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APPROACH TO ASTHIVAHASROTO PARIKSHA IN CLINICAL PRACTICE

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ABSTRACT

The movement of dosha, dhatu, mala in the body with respect to digestion and metabolism occurs through the srotases(channels). Srotas are those channels which transports and transforms the substances to respective tissues, cells of the human body required for life sustenance.[1] Based on their anatomical and physiological functioning they are broadly classified into 13 types by Acharya Charaka, the main motto of the srotas is to nourish and sustain the dosha, dhatu, mala of the body.[2] The movement inside the srotas is decided by the chala guna pradhanata of dosha and dhatu. As the dhatu's are classified as sthayi and asthayi dhatu. Asthi dhatu is an sthayi dhatu which is predominant in pruthvi(earth) and anila(air) mahabhutas. Asthi saara purusha (predominant of bony tissue) are endowed with aayushmanta(longer life span) and attain susamhata shareera(proportionate body). Asthivahasroto vikaras are abundant in day to day clinical practice. Hence diagnosing the same is the need of the hour.

KEYWORDS: Asthi dhatu, Asthivaha Srotas, Pariksha parameters.

INTRODUCTION

Human body (*shareera)* comprises of *tridosha, saptadhatu, trimala* which is the *mula* for health as well as disease.[3] The movement inside the body occurs through the *srotas. Srotas* are those channels which bio-transforms the substances within the body with respect to individual cells and tissues for their functioning. The anatomical and physiological functioning of these channels (*srotases*) are understood into 13 types, the main motto of the *srotas* is to nourish and sustain the *dosha, dhatu, mala* in the body w.r.t health. The formation of embryo occurs due to conjugation of *shukra* (sperm) and *shonita* (ovum).[4] Development of the human body takes place through the germ layers into different, organs, tissues and cells for its anatomical and physiological functioning.[5] *Ayurveda* emphasizes, the nourishment to the body is through the *ahara* (food), *vihara* (physical activity), *vichara*(thought process).[6] The food which is been consumed undergoes *samyak parinamana* (digestion and metabolism) with the help of *ahara parinamakar bhavas* (factors required for digestion) ie. *ushma, vayu, kleda, sneha, kala, samyoga,* thus *tridosha utapatti* occurs inside the *shareera*. The *ahara rasa* (end product of digestion and metabolism) thus formed circulates in the *srotases* (channels) and reach their target cells for their nourishment and circulation, by this process *saara- kitta* (bio-transformation) *utappati* occurs and *uttarottara dhatu parinamana* (subsequent cell & tissue nourishment) takes place inside the body.[7] *Asthi dhatu* (bone cells) is one among the *sapta dhatu* which is *pruthvi, vayu mahabhuta pradhana* , that is the reason for its stable and porous nature of the bony tissue in the body.

Data source

A thorough review of *Ayurvedic* classical texts, contemporary science books and relevant articles is cited for the present study.

DISCUSSION

Asthidhatu is formed by *vayu, prithvi mahabhutas* hence, they possess *laghu, sukshma, sthira guna* and felicitates in stability and locomotion. The function of *asthi dhatu* is *deha dharana*. (Stability of the body). *Asthi dhatu* is formed from *pithruja avayava* for *garbhavruddhikarana* (factors required for development and growth of the embryo). *Vata dosha* is the pedominent *dosha* in *asthi dhatu* and they contribute to the *ashraya ashrayee bhava sambhanda* , as a result in *vikruti utpatti* (pathological process)whenever *asthi dhatu vruddhi* occurs *vata dosha kshaya* takes place and vice versa occurs.[8] Hence analyzing the *gunas* and *karmas* of *vata dosha* in *asthi dhatu* throughout the *shareera* has to be done. In embryonic life formation of bones occurs in paraxial

mesoderm. There are two major modes of bone formation or osteogenesis and both involve the transformation of a preexisting mesenchymal tissue into bone tissue. The direct conversion of mesenchymal tissue into bone is called intramembranous ossification. This process occurs primarily in the bones of the skull. In other cases, the mesenchymal cells differentiate into cartilage, and this cartilage is later replaced by bone. The process by which a cartilage intermediate is formed and replaced by bone cells is called endochondral ossification. Bone is composed of four different cell types; osteoblasts (bone forming cells), osteocytes (lies in the calcified matrix of bones), osteoclasts (maintain, repair, remodeling of bone cells) and bone lining cells. Osteoblasts, bone lining cells and osteoclasts are present on bone surfaces and are derived from local mesenchymal cells called progenitor cells. Osteocytes permeate the interior of the bone and are produced from the fusion of mononuclear blood-borne precursor cells,[9]

The *upadhatu* of *asthi dhatu* is *kasha* (hairs), *loma* (bodily hairs), *nakha* (nails), *danta* (teeth).[10] Hair is a stratified squamous keratinized epithelium. The protein called keratin makes up hair and stimulates hair growth. Hair follows a specific growth cycle with three distinct and concurrent phases: anagen, catagen, and telogen. Each phase has specific characteristics that determine the length of the hair. A nail is a keratinous plate at the tip of the fingers and toes A healthy fingernail has the function of protecting the distal phalanx, the fingertip, and the surrounding soft tissues from injuries. A tooth is a hard, calcified structure found in the oral cavity of and used to break down food. The hardest white outer part of the tooth is enamel mostly made of calcium phosphate.

Asthi sara purushas(well built w.r.t bone cells & tissues) are those who are endowed with *sthula asthi* (well built bones) in *parshni*, (heels), *gulpha* (ankle), *janu* (knee), *aratni* (elbow), *jatru* (clavicle), *chibuka* (chin), *shira* (head). Phalangeal joints, nails, dentures are well built.[11] The skeletal system works as a support structure for your body. It gives the body its shape, allows movement, makes blood cells, provides protection for organs and stores minerals

The *asthivaha sroto mula* is *medas* and *jaghana.*[12] *Medas* as a *mula* is to be understood as from the previous *dhatu* which is a prerequisite formation and development of RBC's in embryonic life Bone marrow is found in the bones throughout your body. There are two types of bone marrow. Red bone marrow is involved in production of blood cells, while yellow marrow is important for fat storage. As age advances, yellow bone marrow replaces red bone marrow. Red marrow is found mainly in the flat bones such as hip bone, breast bone, skull, ribs, vertebrae and shoulder blades, and in the cancellous ("spongy") material at the proximal ends of the long bones femur and humerus. Bone marrow takes over from the liver as the major hematopoietic organ at 32 to 36 weeks of gestation. Bone marrow remains red until around the age of 7 years, as the need for new continuous blood formation is high. As the body ages, the red marrow is gradually replaced by yellow fat tissue.[13] *Jaghana* is considered as the entire axial skeleton ie. Pelvic girdle with spine which is required for the posture, gait and locomotion of the body. *Asthivaha srotas* undergoes *dusti* based on the following factors – *ativyayama* (intense and rigorous exercise), *atisamkshobha* (excess strain), *asthi vighatana* (mal functioning, mal union),*vatala sevana* (in terms of both food and psychological factors) which produces *vata prakopa* in the body. As *asthi* is one among the *sthana* of *vata dosha*. Leading to *asthivaha sroto dusti lakshanas-ati asthi* (increased formation of osteoblastic activity in the bones), *ati danta*(excess formation of dentine process), *asti bheda* (bony pain), *shula* (pain), *vivarnata* (increased osteoclast activity, derangement in calcium absorption), *kesha-loma-nakha-smashru dusti* (derangement in *asthi mala utpatti*).[14] *Asthi vruddhi lakshana-adhi asthi, adhi danta. Asthi kshaya lakshana- kasha-loma-nakha-smashru-dvija prapatana,sandhi shitilata,roukshya, parushya, asthi toda, asthibaddha mamsa abhilasha, asthi shula*[15] will be observed where ever there is *khavaigunyata* in the body leading to sroto dusti in the process of disease formation with respect to structural or functional deficit. As *asthivaha sroto vikara* attains *madhyama roga marga*, it is important in understanding the causative factor and examination of the same in the subjects. Studies have been done in this regard- The type of hair produced is under endocrine control with androgens being key regulators of human hair growth; several other hormones are involved, particularly in other mammals, including melatonin, prolactin, melanocyte-stimulating hormone (MSH) and oestrogens.[16 ,17] Finger and/or toenails may be good indicators of metabolic changes occurring in the body, as they are in contact with periosteum of the phalangeal bone. Therefore, the physiological and pathological processes of blood and bone might influence the nail mineral content Keratin is the main protein in nail, while collagen is the main protein in bone. Both keratin and collagen experience non-enzymatic and post-translational modifications that can be detected using techniques such as Raman spectroscopy. Post-translational changes that occur in nail disorders may also be associated with disorders in bone collagen. Thus, nail mineral and protein content might be a useful alternative or complementary method for the screening and detection of bone metabolism disorder.[18,19]

Analysis of the *asthivaha sroto dusti* is to be done with the help of *pariksha* (examination parameters). By analyzing the conceptual reference as mentioned in *aptopadeshagmya bhava* analysis of the *virukti* has to be done by history taking with the following – *roga* (type of disease), *prakopa* (aggravating factors), *yoni- dosha pradhanta*, *samuttana* (causative factors), *svabhava* (nature of the disease), *adhistahana- sthana, vedana* (type of pain), *samsthana* (signs & symptoms), association with *shabda, sparsha, rupa, rasa, gandha,*

upadrava (prognosis), *vurddhi-sthana-kshaya avastha* of *dosha* (status), treatment protocol to be advised.[19] The main *pariksha* parameter for analyzing *asthivaha sroto vikruti* is *pratyaksha pariksha, sara, samhanana, pramana pariksha*. Where *asthi sara lakshanas* are to be analysed, *samahana pariksha* referes to *sama suvibhakta asthi* (properly formed bones), *subbadha sandhi* (functioning of articular surfaces of joints), *sunivista mamsa shonita* (functioning ability of muscles & blood), *susamhata sharrera*. *Pramana pariksha* is understood based on respective *asthi pramana* (number of bones with its anatomical position). As contemporary science emphasizes on clinical examination of Locomotory system assessment of gait, arms, leg and spine are to be done. Laboratory Diagnosis is to be made with the help of x ray, CT scan, BMD Test, Serum Calcium levels, Vitamin D levels in relevant clinical cases.

In the present day clinical practice analysis of *asthivaha sroto dusti* (pathological process) patients are abundant in our clinics hence, an diagnostic protocol is to be framed for clinical utility with the following parameters-

1. Causative factor- *asthivaha sroto dusti nidana,*
2. Signs and symptoms- *asthivaha sroto mula, dusti lakshana, asthi vruddhi – kshaya lakshana*
3. Aaptopadeshagmya bhava- history taking
4. Pariksha-, pratyaksha pariksha, saara pariksha, samahanana pariksha, pramana pariksha
5. Locomotory system examination
6. Laboratory findings

CONCLUSION

In the present study an effort is made to understand the cause and effect mechanism of *asthivahasroto* disease, framing of diagnostic protocol with respect to *asthivahasroto vikaras* is understood for analyzing the disease with respect to morbidity and treatment. *Asthivahasroto vikaras* are *madhyamaroga margaja vyadhi's* .The mode of manifestation of *vikara* can be at the *sroto mula sthana* or in the *sroto marga* which defines the nature of the disease. Examination of *astivaha srotas* has to be emphasized on *aaptopadeshagamyabhavas, pratyaksha, sara, samhanana, pramana pariksha* .In present day clinical practice laboratory diagnosis can be done with the help of X ray, CT Scan, BMD Test, Serum Calcium and vitamin D levels.

REFERENCES

1. Agnivesha, Charaka Samhita Of Acharya Charaka, Dridhabala Krit, Edited By Vaidya Jadavji Trikamji Acharya, Vimana Sthana Ch5, Ver 3. Varanasi Chaukhambha Orientalia, 2015; 249.
2. Agnivesha, Charaka Samhita Of Acharya Charaka, Dridhabala Krit, Edited By Vaidya Jadavji Trikamji Acharya, Vimana Sthana Ch.5, Ver. 7.Varanasi Chaukhambha Orientalia, 2015; 250.
3. Dalhancharya, Sushrutha Samhita Of Acharya Sushrutha, Edited By Vaidya Jadavji Trikamji Acharya, Sutra Sthana Ch.15.Ver.3. Chaukhambha Orientalia, 2015; 67.
4. Inderbir Singh, Human Embryology. Jyapee Publication. 10th Ed. P.46.
5. Inderbir Singh, Human Embryology. Jyapee Publication. 10th Ed. P.52.
6. Agnivesha, Charaka Samhita Of Acharya Charaka, Dridhabala Krit, Edited By Vaidya Jadavji Trikamji Acharya, Vimana Sthana Ch.2, Ver. 6. Varanasi Chaukhambha Orientalia, 2015; 238.
7. Agnivesha, Charaka Samhita Of Acharya Charaka, Dridhabala Krit, Edited By Vaidya Jadavji Trikamji Acharya, Chikitsa Sthana Ch.15, Ver. 9-11.Varanasi Chaukhambha Orientalia, 2015; 512-513.
8. Agnivesha, Charaka Samhita Of Acharya Charaka, Dridhabala Krit, Edited By Vaidya Jadavji Trikamji Acharya, Chikitsa Sthana Ch.15, Ver. 6-8.Varanasi Chaukhambha Orientalia, 2015; 512.
9. Arunadatta. Hemadri., Astangahrudayam Of Acharya Vagbhata, Edited By Bhisagacharya Harisastri Paradakara Vaidya, Sutra Sthana.Ch.11. Ver.26. Varanasi Chaukhambha Orientalia, 2015; 186.
10. Agnivesha, Charaka Samhita Of Acharya Charaka, Dridhabala Krit, Edited By Vaidya Jadavji Trikamji Acharya, Chikitsa Sthana Ch.15, Ver. 18-20.Varanasi Chaukhambha Orientalia, 2015; 515.
11. Agnivesha, Charaka Samhita Of Acharya Charaka, Dridhabala Krit, Edited By Vaidya Jadavji Trikamji Acharya, Vimana Sthana Ch.8, Ver. 107.Varanasi Chaukhambha Orientalia, 2015; 208.
12. Dalhancharya, Sushrutha Samhita Of Acharya Sushrutha, Edited By Vaidya Jadavji Trikamji Acharya, Shareera Sthana Ch.5. Ver.3. Chaukhambha Orientalia, 2015; 363.
13. Gilbert SF. Developmental Biology. 6th edition. Sunderland (MA): Sinauer Associates, 2000; Osteogenesis: The Development of Bones.
14. Agnivesha, Charaka Samhita Of Acharya Charaka, Dridhabala Krit, Edited By Vaidya Jadavji Trikamji Acharya, Vimana Sthana Ch.5, Ver. 8,17. Varanasi Chaukhambha Orientalia, 2015; 250-251.
15. Astanga Samgraha Of Acharya Vagbhata. Krishnadas Ayurveda Series 106. Sutrasthana Ch.19.Ver7, 10. Chaukhambha Krishadas Academy, 257-259.
16. Agnivesha, Charaka Samhita Of Acharya Charaka, Dridhabala Krit, Edited By Vaidya Jadavji Trikamji Acharya, Sutra Sthana Ch.28, Ver.1 6. Varanasi Chaukhambha Orientalia, 2015; 179.
17. Pouya Saeedi , Amin Shavandi , Kim Meredith-Jones , Nail Properties and Bone Health: A Review, 2018; 9(2): 31. doi: 10.3390/jfb9020031.
18. Betul Tas, Gökhan Artar, Ramazan Albayrak, Işıl Üstün, Mehmet Öncü, Saadet Pilten and Murat Altuntas. Changes in bone mineral density in women with early-onset androgenetik alopecia and their correlations with hair-loss stages: a cross-sectional study. Biomedical Research, 2018.

19. Deborah J. Morton, Donna Kritz-Silverstein, Donna J. Riley, Elizabeth L. Barrett-Connor, and Deborah L.Wingard,. Premature Graying, Balding, And Low Bone Mineral Density In Older Women And Men: The Rancho Bernardo Study. J Aging Health, 2007; 19(2): 275–285.
20. Dr. Alizae Marny Fadzlin Syed Mohamed.An Overview Of Bone Cells And Their Regulating Factors Of Differentiation. Malays J Med Sci, 2008; 15(1): 4–12.
21. Agnivesha, Charaka Samhita Of Acharya Charaka, Dridhabala Krit, Edited By Vaidya Jadavji Trikamji Acharya, Vimana Sthana Ch.4, Ver. 6. Varanasi Chaukhambha Orientalia, 2015; 248.