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Ayurveda Concepts of Joint Diseases

Ayagama Pitadeniyage Anoma Jayasiri

Abstract

Prevalence of bone related diseases are very high in the world today, among them arthritis is very common form of disease suffers millions of people, problematic for individually and economically to the society due to the long term disability. If not properly manage leads to joint replacement surgical procedures which are very common and high in cost. Aim of this chapter to make attention in application of Ayurveda medicine for betterment of the world population. Ayurveda explain theories in origin of these diseases, causative factors, eteopathogenesis and management steps mostly using herbal drug products mentioned in eight divisions of Ayurveda. Main common two diseases sandhigatha vatha correlated with osteoarthritis and amavatha correlated to rheumatoid arthritis well described with proper management procedures with many other bone and joint diseases. Different theories were discussed with the aid of philosophical backgrounds which facilitate these medical theories. These are five element or panchabhutha theory, three dosha concept or theory of three governing energies of the body, saptha dhathu concept or body bearing tissues, concept of agni or metabolic power. Different treatment plans were described as treatment options for cure and prevention of human being as a complete medical system.

Keywords: Herbal products, rejuanation, prevention, amavatha, arthritis

1. Introduction

Millions of people around the world suffer many kinds of bone and joint diseases. It was reported that five million people suffer from osteoarthritis and 12000 of children were from juvenile arthritis. In modern medicine described disorders of connective tissues, joints and bones that cause musculoskeletal pain and stiffness are predominant features [1]. Same as in modern medical field Ayurveda medical system also identified the commonest form of joint disease known as sandigatha vatha that correlated to osteoarthritis manifested with pain.

This information described well in history of the Ayurveda medicine included in literature which goes thousands of years back. Ayurveda, define as the science of life coming from ancient to this era as a system of natural way of healing to the world population. This medical system old at least 5000 years which come from time of (1500–1000 BC) but address the health problems appears today and benefited to promote good health and longevity while cure the diseases. When study about the historical background until 700 BC, this science has been orally discussed between sages and physicians [2]. There after two main texts were assembled to discuss medicine part by Charaka called Charaka Samhitha [3] and surgery concepts

were discussed by Susrutha in his text Susrutha Samhitha [4] later some texts were written and they were included to separate time periods until come to present stage, as pracheena kala (ancient period), madya kala (medieval period) and nuthana kala (modern period). Two Ayurveda authentic texts were available known as Charaka Samhitha which described etiology, symptomatology, pathology, prognosis and management of diseases written by physician Charaka and Susrutha Samhitha deals with surgical instruments and procedures written by surgeon Susrutha.

Ayurveda medical system mainly divided into main 08 branches known as Ashtanga Ayurveda (sub divisions). These divisions correlated to modern medical stream named as shalya thantra (surgery), shalakya thantra (ENT), kayachikithsa (general medicine), bhutha vidya (holistic medicine), agada thantra (toxicology), rasayana thantra (geriatrics), vageekarana therapy (aphrodisiac procedures) [5]. All these fields deals with every aspect of theories related to Ayurveda medicine on causative factors of diseases, treatment lines, preventive measures, prognosis, deformities and rehabilitation procedures. Except to these many literature were contributed to the field by ancient Ayurveda scholars including large amount of drugs as sauces from plant kingdom, mineral and animal kingdom among them Bhava Prakasha is one important text which was written in adhunika kala (modern period) [6]. Most of these literature described various facts relevant to joint diseases with treatment options in Ayurveda, this chapter also designed to give a view about joint diseases as Ayurveda approach.

2. Ayurveda concept of health

There are main two objectives of Ayurveda as medical system well explained par with the definition to a healthy person explained by the World Health Organization. Two objectives comprised preventive and curative aspects of living human beings. Ayurveda deals not only with body but also with the mind and spirit as well. In Ayurveda medicine well described the features of a healthy person. Firstly he or she must have three main energies (*tridosha*) that governing the body in balance state the term which implies *samadosha* (balanced three *doshas*) which act as main three pillars to stable the body in healthy state, by involve in body functions. *Agni* or metabolic power of the body is another factor that needs to be in balance state of a body. *Dhathu* or tissues seven in number are the components that bare the body of a person as per the Ayurveda view that need to be in balance state to give healthy life. Waste products of the body (*mala*) also need to be in balance state to appear a person in healthy manner. Except to these physical structures clear mental state as well as balance mind good spiritual soul need in a person to spend a healthy life as described in Ayurveda system of medicine. With these three energies maintain metabolic activities by the *agni* (metabolic power) help the interactions are processed inside the body constituents based on the theory of *panchabhutha* (five element theory of Ayurveda). *Panchamahabhuthas* are the material basis of the universe so as for the living body. The gross body of a living being consist of this five elements and life processes due to consciousness. Par with the philosophical explanations five *mahabhuthas* (*Panchabhutha* i.e. *Pruthvi*, *Ap*, *Thejas*, *Vayu*, and *Akasha* which correlated to atomic levels of structure that constitute the vegetable, animal and mineral kingdoms) along with consciousness called six *dhathus* (components) that a human being is comprise [5, 6]. This is the scientific background that implies in definition of healthy person related to the mind. On combination with consciousness, five elements, out of their some portions, constitute three *doshas* in order to perform and regulate the physiological process of the body [5, 6]. The changes in physiological functions can be given rise due these reasons as mal practices of food

patterns, behavioral nature of a person environmental, seasonal changes as well as traumatic conditions can be affect to change this balance state of a person and create diseases in the body that make individual mentality unstable.

2.1 Ayurveda approach in origin of diseases

According to Ayurveda, most diseases connected with the psychophysiological and pathologic changes in the body are caused by imbalance states in three *doshas* (ie, *vata*, *pitha* and *kapha*) these three energies which governs the body by maintaining the balance of body constituents and help in homeostasis in internal environment [7]. Each energy is responsible for certain type of body functions such as *Vatha* (Air/motile force) energy of movements, functions of nucleus, neurological activities, and natural urges stool/urine or gases etc. *Pitha dosha* (Fire/Agni) is responsible the functions of energy of metabolism, digestion with transformation, functions of mitochondria, hormonal and enzymatic activities. Third category of energy is the *kapha* (Water/fluid component) that involves body functions of energy of lubrication structure, functions of protoplasm, secretory activities, and functions of the fluid contents of the body. These three energies govern the body bearing structures as well as functions of those structures. Another factor is tissues (*dhatus*) that bare the body, that seven in number correlated to the physical structures of the body such as *rasa* (plasma), *raktha* (blood), *mansa* (muscles), *medas* (fat tissues), *asthi* (bones), *majja* (bone marrow) and *shukra* (sperms/ovum). Three waste excretory products of the body known as *mala* (stools), *mutra* (urine) and *sweda* (sweat). Mainly *agni* (metabolic/fire) is an important concept describe in Ayurveda which mainly involve as causative factor for diseases, if it is in imbalance or mal function state known as *ama* (i.e. undigested state of foods in digestive tract which causes diseases/formation due to dearranged *agni*) which is mainly involved in certain type of joint diseases also. Important 13 agnis are activating in tissues, organs and systems of at different places of the body. Main type is *jataragni* (digestive power) activate in the digestive tract that correlated to enzymetic actions of gastrointestinal tract. Twelve other *agnis* (metabolic fire/power) are established in different places of the body and functionally contributed to internal homeostasis. Each tissue levels composed their owned metabolic powers namely *dhatwagni* 07 in number as *rasa dhathvagni*, *raktha dhathvagni*, *mansa dhathvagni*, *medas dhthvagni*, *asthi dhathvagni*, *majja dhathvagni*, *shukra dhathvagni* those involves in process of tissue metabolism. There is another important category of metabolic power is activated in micro channels and cellular level of the body named based on five element theory of Ayurveda as *panchabhuthagni* [8]. When these micro metabolic powers are not properly activated at cellular levels micro channels of the body (*srothas*) will not function properly, they blocked (*avarodha*) channels and tissues as well as organs then cause diseases. Main other concept of this medical system identified which cause the root for diseases produced *ama* within the body that can get mixed with *doshas* and formed complexes named as *sama vatha*, *sama pitha* and *sama kapha* which give rise symptoms of diseases [9]. Accoring to Ayurveda concepts *ama* means unripe substance produced under the weakened state of Agni (digestive power). Features of this *ama* state are *visha* (toxic), slimy in nature, has unpleasant odors, heavy in nature and has/represent various colors [9–11].

As per the view of this system of medicine development stages of a disease is describes based on five element theory, *saptha dhatu* and concept of *agni* described early paragraph. As the body composition and functioning energetic three doshas and the body tissues (*dhathus*) comprises from similar physical properties, there is relationship between doshas and tissues (*dhathus* synonym as *dushya*) in origin of a disease identified as combination these two components and named as *dosha dushya*

sammurchana (combination of vitiated dosha with tissues) according to this combinations demonstrate the symptoms of each disease in process of etiopathogenesis [12]. Categorization of diseases done according to this relationship between these *doshas* and *dhathus* (tissues seven in number) known as *dosha-dushya* complex that can be seen as symptoms in a patient.

Treating the diseases there are different conceptual theoretical background is established in this medical system. Mainly it described remove the causative factors of diseases such as diet, seasonal changes, correction of generating *ama* are some steps can be practically apply to breaking down the stages of etiopathogenesis and remove the *ama* by applying relevant medicaments. As an example rheumatoid arthritis which involve not only the joints but also certain other systems also in angle of Ayurveda view that cause when *samavata* mixed with *rasa dhathu* then causes *Amavatha* (rheumatoid arthritis), combination of *samapitta* and *raktha dhathu* produces *vatarakta* disease. *Ama* is a substance having a toxic nature and this toxic substances reacts with joint and bone elements causing the diseases. If *Ama* is not produced, there will be no bone joint disease either, this is the theory behind this medical science, that implies it has been mentioned that synonym given for diseases the word *ama*.

2.2 Involvement of Dosha in born and joint diseases in Ayurveda

Born and joint diseases in Ayurveda mentioned with related concepts texts written in ancient to modern period. These information were stated by modern Ayurveda scholars after further study well they mentioned that three main joint manifestations were identified and treated. They are *Sandigatha Vatha* (osteo arthritis), *Amavatha* (rheumatoid arthritis) and *kostukashirsha* (pain with swelling of knee joint) [9] symptoms of these conditions can correlate to structural changes of modern clinical cases. Two of them are *polyarthritic* clinical entities having a range from acute to chronic. *Sandhigata vatha* is the commonest form of articular disorder. It is a type of disease which mainly occurs in old age people due to the dryness of the tissues which limits daily activities such as walking, dressing, bathing making patient disabled. Because this is a type of *vatha* category of disease can be lead to dangerous if located in a vital point, same situation occurs in an old person difficult in cure. Therefore in identifying prognosis by detect early symptoms is very important because this is very common type of disease. As it is *vatha* type of disease *shula* (pain) is the cardinal feature of the disease associated with *sandhishotha* (swelling), lack of movements of the joints or painful movement of the joints, sometimes loss of function and dislocations are possible. *Vatha raktha* is a condition give rise symptoms of pain, fasciculations, swelling, dryness of the affected part with discoloration, itching, contraction are seen, predominantly in larger joints, but begins from the smaller joints both the *vatha* (motile force) and *raktha* (blood) are in predominant positions. This condition influenced by *ama* combined with *pitha dosha* that known as *sama pitha* and manifest the symptoms accordingly. *Kostukashirsha* is the other common form of disease naming according to its appearance of the knee joint after affected knee joint of the person known jackals head due to the swelling and same time person feels sever pain.

Modern period literature described the relationship between *ama* and joint disease to give a better diagnostic outlook. Rheumatoid arthritis which is a whole multitude of joint manifestations that given rise to joint malfunctioning disease correlated to *Amavata* described in Ayurveda [13]. Ayurveda diagnosis can be done only study the *dosha* involvement, causative factors, symptoms, malfunctioning of the affected part and finally can be treat using herbal drugs use in the field with the help of Ayurveda pharmacodynamic properties with the aid of drug actions [14].

When considering structure–function relationship and *dosha* involvement need to mention the five verities of three *doshas* *vatha*, *pitha* and *kapha* is very important. There are 5 varieties of three *doshas* which were located at specific places of the body and give its contribution to the proper functions of that area of the body [15, 16] were well described in Ayurveda texts and that types are tabulated in **Table 1**.

Each and every type of *dosha* located at its own site facilitate its action to that relevant body parts. These types of each *dosha* is well responsible to cover all the functions of the body, when consider the structure and functions of the joints (*sandhi*) *Shleshaka kapha* component is the main part that give the actions related to its structure in the locomotive system [15, 16].

Sandi samslesha (bindings of joint) is described as one of the functions of *kapha* that described in Ayurveda view. Susruta postulates similar views and while describing the functions of *kapha*, mentions of Sandisamsleshanam (lubrication of the joint), *snehana* (promotion of uncouthness), *purana* (storage or filling), *stayikrit* (stability) which are directly connected properties pertaining to *sandhis* (joints). The text written in *pracheena kala Ashtangahrda samhitha* mentioned that among other functions shleshma promotes, *sthirathwa* (sturdily), *snighdhatwa* (viscosity) as well as *hates* (binding) actions that are specifically applied to joints. Keeping various components of it in firm unity that makes it possible to function as a single unit, further *shleshaka kapha* protects it's articulation and opposes any force that might cause it's separation and disunion. According to the literature it becomes clear that *Shleshaka kapha* is predominant in joints and keeps them well lubricated and nourished. These explanations correlated with structure (including synovial fluid) and functions to integrate as medical systems were mentioned in this paragraph.

In the disease state of *sandhis* (joints) one or more above functions seen to be deviate it's normal in functioning due to the pathological changes and give person abnormal feeling. The bone ends are covered by hyaline cartilage, avascular tissue which provides a smooth, low friction surface allowing joint movement. Normal articular cartilage is a smooth bluish translucent material which is composed of chondrocytes, proteoglycans, collagens and water that correlated to structure and functions of *Shleshaka kapha* variety explain in Ayurveda. It is very important to identify the bone and joint related diseases with proper classification of these in Ayurveda by integrating its application for treatment options due to high prevalence of these disease conditions. Disorders of the joints are among the most disabling of conditions. They cause serious morbidity to the affected individual same way major economic importance to both the patients and society [15–18].

2.3 Types of bone and joint diseases in Ayurveda

In this chapter mainly discuss about the joint diseases, Ayurveda literature mostly discuss about three joint related diseases such as *Vatha raktha*, *Sandigatha vatha* and

Verities of Vata Dosha	Verities of Pitha Dosha	Verities of Kapha Dosha
<i>Prana vata</i>	<i>Pachaka pita</i>	<i>Bodhaka kapha</i>
<i>Vyana vata</i>	<i>Alochaka pita</i>	<i>Kledaka kapha</i>
<i>Samana vata</i>	<i>Ranjaka pita</i>	<i>Shleshaka kapha</i>
<i>Udana vata</i>	<i>Brajaka pita</i>	<i>Avalambhaka kapha</i>
<i>Apana vata</i>	<i>Sadhaka pita</i>	<i>Tharpaka kapha</i>

Table 1.
Categories of three Doshas.

Kostukashirsha but except to these in different texts written from ancient time to modern period discussed other bone related diseases and joint diseases. They have named according to the structural manifestation, *dosha* involvement, place that symptoms, structural changes can be seen, relevant to its tissues that mainly affected.

They are *Sandigatha vatha* (it is a *vatha dosha* category of condition that pain is the main feature of this, which mainly occurs in old age due to *dhatukshaya* or dryness of the tissues, which limits everyday activities such as walking, dressing, bathing making patient disabled), *Vata raktha* (swelling, dryness of the affected part with discoloration, itching, contraction are seen, predominantly in larger joints), *Kostuka shirsha* (pain and swelling in the knee joint), *Avabahuka* (pain with restriction in movements of the upper arm), *Vatakantaka* (pain at calcaneum area), *Grudrasi* (pain along the hip joint and thigh that causes difficulty in walking, pain is the main symptom), *Khalli* (loss of function and paralysis, specifically affecting the leg), *Urustambha* (severe pain, loss of function and loss of temperature sense in the affected limb), *Hanusthamba* (mainly due to trauma, dislocation of temporomandibular joints, loss of movement is seen), *Asthimajjagata vatha* (severe crushing pain in bones and joints, discolorations are possible, loss of muscular power and strength with gradual thinning of the affected limb), *Visvachee* (loss of function of the hand due to the dryness of structures at wrist joint which cause pain that radiates from the proximal to distal hand), *Amavatha* (mainly affects bigger joints, appears symptoms of anorexia, vomiting, malaise, indigestion), *Raktha vatha* (cause due to vitiation of rakta dhatu, slightly similar to Vata rakta in its clinical presentation), *Visha vatha* (cause due to infections), *Jara vatha* (cause due to old age, this included to natural bony degeneration due to senility), *Jirna vatha* (manifest due to degenerative processes), *Pada bransha* (characterized by loss of function of the affected foot among the eighty types of *vatha rogas*), *Vatha khuddatha* (one among the eighty types of *vata rogas*), *Gulpha graha* (stiffness in the ankle joint is the predominant feature), *Uru sara* (severe pain, loss of function and loss of temperature sense in the affected limb), *Janubheda* (type of pain localized in the knee joint), *Pangulya* (person felt to limp a sign due to any causes, such as trauma, *dosha*), *Thrika graha* (stiffness at the macro iliac joints), *Prushta graha* (stiffness in the spine), *Bahu shosha* (wasting is the predominant sign in this condition, at the shoulder), *Griva sthambha* (Stiffness in the neck), *Asthyavrutha vatha* (Obstruction of *vatha* due to *asthi dhatu* causes penetrating pain, stabbing pain and lassitude), *Kaphavrutha vatha* (*Vyana vatha* is being obstructed by kapha *dosha*, pain felt at the small joints and the patient feels heaviness in the body) [17, 19, 20].

When observe these different types of bone joint diseases discussed in Ayurveda texts it shows some are appear as *vatha* category of diseases, some are causes due to traumatic conditions and involve the bones or joints. Therefore some scholars who were searched for these in modern period looked into that and categorized into certain classifications. They mentioned three disease conditions namely *Sandigatha Vatha*, *Vatha raktha* and *Kostukashirsha* were the mostly discussed disease conditions in literature, also these conditions common in clinical practice [21], therefore clearly mentioned involvement of *dosha*, causative factors, prognosis and deformities prominent diseases, then classification explained accordingly as mentioned here.

Rheumatoid arthritis is a critical disease condition which the person is highly disabled if it is not properly managed. In Ayurveda system of medicine this disease well described in modern period texts that correlated to name as *Amavatha* which is a disease that systemic involvement as well as local involvement can be seen in large joints. It mainly affect bigger joints, presenting symptoms of anorexia, vomiting, malaise, indigestion etc. causative factor is due to the malfunction of digestive power. In the patients it presenting swelling with predominant pain as the symptoms with many other complaints. In ancient literature term 'Ama' the word

comprises Amavatha used to denote a state of illness cause 'visha' padartha (toxic matter) which produces due to malfunction of digestive power. Also malfunction of the metabolism of the body benefited this disease process. Texts and the scholars of modern period of Ayurveda history described views about arthritis or joint diseases by indicating variety of clinical presentations. They stipulated the possibility of occurs several interrelated entities with possibly different etiologies related to joint diseases as mention here. They are Rasa Vata (a synonym for Amavatha), Raktha Vatha (a similar condition to Vatha raktha in ancient texts), Visha vatha (a condition similar to acute infective arthritis in modern medicine), Jirna vatha a condition with sandhi jadya or ankylosis due to old age, Jara vatha similar to degenerative arthrosis, Sandhika jwara to rheumatic fever. Same manner Amavatha correlated with its symptoms to Rheumatoid arthritis and according to the causative factors and disease involvement different treatment measures were prescribed such as to correct the digestive power and digest the ama and facilitate to absorb to the system, and then avoid the manifest in the locomotive system. Different treatment measures were described for this to manage the disease process help of drug actions such as deeeperana (appetizer), pachana (digestive) drugs, local treatments according to the involvement of joints external drug preparations are applied to relieve pain and swelling with improve the joint movements.

2.4 Classification of bone and joint diseases

Based on the clinical features these diseases classified according to the causative factors, involving places, and symptoms by compairing structural and function-ing features in modern medicine [1, 17, 19], manifest in diseased person which is important in treating and management of bone and joint diseases, par with Ayurveda treatment plans, here it has been mentioned according to the based on or predominance of each factor.

2.4.1 According to causative factors

1. Based on names.

Sandigatha Vatha, Kostukashirsha, Avabahuka, Vatha kantaka, Grudrasi, Khalli, Asthi majjagata Vatha, Hanu bramsa, Visvachee.

2. Traumatic

Vatha kantaka, Hanu bramsa, Grudrasi, Avabahuka.

3. Based on dosha involovement

Sandigatha vatha, Khalli, Visvachee, Gudegatha Vatha, Asthi majjagata vatha, Ama vatha.

4. Based on origin of Ama

Amavatha, Vatha raktha, Urusthambha,, Raktha vatha.

5. Based on toxic factor

Visha vatha.

6. Based on time factor

Jara vatha, Jirna vatha.

2.4.2 According to symptoms

1. Based on Pain.

Sandigatha vatha, Asthi majjagata vatha, Vatha kantaka, Amavatha, Urusthambha.

2. Based on swelling

Kostukashirsha.

3. Based on inflammation

Amavatha, Vatha raktha, Urusthambha.

4. Base on malfunction

Avabahuka, Khalli, Visvachee, Grudrasi, Hanu bransha.

5. Based on deformities

Kostukashirsha, Pada bransha, Bahu shosha.

2.4.3 According to the place specifically affected

1. Joint predominancy.

Hanu bransha, Sandigatha vatha, Grudrasi, Amavatha, Vatha raktha, Avabahuka, Vatha kantaka, Khalli, Visvachee.

2. Bone predominancy

Asthi majjagata vatha, Urusthambha.

3. Muscle with joint predominance

Amavatha, Kostukashirsha, Avabahuka, Grudrasi, Vatha kantaka, Khalli, Visvachee.

4. Ligaments & joint predominance

Vatha raktha, Khalli.

2.5 Ayurveda treatment options for bone and joint diseases

To manage these diseases different therapeutic measures are used according to the Ayurveda system of medicine. In clinical practice medicinal materials in form of single drugs as well as poly-herbal formula are used. Body has been buildup of dietetic materials, the drug materials giving to manage the diseases also constituted same physical properties identified by Ayurveda influence of philosophical literature, also the aid of these theoretical concepts drugs are prescribed based on their actions. Body treatment is correlated to management process of a disease in Ayurveda defined as *chikithsa* which has a broad meaning related with the body. Literary meaning of body, described based on philosophical backgrounds that stated body derives and develop from nutrient materials and it is a collection of nutrients. To maintain its balance status there should be equilibrium in metabolic functions. These functions are governing by the three energy flows (*vatha, pitha,*

kapha) with the help of different *agnis* (metabolic power) in the body. These processes activate in the body and responsible to maintain the internal environment in balance state by avoiding cause any imbalance which originated a disease. Therefore treatment defined as *chikithsa* that implies collection of suitable procedures which can be normalizing the imbalance state of internal environment of the body.

Collectively these procedures lead to promoting and preservation of health in healthy person and curing disease in the sick person which highlights curative, preservative, rehabilitative and preventive aspects to manage diseases which in same manner applied to the joint diseases. Based on theoretical aspects different treatment lines are applied to manage joint diseases. They are avoiding causative factors such as dietary mal practices, mal practices in behavior, correct expose to seasonal changes. Pacifying visited *doshas* mainly *vatha samana* using drugs pertain drug action of *vedana stapana* to relieve pain with other medicaments for correct rearranged body functions according to the causative factors [14, 21, 22]. Excretion of disease causative factor known as *ama* by digestion of *ama* into the system using suitable drugs. Cleansing the obstructed channels (*srothas*) by five bio purificatory process known as *Panchakarma* using suitable drugs [23]. Facilitate diseased person if the condition caused due to the aging process by *rasayana* (rejuanation) therapy which is a main branch of Ayurveda. Whether person needs the rehabilitation yoga therapy or meditation can be advice to the patient. Finally all these treatment options can be apply as local or systemic therapeutic applications according to the patient condition as well as the nature of the disease.

3. Conclusions

Three energies governing the body functions to maintain the balance state of internal body environment. *Vatha dosha* as motile force and neurological activities. *Pitha dosha* responsible for metabolic, enzymatic and hormonal actions. *Kapha dosha* represents fluid component and its actions. Common form of joint diseases are osteo arthritis and rheumatoid arthritis respectively correlated to sandhigatha *vatha* and *amavatha*, for management these conditions herbal products, body purificatory processes, rejuanation procedures with yoga exercises can be used as therapeutic options.

Conflict of interest

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Notes/thanks/other declarations

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