vulnerable points,'[15] but, in my opinion, 'parts'[16] or 'structures' are the most appropriate terms, as their size is indefinite. These anatomical structures are also not like acupuncture points with precise locations or definitions. The anatomical chapter of the *Explanatory Treatise* which describes the vulnerable parts of the body is rather cursory and limited to a listing of vulnerable tissues:[17] 45 'parts of flesh' (*sha gnad*);[18] 8 'parts of fat' (*tshil gnad*); 32 'parts of bones' (*rus pa gnad*); 14 'parts of ligaments and tendons' (*chu rgyus gnad*); and 13 'parts of inner organs' (*don gnad*).[19] In addition, 190 'parts of channels' (*rtsa gnad*), which are also considered vulnerable and should not be damaged, are mentioned.[20] Furthermore, we learn that damage to vulnerable parts of fat, channels, or inner organs endangers life. These vulnerable parts are also classified according to their location: 62 at the head, 32 at the neck or throat, 95 at the upper or lower trunk, and 112 at the extremities.[21] The *Explanatory Treatise* does not provide an exact anatomical location for each vulnerable part or any topographical details of these vulnerable locations.[22]

The nature of the vulnerable channels requires further clarification. Tibetan medicine differentiates four types of 'channels' (*rtsa*): (1) 'growth channels' (*chags pa'i rtsa*), (2) 'channels of existence' (*srid pa'i rtsa*), (3) 'connecting

14 Dash 1994–2001, vol. 2: 49–50.

15 Parfionovitch, Gyurme Dorje, and Meyer 1992, 199.

16 Yuthok Yonten Gonpo 2011, 64.

17 This list comprises one of four subchapters: (1) number of bodily structures, (2) different kinds of channels, (3) vulnerable parts, and (4) pathways; see, e.g., Sabernig 2016, 23; for the image of the Tree of Anatomy, see the front page of the same issue.

18 The term *sha* is sometimes translated as 'muscle,' but I prefer 'flesh' because *sha* includes not only muscle tissue but also surrounding tissues and sometimes even organs.

19 The *Explanatory Treatise* just mentions thirteen *don*, more narrowly defined as solid organs, but the word may be used in a broader sense to stand for both solid and hollow organs. In fact, all commentaries distinguish the vulnerable parts of inner organs into five vulnerable 'parts of solid organs' (*don gnad*) and eight vulnerable 'parts of hollow organs' (*snod gnad*). The thirteen *don* include both solid and hollow.

20 It should be noted that almost all the named structures are counted two times, because of the symmetry of the body. Unpaired structures are counted as one vulnerable part only.

21 See Dash 1994–2001, vol. 2: 49–51; Parfionovitch, Gyurme Dorje, and Meyer 1992, 199–202; Clark 1997, 71–72; Yuthok Yonten Gonpo 2011, 65–66.

22 For the complete section on vulnerable parts of the body in the *Explanatory Treatise*, see *Rgyud bzhi* 2005–8, vol. 1: 37/5–17 and, in the commentaries, *Sdong 'grems* 23/12–28/10; *Rgyud bzhi'i 'grel ba* 229/7–233/2; *Mes po'i zhal lung*, vol. 1: 237/4–247/23; *Vaiḍūrya sngon po*, vol. 1: 175/1–182/5; *Zhal rgyun* 171/8–181/1; *Drang srong zhal lung* 149/3–155/15.

channels' (*'brel ba'i rtsa*), and (4) 'lifetime channels' (*tshe yi rtsa*).[23] With the exception of the connecting channels, these channels are invisible and imperceptible to touch; rather, most of them are considered to be experienced through meditation. For the purposes of my argument about vulnerable parts of the body, I will focus on only the connecting channels,[24] but it is important to note that all of them are macroanatomical structures. It is also important to note that the names of various channels are not mentioned in the anatomical chapter of the *Explanatory Treatise* but are listed in detail in various commentaries.

The 'connecting channels' are divided into 'black life-channels' (*srog rtsa nag po*) and 'white life-channels' (*srog rtsa dkar po*), both of which consist of various subsections.[25] The white life-channels are usually associated with neurovascular tissue and are further divided into different forms of 'tendon channels' (*chu rtsa*).[26] The black life-channels are further classified according to their size and ramification. The most important group of black life-channels consists of 24 'large channels increasing flesh and blood.'[27] These 24 black life-channels are grouped into 8 'hidden channels' (*sbas pa'i rtsa*), which nourish inner organs, and 16 'visible channels' (*mngon pa'i rtsa*), which spread out of the hidden channels to maintain blood supply to the extremities. The 16 visible channels have 77 further branches, which are suitable for bloodletting and are called 'bloodletting channels' (*gtar rtsa*). The bloodletting channels are directly connected with 112 'vital channels' (*gnyan pa'i rtsa gnad*), which should

23 For more details on different 'channels,' see Meyer 1981; Garrett and Adams 2008; Gyatso 2011, 319; 2015, 200–201; Gerke 2013, 83; Ploberger 2016, 35.

24 Historical discussions on the connection between tantric traditions and these 'channels' are elaborately set out in Janet Gyatso's *Being Human in a Buddhist World* (2015, especially 243–44).

25 *Rgyud bzhi* 2005–8, vol. 1: 36/12–37/1.

26 At first glance and from a modern point of view, the expression 'tendon nerve' or 'tendon channel' is a bit peculiar, but both Lodrö Gyelpo and Sanggyé Gyatso connect most of the sixteen major tendons with that type of 'white channel' (*Mes po'i zhal lung*, vol. 1: 226/1–4; *Vaiḍūrya sngon po*, vol. 1: 166/4–169/2). It should be noted that nerves and tendons look similar in dissection, especially if we consider premodern preservation techniques. For a broader discussion of this term, see Gyatso 2015, 203; Sabernig 2016, 26. In ancient Greek medicine, there was no clear distinction between nerves and sinews: νεῦρον (*neúron*) may stand for both structures. Even in biomedical terminology we find this etymology, as the term 'aponeurosis' demonstrates: http://www.etymonline.com/index.php?allowed_in_frame=0&search=nerve.

27 'Large channels increasing flesh and blood' (*sha khrag 'phel byed rtsa chen*); *Rgyud bzhi* 2005–8, vol. 1: 36/13–15; *Sdong 'grems* 19/2–15.

not be damaged.[28] Together, the bloodletting channels and vital channels total 189.[29] From these, smaller sections of connecting channels branch out like a fine network. When the respective structures of the 189 channels are compared with the list of the 190 named channels mentioned in the *Explanatory Treatise* section describing vulnerable parts—which includes both black and white life-channels—we learn that nearly all the bloodletting channels are regarded as vulnerable. However, they are not found on the list of locations associated with extremely severe lesions. One bloodletting location, called 'small peak' (*rtse chung*), caught my attention because it is on the list of locations of moderately significant lesions. Therefore, the location of this part will be discussed below in more detail.

All the commentaries mentioned above provide useful descriptive knowledge about the vulnerable parts. However, apart from vague topographical explanations such as the relation of certain blood vessels to certain vertebrae, the texts do not reveal which part of the body is explicitly meant by a certain term. The first historical record depicting the surface of the human body for the application of moxibustion in the Tibetan language was found among the Dunhuang manuscripts dated to the ninth to eleventh centuries,[30] but it does not give any information on the interior of the body or, specifically, vulnerable parts. The only available premodern Tibetan depictions of inner bodily structures are the seventeenth-century medical *thangka* paintings which were created to illuminate the *Blue Beryl*. Ten of these eighty *thangka* illustrate the anatomical chapter of the *Explanatory Treatise.* Another ten depict the human body, including body proportions, topographical lines that guide the practice of external therapies, minor surgeries, and wound management.[31] These beautiful drawings provide some hints about where to physically locate the structures described in the anatomical texts. We also know that the artist indeed made one of the paintings after a close examination of dead corpses because the anatomical structures are labeled 'as seen' (*bltas pa*).[32] However, in many

28 Note that despite many redundancies the lists of 'bloodletting channels' and 'vital channels' are separate from the list of 'vulnerable channels.'

29 *Rgyud bzhi* 2005–8, vol. 1: 36/15–6; *Sdong 'grems* 19/15–20/5.

30 Pelliot Tibétain 1058; see Pasang Yontan 2014, 67; Parfionovitch, Gyurme Dorje, and Meyer 1992, 10.

31 Parfionovitch, Gyurme Dorje, and Meyer 1992, pls. 6–15, 38–39, 47–50, 70–73; Jampa Trinlé and Wang 1994, pls. 8–17, 40–41, 49–52, 72–75.

32 See *tangka* 49, painted by Tendzin Norbuchen (Bstan 'dzin nor bu can), in Parfionovitch, Gyurme Dorje, and Meyer 1992, 269; Meyer 1992, 6.

other cases, it remains doubtful whether the commissioned painter knew precisely where to depict certain structures on the body.

In the field of nonvisible anatomical structures and complex pathophysiological questions, the skepticism raised by Tibetan and non-Tibetan scholars about the possibility of locating such structures is especially important. In the case of macroanatomical terminology, the situation is different insofar as the examined physical structures can be seen and touched. Yet this does not necessarily mean that the observer is aware of the function of the structure. Dominik Wujastyk, a specialist in the history of the illustration of the body and anatomy in premodern India, has discussed the difficulties of interpreting different views on the body in great detail. He states, "it is possible to find in Āyurvedic literature a more substance-oriented understanding of the body."[33] A similar situation can be observed in Tibetan medicine, as Janet Gyatso has noted on several occasions, most recently in her book *Being Human in a Buddhist World*. She highlights discussions in Tibet in the seventeenth century on "tantric channels" and channels which can be "seen and touched by an instrument."[34] This differentiation between channels that can and cannot be seen—and the physicality or materiality of this distinction—is of particular importance because, on the one hand, many of these structures are identified as 'vulnerable' and, on the other, are listed as locations for venesection, a powerful, invasive procedure. This paradox leads to further questions about how the textual history of vulnerable parts of the body fits with and relates to what we know about Tibetan macroanatomical terms.

Tibetan Anatomical Terminology: An Overview of Sources

There are several sources for the study of Tibetan medical terminology. In this section, I review the Sanskrit sources which influenced Tibetan medical texts and were translated into European languages. Next, I discuss the most important general and medical dictionaries in which anatomical terms appear. Finally, I summarize recently available dictionaries and atlases on modern medicine and anatomy in the Tibetan language.

In this context, the oldest bilingual example of such a directory of terms is the *Mahā-vyutpatti*, a famous dictionary of Buddhist terminology in Sanskrit and Tibetan from the ninth century. This dictionary was translated into

33 Wujastyk 2009, 206.

34 Gyatso 2011; 2015, 209–49.

English by the founder of Tibetology, Alexander Csoma de Koros (1784–1842).[35] However, apart from a short list of lesions and contagious diseases,[36] 'sensory organs,'[37] and some medicinal substances,[38] the medical vocabulary included in this work is almost nonexistent. In addition to the *Mahā-vyutpatti*, two important medical works in Sanskrit should be mentioned: the *Suśruta-saṃhitā*, a text on ancient Āyurvedic surgery, and the *Aṣṭāṅga-hṛdaya-saṃhitā*, the seventh-century treatise written for general practitioners by Vāgbhaṭa. The latter text is regarded as an important source of material that was codified in the Tibetan-language *Four Treatises.*

Despite the accepted connections between the *Aṣṭāṅga-hṛdaya-saṃhitā* and the *Four Treatises*, there is no evidence that the section on 'vulnerable parts' in the Tibetan work was directly derived from Sanskrit. The present-day Tibetan physician-scholar Yang Ga, who meticulously examined the sources of the *Four Treatises*, could not find any corresponding passages in either the "pre-*Aṣṭāṅga* medical works" or the *Aṣṭāṅga-hṛdaya-saṃhitā* itself.[39] However, the earlier *Suśruta-saṃhitā* contains a section on the human body (*śārira-sthāna*), including a detailed enumeration of body parts and 'vital spots' (*marman*),[40] which shows striking structural and numerical similarities to the embryological and anatomical chapter of the *Explanatory Treatise*. Yet beyond the approach to counting, describing, and classifying the tissues in the *Suśruta-saṃhitā*, the text remains quite different from the respective passages in the *Four Treatises* and its commentaries.

Vāgbhaṭa's *Aṣṭāṅga-hṛdaya-saṃhitā* was translated into Tibetan, revised, and edited by Jārandhana and Rinchen Zangpo (Rin chen bzang po, 958–1055) at the very beginning of the second millennium.[41] Its modern reception is connected with the names of Luise Hilgenberg and Willibald Kirfel, who translated the Sanskrit text into German in 1941.[42] The first five chapters of the Sanskrit text and its Tibetan version were carefully edited and translated into English by Claus Vogel in 1965. This marks an outstanding achievement, as Vogel not only presented a brilliant study on medical vocabulary but also convincingly established the interdependency of the different canonical editions of the Tengyur

35 Csoma de Koros (1910) 1980. His Hungarian name is Sándor Kőrösi Csoma.
36 Ibid., 58–59.
37 Ibid., 111ff.
38 Ibid., 196ff.
39 Yang Ga 2010, 159.
40 Sharma 2000, 184–99.
41 Vogel 1965, 19–21; Yang Ga 2010, 78–79.
42 Hilgenberg and Kirfel 1941.

(*bstan 'gyur*) and Tibetan commentaries on the Buddhist sutras.[43] Although the *Aṣṭāṅga-hṛdaya-saṃhitā* remains a milestone text in relation to the history of Tibetan medicine, there is only limited evidence for a direct influence from Sanskrit to Tibetan with respect to the vulnerable parts of the body.[44]

Tibetan and Sanskrit medical terminology was also examined in current times by Bhagwan Dash in his *Encyclopaedia of Tibetan Medicine: Being the Tibetan Text of Rgyud bzhi and Sanskrit Restoration of Amṛta Hṛdaya Aṣṭāṅga Guhyopadeśa Tantra and Expository Translation in English.*[45] Dash made the assumption, not uncommon in the 1990s, that the *Four Treatises* was a translation of a lost Sanskrit original, which he tried to restore. Although the attempt may now provoke skepticism, his work is still interesting because it provides noteworthy English renderings of Tibetan and Sanskrit medical terms. Generally speaking, the Āyurvedic medical terminology seems to be better studied than the Tibetan vocabulary; it is at least more accessible in English. Comprehensive works such as the *Encyclopedic Dictionary of Ayurveda* by Kanjiv Lochan and Parameswarappa S. Byadgi do not have equivalents within Tibetan studies.[46]

Furthermore, Tibetan-language dictionaries are often of limited use for medical purposes. This is true for the oldest Tibetan dictionary in a Western language, *Alphabetum Tibetanum*, compiled by the Italian missionary Antonio Agostino Giorgi in the eighteenth century.[47] The still widely used dictionary of Heinrich August Jäschke,[48] first published in the late nineteenth century, provides limited, but often surprisingly detailed, information on medical matters. The dictionary composed by Sarat Chandra Das, which was originally published in 1902 (republished in 1989), is largely based on Jäschke's book, adds a fair number of Sanskrit words to our anatomical knowledge base, but does not yield additional information on medical terms.[49]

Lexical achievements for Tibetan anatomical terminology by Russian scholars are less well known but worthy of mention. At the beginning of the twentieth century the Buryat scholar and physician Endonov (1870–1937?) prepared some educational manuscripts for his students at Atsagat Monastery,

43 Vogel 1965.

44 The Sanskrit text seems to have influenced the chapters on the treatment of wounds placed into the *Instructional Treatise*. See Yang Ga 2010, 76, 159, 232. For some information on bloodletting and vulnerable parts, see Hilgenberg and Kirfel 1941, 139–44, 189–96.

45 Dash 1994–2001.

46 Lochan and Byadgi 2011.

47 Giorgi (1762/63) 1987. The Latinized name is Augustinus Antonius Georgius.

48 Jäschke (1881) 2003.

49 Das (1902) 1989.

including a Russian-Mongolian list of medical and anatomical terms. He also commissioned a set of medical paintings which are similar to the *thangka* illustrations to the seventeenth-century *Blue Beryl* and labeled in both Mongolian and Tibetan. Many of these paintings depict details of the human body. Some of these paintings also present modern anatomical understanding, but they remain unpublished.

At the height of Stalin's purges Endonov's attempt to "modernize" Tibetan medicine abruptly came to an end, although much of his work survived in Russian archives.[50] In subsequent years, Yuri Nikolayovitch Roerich (1902–60) compiled materials from various Tibetan-Mongolian dictionaries, including Sanskrit parallels, on the basis of the dictionary of Sarat Chandra Das. The manuscript included 65,000 words and expressions and filled 5,156 handwritten pages. It was completed in 1933, but owing to the worsening political situation, it could not be published. When Roerich returned to the Soviet Union in 1957, he considered adding new terms from Tibetan dictionaries that had been published in China in the 1950s, which also included some modern medical terminology. His premature death marked an end to his efforts, but in the 1980s a group of Russian and Buryat scholars edited Roerich's manuscript and published it in eleven volumes with Russian translations.[51]

In China, book production was almost suspended during the Cultural Revolution. In the Reform and Opening Up era, Tibetan medicine tentatively began to be revitalized, including efforts to create medical dictionaries. The work of Wangdü (Dbang 'dus) stands out in this regard.[52] However, most other books on medicine published during this period focused more on public-health questions such as hygiene, dentistry, or female disorders.[53] At about the same time, in the mid-1980s, the Tibetan-Tibetan-Chinese dictionary *Bod rgya tshig mdzod chen mo*[54] was compiled and published. A cross between a dictionary and an encyclopedia, it offers clear definitions in various subjects and is meant to be normative, especially with regard to orthography. And yet this normative and somewhat deterministic approach resulted in a reduction in the original meaning of traditional anatomical terms, at least in some cases.

50 For more details on Endonov and his work, see Bolsokhoeva 2016.

51 Roerich 1983–93; cf. Roerich 1983, vol. 1: 14–17.

52 Dbang 'dus 1983.

53 Balk 2016, 90.

54 Zhang 1985. The dictionary has Tibetan key terms and Tibetan as well as Chinese explanations.

The 1990s saw an increase in the number of books on Tibetan medicine and in efforts to introduce biomedical terminology into the Tibetan language.[55]

It is important to note that the theory, practice, and teaching of Tibetan medicine changed drastically in the twentieth century. This is true not only within Tibetan areas of the People's Republic of China but also for Tibetan medicine as it is studied and practiced in countries such as India, Nepal, Bhutan, Mongolia, and Russia. A good deal of these changes can be described as a complicated encounter between Tibetan medical and biomedical epistemology, set within a larger context of radical political and economic transformation as well as quests for the retention of identity. These dynamics have been thoroughly studied by medical anthropologists and need not be reproduced here.[56] But they have certainly shaped the field of Tibetan anatomy and medical terminology. General Tibetan-English dictionaries such as those mentioned above, as well as other recent publications,[57] usually fail to explain advanced anatomical terminology; sometimes explanations are even incorrect or misleading in the medical sense. As one contemporary example, the digital Tibetan and Himalayan Library[58] provides many useful services, but specific and modern medical terms are covered rather marginally in this online resource.

A *Tibetan-English Dictionary of Tibetan Medicine and Astrology* was published in India by Tsering Thakchö Drungtso (Tshe ring thag gcod drung 'tsho) and Tsering Dolma Drungtso (Tshe ring sgrol ma drung 'tsho).[59] This text is helpful for understanding traditional terms but not complete in its vocabulary. A French-Tibetan dictionary[60] was compiled through a project of the French Academy of Sciences with the purpose of translating anatomical and functional terms into Tibetan. Its approach was very promising, but the project may have been ahead of its time. It was not until the following decade that a number of Tibetan dictionaries and illustrated atlases that include modern anatomical and other biomedical terminology were published in China.[61]

55 E.g., Bsam gtan 1997.

56 E.g., Janes 1995, 2001; Adams 2000; Adams and Li 2008; Adams, Schrempf, and Craig 2011; Hofer 2008a, 2008b, 2011; Kloos 2008, 2011.

57 E.g., Jäschke (1881) 2003; Das (1902) 1989; Tashi Tsering 1997; Goldstein, Shelling, and Surkhang 2001; Roerich 1983–93.

58 See http://dictionary.thlib.org/

59 Tshe ring thag gcod drung 'tsho and Tshe ring sgrol ma drung 'tsho 2005.

60 Blondeau, Ngawang Dakpa, and Meyer 2002.

61 The second volume of the French Academy of Sciences project (Blondeau et al. 2014) was published as *L'homme: Fonctions sensorielles et langage*.

These new texts produced in China are characterized by increasing scientific accuracy, from a biomedical perspective, and a simultaneous effort to retain the nuances of the Tibetan language. In particular, the anatomical atlases *Rgya bod shan sbyar tshon khra can gyi ro bkra'i dpe ris mthong ba don gsal* by Nyima Tsering (Nyi ma tshe ring) and Mikmar (Mig dmar),[62] on the one hand, and *Gso ba rig pa'i ro bkra'i dpe ris kun gsal me long* by Pema Rapten (Pad ma rab brtan) and Sanggyé Bum (Sangs rgyas 'bum),[63] on the other, present carefully chosen wording for so far unknown "modern" anatomical structures. The publication *Gso rig rgyud bzhi'i dka' gnad thor bu la dpyad pa'i gtam brgyad cu rtsa bzhi ba dang lus kyi gnas lugs grub cha'i dpe ris* by Tingdzin (Ting 'dzin) is particularly interesting because his techniques for stabilization of joints and his anatomical depictions are colorful as well as charming in style—sometimes even humorous.[64] His approach in this text considers both classical Tibetan and biomedical knowledge, with a tendency to conflate them into a coherent system.[65] A completely different approach is demonstrated by the anatomical atlas *Gso bya lus kyi tha snyad mdzod* edited by Khedrup (Mkhas grub)[66] in Sichuan. This Tibetan-Chinese atlas is accompanied by abstract illustrations and X-ray or CT images as well as plastinated specimens and was created with the help of photo-edited preparations made from dissection of human adults and children. Aside from the ethical questions that this project raises regarding the acquisition of human material, the "ultrarealistic" form of depiction might be disquieting or distracting for viewers who are not accustomed to observing these kinds of images. In addition to these texts, several other contemporary dictionaries on Tibetan medicine have been published in recent years, including the *Bod lugs gso rig tshig mdzod chen mo*, which features a series of modern anatomical demonstrations.[67] The *Bod kyi gso rig tshig mdzod rab gsal me long* and the *Gso rig tshig mdzod yongs 'du'i dga' tshal*[68] are other such examples.

A culminating highlight of this trend in Tibetan anatomical scholarship is the Chinese-Tibetan-English trilingual dictionary of modern medicine,[69] which was accomplished by a team of Tibetan scholars from different institu-

62 Nyi ma tshe ring and Mig dmar 2012.

63 Pad ma rab brtan and Sangs rgyas 'bum 2011.

64 For the special characteristics of Tibetan medical paintings, see Gyatso 2009, 11–12; 2015, 25–62.

65 Ting 'dzin 2007.

66 Mkhas grub 2011.

67 Bod rang skyong ljongs sman rtsis khang 2006.

68 Le 'dod mos 2009; Bdud 'dul dbang phyug 2008.

69 'O tshang tshogs chen and Klu byams rgyal 2011.

tions, hospitals, and universities. This prestigious project was meant to set a standard for future developments, as various Chinese and Western-language biomedical dictionaries were consulted. In the foreword to this volume, readers are also informed that terms difficult to define were discussed thoroughly in numerous meetings of experts.[70] Unfortunately, it is useful only for readers of Chinese who are also educated in biomedicine; it lacks an index of the respective Tibetan and English terms. An index of international medical nomenclature for this otherwise-groundbreaking work would be highly appreciated.

In recent years, an enormous amount of work has been done by the community of scholars engaged in Tibetan medicine and researchers in the field of biomedicine as it intersects with Tibetan studies. This vivid and ongoing development shows some interesting dynamics. In the scope of my project on the anatomical findings of the seventeenth-century surgeon and physician Lozang Chödrak, for example, I created a database to record and evaluate different interpretations of certain anatomical terms as found in literature on Tibetan medicine.[71] This database is available online and is intended to provide a sound basis for the analysis of critical terms, although it should be noted that many mistakes have crept in to translations and have been passed on to subsequent dictionaries. The majority of parallel efforts in medical terminology so far have focused more on the vast field of Tibetan materia medica and its range of possible scientific identifications, but my database increasingly includes anatomical terms.[72]

I have endeavored in this database to focus on vulnerable parts of the body and suggestions for their translation, according to various publications. However, to return to the definitions, descriptions, and analysis of vulnerable parts at the core of this article, it turns out that in some cases, these anatomical structures are named in the same way they were written in classical texts, but that in other cases, names are either rendered more precisely or completely new words have been created. There seems to be a general tendency to shift from what a non-Tibetan-language approach might classify as metaphorical

70 Ibid., 7–9.

71 Technical support for this project is provided by the State Library in Berlin.

72 The database is integrated into a portal called CrossAsia otherwise mainly specializing in East Asia and represents one of the services of the Berlin State Library. It is freely accessible at https://crossasia.org/en/service/crossasia-lab/tibetische-medizin-termini/. It takes into account 30 different sources and includes 385 pharmacological key terms subdivided into further specifying subterms identified by 4,314 scientific biological suggestions. More than 200 Tibetan anatomical key terms and around 400 subterms are specified by 800 scientific anatomical names.

names toward more topographical designations. In other words, we can trace a shift from a visual comparison of an anatomical structure with something similar toward a name indicating concrete spatial relations to specific body parts. I now turn to an examination of three cases—all vulnerable parts of what biomedicine understands as the circulatory system—to demonstrate this tendency.

Shifting Terminology, Example 1: Vulnerable Vessels in the Neck Region

I would like to begin with two vulnerable vessels in the neck region. The Tibetan names for these vessels have not changed over time: they can be found in classical commentaries and modern anatomical atlases. The first term, 'to fall asleep' (*gnyid log*), refers to a vulnerable 'channel' in the neck. This is one of the sixteen visible out of 'twenty-four large channels increasing flesh and blood' within the group of 'connecting channels' mentioned in the anatomical chapter of the *Explanatory Treatise*. Modern Tibetan medical literature identifies this bodily structure without exception as the carotid artery.[73] Two publications formulate the name a bit more precisely by emphasizing the size of the 'big channel of the name to fall asleep' (*gnyid log ces pa'i rtsa chen*)[74] or by indicating that 'to fall asleep' is a 'pulsating channel' (*gnyid log 'phar rtsa*).[75] In the section on wound care of the *Instructional Treatise* and in the illustrations to the *Blue Beryl*, the structure 'to fall asleep' is specified by the name 'heart channel' (*snying rtsa*).[76] This does not necessarily indicate a connection to the anatomical organ of the heart, but rather marks it as an 'essential' or 'core' channel. Despite these points of clarification, the literal meaning of the term 'to fall asleep' raises questions about its origin, as the etymology of the biomedical term is similar. The carotid artery is the most important blood vessel supplying the cerebral perfusion. Its name is of ancient Greek origin (καρωτίς) and is commonly believed to imply that someone will 'plunge into sleep or

73 *Arteria carotis communis*. See Bod rang skyong ljongs sman rtsis khang 2006, pls. 38–39; Parfionovitch, Gyurme Dorje, and Meyer 1992, 199, no. 28; Bsam gtan 1997, 28–29; Tshe ring thag gcod drung 'tsho and Tshe ring sgrol ma drung 'tsho 2005, 159; Pad ma rab brtan and Sangs rgyas 'bum 2011, 169.

74 Ting 'dzin 2007, foldout p. 36.

75 Nyi ma tshe ring and Mig dmar 2012, 118.

76 *Snying rtsa gnyid log*: Parfionovitch, Gyurme Dorje, and Meyer 1992, 265 no. 30; *Rgyud bzhi* 1992, 430/7.

stupor' when the artery is compressed.[77] Is 'to fall asleep' an early example of a loan translation? It is not within the scope of this project to examine a connection between ancient Greek and Tibetan anatomical knowledge, but further research would certainly be worthwhile.[78]

The second term considered here is another important vulnerable channel or blood vessel located in the neck. The vessel is called the 'small peak' (*rtse chung*) and is often translated as 'small extremities';[79] it is associated with branches of the jugular veins in the *Four Treatises* as well as in the *Blue Beryl*.[80] According to Lozang Chödrak, as well as the *Blue Beryl*, the 'small peak' is classified as a location for venesection and a moderately endangered vulnerable part of the neck.[81] The seeming incompatibility of being both a vulnerable part and a site for venesection caught my attention and seemed worth examining with regard to the patient's safety.[82]

In modern anatomy, the jugular venous system consists of internal, external, and anterior vessels, which communicate with each other and gather the blood of blood vessels coming from the head. This venous system is also important

77 http://www.etymonline.com under 'karotis.'

78 Some interesting aspects with regard to different perspectives of body perception between ancient Greek and Asian medicine have been discussed by Shigehisa Kuriyama (1999, 2007), but textual connections between Tibetan and ancient Greek anatomical details are still missing. General historical connections between ancient Greek and Tibetan medicine have been discussed by Christopher Beckwith (1979) and Dan Martin (2011).

79 Parfionovitch, Gyurme Dorje, and Meyer 1992, e.g., 199, no. 25; 311, no. 11; Tshe ring thag gcod drung 'tsho and Tshe ring sgrol ma drung 'tsho 2005, 368; Ploberger 2016, 36. The translation of *rtse* as 'extremity' is correct in the original sense of the word: farthest limit, point, or part of something (http://www.merriam-webster.com/dictionary/extremities). However, it is somehow misleading since most people associate the term with arms or legs; therefore, 'small peak' is also appropriate.

80 Mainly *V. jugularis externa*; see Jäschke (1881) 2003, 440; Bsam gtan 1997, pl. 28; Pad ma rab brtan and Sangs rgyas 'bum 2011, 161; Nyi ma tshe ring and Mig dmar 2012, 119; Ploberger 2016, 36; Yuthok Yonten Gonpo 2011, 229. In the German version of the Men-Tsee-Khang edition, the structure is named less precisely or normatively as "*Kopf- und Halsvenen*" (Ploberger 2012, 302), and the dictionary of Tshe ring thag gcod drung 'tsho and Tshe ring sgrol ma drung 'tsho (2005, 368) identifies the *rtse chung* as a small branch of the same vessel, where venesection would be less harmful.

81 *Sdong 'grems* 19/19, 28/4; *Vaiḍūrya sngon po*, vol. 1: 159/5.

82 Venesection, also called phlebotomy, is a form of bloodletting in which a blood vessel is opened with a small scalpel, whereas bloodletting means any procedure that withdraws blood with tools such as scalpels, lancets, or needles for therapeutic purposes. Venesection should not be confused with vivisection, which signifies the dissection of living beings in contrast to postmortem autopsy.

in postsurgical care for the application of a central venous catheter used for blood taking or to infuse medicines. Such an intervention must be performed expertly because dreaded complications can arise in this location, including venous thrombosis, embolism, and infections. One may say that, in biomedical practice, the jugular vein is considered to be extremely vulnerable, and in both biomedical and Tibetan medical systems, it is a location for therapeutic intervention. However, in my opinion (speaking now also as a biomedical doctor) the jugular vein is anything but a safe location for venesection in a nonsterile environment. Nevertheless, contrary to my skepticism, a recent Tibetan medical text showing locations for moderately applied venesection includes one of the jugular veins—precisely labeled as 'small peak' (*rtse chung*)—as a location suitable for bloodletting after congesting this vein.[83] I would also like to mention here that bloodletting of the *jugular veins* was also applied in Europe as can be seen from a set of bloodletting tools exposed in a permanent exhibition in the Viennese Josephinum. One reason for the popularity of this location in both Europe and Tibet might be the fact that the congested blood in this region is especially dark. This may also explain why the internal jugular vein is called 'black peak' (*rtse nag*) in Tibet.

Apart from doubts of what may or may not be a safe treatment, the question remains whether 'small peak' has always been associated with the jugular area historically. Melvyn Goldstein's dictionary of modern Tibetan provides interesting information in this regard, because 'small peak' is rendered as the 'back of the neck.'[84] This suggests that the area around the *vertebra prominens* could be indicated by this term. This location on the back of the neck is a very common (and safe) place for moxibustion, as I have documented during field research.[85] Bloodletting in combination with cupping at the back of the neck, specifically near the *vertebra prominens*, is something I have also seen and photographed in Mongolia. However, I have never found a traditional painting where the seventh cervical vertebra—a 'prominent peak'—is named 'small peak.'

Whatever the true location of this part, a further complication arises when considering a structure called 'small tongue' (*lce chung*). This is the regular term for 'uvula' and is clearly a metaphoric expression.[86] The chapter on surgi-

83 Gyelwa 2012, 3, 47.

84 Goldstein, Shelling, and Surkhang 2001, 862.

85 Sabernig 2007, 101–2 (the photo showing the procedure was also selected as the book cover).

86 *Lce chung* is unanimously defined as "uvula" in the dictionaries: Goldstein, Shelling, and Surkhang 2001, 347; Jäschke (1881) 2003, 150; Roerich 1983–93, vol. 3: 56.

cal instruments in the *Explanatory Treatise* mentions a tool to cauterize the 'small peak.' Most translations take this to mean the uvula in this context.[87] Anatomically there is a connection between the uvula and the jugular vein since venous drainage from the uvula leads to the *vena jugularis interna*. But a closer look at the commentaries makes it more likely that, in the context of cauterization, 'small peak' is simply a printing error in the 1992 Lhasa edition of the *Four Treatises*. A block print from Peking held at the State Library in Berlin, Germany, reads 'small tongue' in this location.[88] In the critical edition of the *Four Treatises*, which came to my attention later, we find no variant, and the Dharamsala edition of the *Four Treatises*, published by the Men-Tsee-Khang in 2011, has also corrected this mistake.[89]

In summary, the term 'small peak' may well be understood as the external jugular vein (*vena jugularis externa*), which definitely is a vulnerable part. It is not a likely location for cauterization but may be venesected. There is no indication in the texts under study that 'small peak' denotes the seventh cervical vertebra (*vertebra prominens*) in spite of the fact that, following the hint from Goldstein's dictionary, this vertebra is a well-documented place for cauterization and is a location for bloodletting as well. The term 'small tongue,' though sometimes confused with 'small peak,' seems to be unambiguous as an equivalent for 'uvula,' which itself is probably not a vulnerable part but a possible location for both cauterization and bloodletting. Hence, I conclude that 'small peak' is a vulnerable part.

When it comes to the possible locations for bloodletting, of which seventy-seven are detailed in the commentaries, we cannot be too sure where the bloodletting should occur. Pema Karpo, Lozang Chödrak, and Yeshé Zangpo mention 'small peak' as a location for bloodletting,[90] but Lodrö Gyelpo and Troru Tsenam name it 'small tongue,'[91] as described above. Troru Tsenam, a modern author, was certainly aware of the difference between the two terms: in the section of locations of moderately significant vulnerable lesions he writes 'small peak.'[92] However, there may be some philological uncertainty

87 Clark 1997, 256; Parfionovitch, Gyurme Dorje, and Meyer 1996, 83, 239; Yuthok Yonten Gonpo 2011, 233.

88 *Rgyud bzhi* 1966, vol. 2: 36v/2 (cataloged in Taube 1966, no. 2703). See also *Vaiḍūrya sngon po*, Vol. 1: 561/3; *Rgyud bzhi* 1992, 80/3.

89 *Rgyud bzhi* 2005–8, vol. 1: 115/7; Yuthok Yonten Gonpo 2011, 233.

90 *Rgyud bzhi'i 'grel ba* (*rtse'u chung*) 227/9; *Vaiḍūrya sngon po*, vol. 1: 159/5; *Sdong 'grems* 19/19; *Zhal rgyun* 164/7.

91 *Mes po'i zhal lung*, vol. 1: 221/21; *Drang srong zhal lung* 143/3.

92 *Drang srong zhal lung* 155/5.

with regard to texts that date to previous centuries; this seems to be the case with 'small peak' versus 'small tongue' as locations for bloodletting. Therefore, doctors should be cautious in applying therapeutic measures based on classical texts.

Shifting Terminology, Example 2: The 'Red Eye'

Another good example of the shift in designations for anatomical terminology is the Tibetan term 'red eye' (*mig dmar*) mentioned in different classical commentaries to the *Four Treatises*.[93] Like the 'to fall asleep channel,' it is one of the sixteen visible 'large channels increasing flesh and blood.'[94] One specific meaning of 'red eye' is the planet Mars; it also means 'Tuesday' and can be a name of a person.[95] Because 'eye' (*mig*) can also be translated as 'hole,' 'red eye' would exactly describe what can be seen when looking at the red lumen of a blood vessel: it is a red hole.[96]

The *Blue Beryl* illustrations depict 'red eye' as a particular blood vessel located in the inguinal (groin) region. In biomedical translation, it is generally considered to be the femoral artery.[97] In some depictions of the *Blue Beryl thangka* paintings[98] the same structure is shown, with the femoral artery given a more precise name: *snying rtsa mig dmar*, literally "heart channel red eye." The term *mig dmar* can be found in classical as well as in modern publications.[99] As for *snying rtsa*, the fact that the channel is definitely located at the groin makes it very clear that this term should not be understood as coronary vessel but rather as 'core channel,' a description underscoring its importance in the body. Damage to a blood vessel like 'red eye' caused by a fight or an accident is characterized by high blood loss which is difficult to manage no matter whether the blood vessel is a vein or an artery. Tibetan physicians would then be involved in a serious struggle for the survival of the wounded person.

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93 The following remarks on the term *mig dmar* are based on a paper given in Xining at the Establishing Meeting for the Tibetan Medicine Committee of the World Federation of Traditional Chinese Medicines organized by Renchen Dondrup; see Sabernig 2015, 678.

94 *Rgyud bzhi* 1992, 22/16–17; *Sdong 'grems* 19/2–15.

95 Cf. French *mardi*, which via *marsdi* goes back to Latin *martis dies* (Dauzat 1971, 445).

96 In another medical context *mig dmar* also appears as a designation of conjunctivitis (a pathology of the eye) and of a blood vessel of the eye. Jäschke (1881) 2003, 414; Tshe ring thag gcod drung 'tsho and Tshe ring sgrol ma drung 'tsho 2005, 332.

97 Parfionovitch, Gyurme Dorje, and Meyer 1992, pl. 9: no. 61, pl. 14: no. 77.

98 Ibid., pl. 38: no. 95, pl. 47: no. 53.

99 Bod rang skyong ljongs sman rtsis khang 2006, pl. 38; Bsam gtan 1997, pl. 28.

Anatomical works published during the last decade seem to discard the traditional designation 'red eye.' They treat it as a rather metaphorical description and prefer instead synonyms which come closer to the Latin meaning of *arteria femoralis*, the 'artery of the thighbone (*femur*).' Terms now favored in modern Tibetan appear to be more topographical: namely, 'femoral pulsating channel' as it is named by Pema Rapten and Sanggyé Bum,[100] or 'connecting channel at the thighbone' as Tingdzin has it.[101] The anatomical atlas published in Lhasa and edited by Nyima Tsering and Mikmar refers to both, *arteria et vena femoralis*.[102] Although it seems quite clear that the 'red eye' corresponds to one of the femoral blood vessels, the term does not seem to have been fully adopted into modern Tibetan anatomical vocabulary—presumably because of the uncertainty about whether it is an artery or a vein.

This shift from a metaphorical to a topographical designation may also be connected with the question whether the distinction between the femoral artery and a vein was made in classical Tibetan texts. From a biomedical point of view, it is in fact unclear what early Tibetan anatomists actually saw when they called the structure 'red eye.' The femoral artery is the largest artery in the extremities. It has a wide lumen. Nevertheless, during the dissection of a corpse in a horizontal position, the artery will be empty of blood because of its strong vascular muscular tissue; most of the blood remains in the venous system. Given this, the femoral artery would indeed look like a 'red eye' with a 'white sclera' in the form of a strong vascular wall and a small 'red iris' in the form of the lumen as a small red hole. The femoral vein at the groin already incorporates blood from the superficially running *vena saphena magna*. It contains huge amounts of blood, showing a wide, completely dark-red lumen with a much thinner vascular wall.

The Buryat lama and scholar Endonov mentioned above had access to modern anatomical paintings and raised the question: is 'red eye' a vein or an artery? In one of his unpublished anatomical paintings from Atsagat Monastery,[103] to which I had access, a distinction is made between blue veins and red arteries. Endonov marked the blue femoral vein at the groin with a red spot and asked himself whether 'red eye'—also described as 'point of the pulsating artery'—is actually located there.[104] Obviously, Endonov was unsure about the

100 *Brla'i 'phar rtsa*: Pad ma rab brtan and Sangs rgyas 'bum 2011, 242–43.

101 *Brla rkang la 'brel rtsa*: Ting 'dzin 2007, foldout p. 36.

102 *Brla rkang 'phar rtsa dang khrag rtsa*: Nyi ma tshe ring and Mig dmar 2012, 206–7; see also Sabernig 2015, 679.

103 For more on these paintings, see Shaglakhaev and Bolsokhoeva 2010; Bolsokhoeva 2016.

104 *'Phar rtsa'i gnad mig dmar zhes de na yod dam.*

nature of 'red eye' but tended to identify it as a vein in spite of referring to it as an artery. I share his doubts. We should therefore not indiscriminately understand 'red eye' as the 'femoral artery,' as it could perhaps also be the 'femoral vein'—depending on the context.

Shifting Terminology, Example 3: *Rmen bu* and the Vulnerable Lymphatic System

Tibetan physicians have had to deal not only with lesions leading to great blood loss but also with pus (*rnag*) and the so-called 'yellow liquid' (*chu ser*), often translated as lymphatic or serous fluid,[105] of normal or morbid character.[106] *Chu ser* is explained as the 'leftover of the blood' (*khrag gi snyigs ma*),[107] therefore something similar to blood plasma or lymph, but we should be careful with such a gloss to a specific biomedical term.[108] Classical Tibetan medicine provides detailed information on disorders connected with such bodily fluids. The description of the 'lymphatic system' and the location of respective nodes provide interesting examples of changes to Tibetan medical knowledge and terminology.

The *Explanatory Treatise* mentions the existence of 'eight vulnerable parts of fat' (*tshil gnad brgyad*).[109] Lozang Chödrak as well as the other commentaries and tentatively the *Biji's Yellow-edged Volume* (*Bi ci'i pu ti kha ser*) specify these parts and name four pairs of vulnerable 'fat' locations.[110] There are some minor differences in the exact wording but each of these sources indicates a clear connection to lymphoid tissue or 'glands' (*rmen bu*). The vulnerable parts at the back of the body are depicted on *thangka* number 15 of the *Blue Beryl* illustrations from Ulan-Ude, Buryatia. On the basis of the translations found

105 Tshe ring thag gcod drung 'tsho and Tshe ring sgrol ma drung 'tsho 2005, 134.

106 Although Jäschke defines *rnag* as pus (Jäschke [1881] 2003, 312) he also associates *chu ser* with "serum, whether of normal or morbid character" as well as pus (Jäschke [1881] 2003, 158).

107 Zhang 1985.

108 Plasma is defined as blood without its corpuscular components; serum is plasma without clotting factors but contains immunoglobulins, proteins, and bilirubin, which is responsible for its yellow color. Lymph is similar to plasma but contains white blood cells. A clear distinction between these fluids is possible only with modern laboratory techniques.

109 *Rgyud bzhi* 2005–8, vol. 1: 37/9.

110 The *Bi ci'i pu ti kha ser* mentions these parts in the category of 'vulnerable parts of "glands"' (*rmen bu'i gnad*), using *'go* instead of *mgo* in the terms that follow (2005, 75). All four types are described in the section on the treatment of wounds of the extremities.

in Parfionovitch, Gyurme Dorje, and Meyer their designations are:[111] (1) 'blue head adipose glands' (*rmen bu mgo sngon*) at the shoulder blade, (2) 'brown [axillary] adipose glands' (*rmen bu smug po*) near the armpit, (3) 'snake's head [crural] adipose glands' (*rmen bu sbrul mgo*) at the thigh, and (4) 'white [crural] adipose glands' (*rmen bu dkar po*) at the hollow of the knee.[112]

Such depictions of these structures at the posterior side of the body lead us to ask whether the painter actually knew the location of the anatomical structures he painted. Lymph nodes usually become visible or palpable only when they are infected or otherwise agitated, such as through lymph node metastases. Thus, it must have been difficult for a Tibetan anatomist or painter who did not practice dissection to distinguish fat from lymph nodes. However, the knowledge of the existence of these structures, as shown in the *thangka* paintings, can be assumed to be relatively old, as they are mentioned in the earlier text, *Biji's Yellow-edged Volume*. However, they were not included in the *Suśruta-saṃhitā*. In this text, the corresponding section on 'vital spots' (*marman*) explicitly states that no vital spots exist other than muscular, vascular, ligamental, bony, and the vital spots of the joints.[113] The source for the Tibetan 'vulnerable parts of fat' is probably not to be sought in India.

In the medical dictionaries and atlases, the meaning of the term *rmen bu* is given either as 'lymph nodes,'[114] or as something attributed to the endocrine system ('goiter' or 'gland').[115] Interestingly, the association of a lymph node with a gland can also be observed in the European history of medicine, as the obsolete expression 'lymphatic gland' indicates. Modern Tibetan anatomies name the various structures of the lymphatic system more precisely. 'Lymph nodes' (*rmen mdud*) are specified with *mdud* to indicate that they are regarded

111 Parfionovitch, Gyurme Dorje, and Meyer 1992, 201, nos. 33, 38, 57, 60.

112 *Sdong 'grems* 24/10–14; *Mes po'i zhal lung*, vol. 1: 241/22–243/2; *Vaiḍūrya sngon po*, Vol. 1: 176/5–177/1; *Zhal rgyun* 172/21–173/3; *Drang srong zhal lung* 151/2–7. Pema Karpo (*Rgyud bzhi'i 'grel ba* 230/1–3) repeatedly has *smin bu*, which has been corrected to *rmen bu* by the editors. Only Lozang Chödrak wrote *sbrul mgo gdengs pa*. With the exception of the *Blue Beryl*, all other authors just mention *sbrul mgo.* In the illustrations to the *Blue Beryl*, the structure is named *rmen bu sbrul mgo* (Parfionovitch, Gyurme Dorje, and Meyer 1992, 201).

113 Sharma 2000, 184.

114 Goldstein, Shelling, and Surkhang 2001, 835; Tshe ring thag gcod drung 'tsho and Tshe ring sgrol ma drung 'tsho 2005, 344.

115 *Rmen bu'i rnam bzhag*: Tshe ring thag gcod drung 'tsho and Tshe ring sgrol ma drung 'tsho 2005, 345. Goiter: Roerich 1983–93, vol. 7: 138. *Rmen pa*: 'gland,' 'swelling of the glands'; Jäschke (1881) 2003, 425.

as nodes; 'lymphatic vessels' (*rmen sbug*) are termed as a 'conduit' (*sbu gu*).[116] Nevertheless, the designations of various glands still contain the term *rmen*, for example, thyroid gland (*ol rmen*) and suprarenal glands (*mkhal steng gsher rmen*).[117]

Tibetan medical publications after the Cultural Revolution tried to identify classical structures anatomically. As an example, the illustrations contained in the books by Wangdü, Samten (Bsam gtan), and Tingdzin express the location of these important lymphoid tissues in modern anatomical terms: we may take the names given in the commentaries as (1) supraclavicular or apical, (2) axillary or cubital, (3) femoral, and (4) popliteal lymph nodes respectively.[118] Admittedly, the biomedically precise specification of classical terms is a delicate and fraught issue. It is my impression that these authors did their best to maintain classical nomenclature while, at the same time, believing that it was possible to identify these Tibetan anatomical structures through the lens of biomedical anatomy. Recent Tibetan publications have taken a different approach. Instead of trying to search for meaningful equivalents, some authors have chosen to coin new terms in Tibetan in order to name the respective structures in accordance with modern knowledge. These terms appear as literal translations of common biomedical names into Tibetan.

One such example is the elaborated anatomical atlas edited by Pema Rapten and Sanggyé Bum. In this publication, the supraclavicular lymphatic nodes are rendered word-for-word as (1) 'lymph nodes above the collarbone,'[119] which approximately matches the location of the earlier 'blue head adipose glands' at the shoulder blade. The apical lymph nodes are worth considering too.[120] The (2) axillary nodes—traditionally termed 'brown [axillary] adipose glands'—are to be distinguished in superficial and profound locations. The superficial ones are now summarized with the expression 'lymph nodes at the armpit.'[121] This actually says nothing anatomically except that their location is axillary. Profound axillary nodes are distinguished by terms such as 'lymph nodes behind and under the scapula,'[122] 'central lymph nodes,'[123] and 'lymph

116 The syllable *sbug* is a contraction of *sbu gu*. These contractions can be found regularly in compounded words or portmanteaux. See Zhang 1985, 2016; Pad ma rab brtan and Sangs rgyas 'bum 2011, 124–29.

117 E.g., Pad ma rab brtan and Sangs rgyas 'bum 2011, 112, 124–29, 181.

118 Dbang 'dus 1983; Bsam gtan 1997; Ting 'dzin 2007, foldout p. 44.

119 *Sgrog rus steng gi rmen mdud*: Pad ma rab brtan and Sangs rgyas 'bum 2011, 126.

120 *Rtse'i rmen mdud*: ibid., 127.

121 *Mchan khung rmen mdud*: ibid., 124.

122 *Sog rgyab 'og gi rmen mdud*: ibid., 127.

123 *Dbus dkyil rmen mdud*: ibid.

nodes at the exterior side,'[124] which are located somewhat more laterally than the others. The pectoral nodes are named 'lymph nodes of the chest muscle.'[125] Inguinal lymph nodes are named according to their location: 'lymph nodes at the fold of the extremities.'[126] It is not clear whether the traditional (3) 'snake's head' was considered to be located at the groin (inguinal) or in a more distal position at the thigh (femoral, subinguinal). The (4) popliteal lymph nodes, 'white [crural] adipose glands' at the hollow of the knee, are somewhat unspecifically named 'continuous hollow lymph nodes.'[127]

The recent anatomical atlases edited by Nyima Tsering and Mikmar and by Khedrup present specifying names with the same accuracy but with very different nomenclature.[128] To avoid further confusion, they are not listed in this article. In summary, it can be said that in the case of 'vulnerable parts of fat' identified as lymphoid tissue at the trunk and the extremities the metaphorical names 'blue head,' 'brown,' 'snake's head,' and 'white' adipose glands have been transformed from classical descriptions into topographical names associated with specific locations corresponding to contemporary biomedical anatomical convention.

In the last decade, many new Tibetan medical terms have been created, mostly entering into the Tibetan lexicon from Latin via preceding Chinese translations. But neither biomedical nomenclature nor the Tibetan anatomical vocabulary is uniform. Discussions about standardization of medical nomenclature have a long tradition in the history of anatomy. Today's internationally binding *Terminologia Anatomica*[129] is based on simplified Greek and Latin, while "pre-Vesalian" anatomical names circulating across the world until the Renaissance also included Arabic, Persian, and Syrian expressions. Their connection to Tibetan medical terminology is scarcely noticed but would be worth studying in greater detail.

124 *Phyi gzhogs rmen mdud*: ibid.

125 *Brang sha'i rmen mdud*: ibid.

126 *Sne khud kyi steng gi rmen mdud*: ibid. They are divided into superficial (*steng*) and profound (*gting*) lymph nodes.

127 *Rgyun khung rmen mdud*: ibid., 124. The coining of this expression is not clear but it must refer to the popliteal fossa, the hollow of the knee.

128 Nyi ma tshe ring and Mig dmar 2012, 139, 146–47; Mkhas grub 2012, 154.

129 Whitmore 1998.

Conclusion

Compared with most other Asian medical systems, Tibetan medicine possesses a long tradition of anatomical knowledge necessary to manage wound care and render prognoses for injured persons. Nevertheless, the classical terms still leave room for interpretation. Various Tibetan and non-Tibetan scholars of Tibetan medicine have criticized the creation of hasty biomedical equivalencies for Tibetan anatomical parts and structures. Vulnerable parts of the body are vital structures which need to be examined carefully with regard to surgery, wound care, and any other manual intervention such as moxibustion or venesection. With regard to the patient's safety, particularly with regard to venesection, it is especially important to consider carefully which structure could be meant in what instance. Correctly identifying the vulnerable parts matters.

This exploration of vulnerable parts has also raised the distinct issue of translating biomedical terms into Tibetan. Recent Tibetan medical publications demonstrate that this work should proceed with caution. In my estimation, new Tibetan vocabulary has been faithfully chosen. Still, we can clearly observe a tendency to shift from metaphorical names in the classical texts toward more topographical terms in modern Tibetan anatomies. The adoption of foreign terms and concepts—usually in the form of calques or loan translations—into Tibetan is not a new phenomenon; the language has always been exposed to formative external influences. Clearly, such influences were adopted by Tibetans over centuries, though in many cases the precise origin of particular terms—for example, the 'channel' named 'to fall asleep' for the carotid artery—remains uncertain. Several historical periods were marked by transformations in medical knowledge and attendant linguistic change. However, what has been observed in recent years should rather be called a creative revolution. The *Chinese-Tibetan-English Modern Medicine Dictionary*[130] marks a major attempt to standardize modern Tibetan *terminologia anatomica*, a standard which is followed more or less accurately by the atlas edited by Pema Rapten and Sanggyé Bum. In this sense, the thoughtful creation of such standard terminology can be considered an important moment in the provision of medical care in Tibetan areas today.

130 'O tshang tshogs chen and Klu byams rgyal 2011.

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