A CRITICAL STUDY OF THE BHRAJAK PITTA IN THE MODERN PERSPECTIVE

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ABSTRACT

Ayurveda is a science of life that revolves around Tri Dosha i.e. Vata, Pitta and Kapha. These three doshas are equally important. They take up different identities at various levels of organization – such as cellular level, single system level, organism level and so on – as equilibrium needs to be maintained at all these levels. In this article we are mainly focussing on Pitta particularly on Bhrajak Pitta. Pitta is said to be responsible for digestion, metabolism, production of heat and other forms of energy. Bhrajak pitta is one of a type of pitta. It is said to be located in the skin and mainly responsible for skin colour and its lusture. So, this article is mainly focussing on Bhrajak Pitta and its importance in day to day life by providing its correlation with modern science.

KEYWORDS: Pitta, Bhrajak Pitta, Bhrajak agni, Melanin, MSH.

INTRODUCTION

Ayurveda is the most relevant and pioneer pathy available to us in 21st century. This science basically deals with doshas, dhatu and mala. Address for correspondence: Payal Sharma, ph. No. 9873731380, Email: anupayal809@gmail.com Dosha, Dhatu and Mala are said to be moola (origin) of Sharir. All of these entities are equally important. But doshas are basic pillar of our body. Our body entire functioning is dependent upon these doshas. Here we will
mainly focus on pitta dosha. Pitta is very essential entity as it is mainly concerned with the process of digestion. Pitta dosha has five subtypes i.e. pachak pitta, ranjak pitta, bhrajak pitta, aalocharak pitta and sadhak pitta. Bhrajak pitta is one of a type of pitta. Bhrajak pitta as its name suggests that it is responsible for bhrajan i.e. providing lusture and natural colour to the skin. It has also been stated that it governs the normal and abnormal temperature of the body. According to Sushruta and Vagbhat, its main seat is twacha (skin) and its function include bhrajan, pacahan and for maintenance of prakrit varna (normal texture) of skin. Bhrajak pitta is known as bhrajakagni by Aacharya Sushruta. Bhrajakagni is one which resides inside skin and helps in pachan (digestion) of the dravyas used in panchkarma therapies like abhyang, snehan, avgahan, and aalepan etc. This article will give detailed description of physiology of pitta and bhrajak pitta also including its modern perspective.

Pitta

Pitta is second dosha which is responsible for physical and chemical changes in our body.

Guna (quality) of pitta according to different Aacharyas:

**Charak Samhita**

Ushna, tikshna, drava, visra, katu and amla are gunas of pitta.

According to Aacharya Charak pitta is tikshna, sara, drava, atisnigdha, shuklaarun varjit varna, visra, katu and amla.\(^1\)

**Sushruta Samhita**

According to Aacharya Sushruta ushna, tikshna, ruksha, laghu and vishad are gunas of pitta.\(^2\)

**Bhel Samhita**

Accoding to Bhel Samhita Ruksha, ushna, amla and katu are gunas of pitta.\(^3\)

**Kashyap Samhita**

Kashyap has explained about ushna, tikshna, alpa, laghu, drav for agni rupi pitta.\(^4\)

**Ashtang Sangraha**

According to Vridha Vagbhat, pitta is snehayukta, tikshna, ushna, laghu, visra, sara, and dravrupa.\(^5\)
Sharangdhar Samhita
According to him, pitta is ushna, drava pitta and neel varna, mainly having satva guna, sara, katu, laghu, snigdha, tikshna, and after pak (digestion) it become amla swaroop.[6]

Physiological functions of Pitta
Charak Samhita
Darshan (visual acuity), pachan (digestion), maintainance of skin temperature, hunger, thirst, smoothens the skin, provide lusture to the skin.[7]

Sushruta Samhita
Ras ranjan, pachan (digestion), roopa darshan (visual acuity), development of medha (intelligence), development of heat.[8]

Ashtang Sangraha
Heat generation, thirst, hunger, provide lusture, happiness, visual acuity, intelligence.[9]

Ashtang Hridya
Pachan (digestion), heat generation, visual acuity, thirst, hunger, intelligence.[10]

Types of Pitta

<table>
<thead>
<tr>
<th>Pitta bheda</th>
<th>Location</th>
<th>Karma (functions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ranjak pitta</td>
<td>Yakrit, pliha (su), aamashya (va), hridya (sha)</td>
<td>Rasdhatu ranjan</td>
</tr>
<tr>
<td>2. Pachak pitta</td>
<td>Pakvashya aamashya Madhya (su and va) agnashya (sha)</td>
<td>Dehen, pachan, saar, kitta vivechanang providing strength to other subtypes of pitta.</td>
</tr>
<tr>
<td>3. Aalochak pitta</td>
<td>Drishti (visual acuity)</td>
<td>Rupa and gyan darshan</td>
</tr>
<tr>
<td>4. Sadhak pitta</td>
<td>Hridya</td>
<td>Budhi, medha, abhiman, utsah and abhipretarth (dharma, artha, kaam, moksha sadhan)</td>
</tr>
<tr>
<td>5. Bhrajak pitta</td>
<td>Twacha</td>
<td>Prakashan of twacha, abhyang, parishek, aalepan, pachan and chaya prakashak.</td>
</tr>
</tbody>
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Bhrajak Pitta – Ayurvedic aspect
This is one of five subtypes of pitta which resides in skin and do bhrajan (provide lusture) to the skin. Skin is the main site of bhrajak pitta.

Functions of Bhrajak Pitta:
- Provide complexion to the skin.
• Sneha pachan.
• Prakashan (establishment) of chaya (aura) and prabha (lusture).

According to Sushruta\[11\]
The pitta which resides in the skin is known as bhrajakagni and it digests the dravyas used for various panchkarma therapies like abhyang, sechan, avgahan and aalepanadi applied over skin.

According to Ashtang Sangraha\[12\]
Bhrajak pitta resides inside skin. It provides complexion and lusture to the skin. Helps in digestion of various panchkarma therapies applied over skin and responsible for establishment for chaya (aura).

According to Ashtang Hridya\[13\]
The pitta which resides in outermost layer of skin (avbhasini twacha) is bhrajak pitta. It provides complexion to the skin.

According to Aacharya Sharangdhar\[14\]
Sharangdhar has mentioned in purva khand 5th chapter that the pitta which resides in skin, provides complexion and which do digestion of dravyas used in lepa, abhyang etc is known as bhrajak pitta.

Sthan (site) of Bhrajak Pitta\[15\]
Avbhasini which is the first layer of skin is the main site where bhrajak pitta resides.

Physiology of Bhrajak Pitta
• The active deha agni which resides in skin is bhrajak agni or bhrajak pitta.
• Skin’s colour, lusture, softness or body’s heat regulation is dependent on bhrajak pitta.
• The main function is digestion of dravyas used in panchkarma therapies applied over skin so that the therapies could be effective.
• The chemical change occurs in the skin because of bhrajakagni action which is responsible for maintaining complexion and lusture of the skin.
• This bhrajak pitta is responsible for maintainance of skin’s temperature.
• Bhrajak pitta is also responsible for softening of skin by generating sweda (sweat) from sweat gland by activating sweat gland.
According to Vaidya S.N Sharma (Concept of Jathragni in Ayurveda)
The bhrajak pitta which has its seat in the skin is called the bhrajakagni (illuminating or irradiating heat) in as much as it absorbs the substances used in the shape of unguents, lubrications etc and irradiates the glow of one’s natural complexion.

According to Vaidya C. Dwarkanath (Introduction To Kayachikitsa)
The bhrajak pitta is stated to be located in the skin and to important to this structure its characteristic colour and lusture. It has also been stated that it governs the normal and abnormal temperature of the body.

Bhrajak pitta – Modern View
According to modern physiology, the outer most layer is epidermis. The layer below epidermis is malpighian layer which is responsible for complexion. Malpighian layers has pigments in it which is known as melanin. They are blackish in colour. More the number of melanin cells more darker will be the complexion. Sun rays are helpful in production of melanin. Low concentration of melanin leads to fair complexion. Melanin is said to be present in low quantity in people residing in cold areas and high in people residing in areas near to equator. So, after this concept we can access that melanin has some relationship with heat or temperature. So, after this concept we can correlate melanin with Bhrajak agni.

Skin
In relation of bhrajak pitta it is essential to know about skin.

According to modern physiology, the skin in all animals perform two functions
- It serves to protect the underlying parts from injury and invasionaly foreign organisms.
- It serves as a sense organ and plays an important part in the regulation of the body temperature.

Epidermis the outer layer is divided into five layers:
- Stratum coreneum
- Stratum lucidum
- Stratum granulosum
- Rete mucosum
- Cutis vere
The deepest layer of rete mucosum after contains granules of pigment melanin, which occurs, in abundance, in coloured races. It is also produced in white races due to exposure to the sun. Melanin pigment is synthesized from the amino acid tyrosine, in the melanoblast cell found in the basal layer of epidermis.

The colour of skin depends upon the distribution of melanoblasts, the melanin concentration and, perhaps, its state can be reduced from a black to tan form.

**Melanocytes**

A melanin forming cell found in the skin. They produce melanin by the process known as melanogenesis. It leads to long lasting pigmentation of skin. Lighted skin people have low basal level of melanogenesis. The purpose of melanogenesis is to protect the hypodermis, the layer under the skin. Tyrosine is required for melanocytes to produce melanin from the amino acid tyrosine.

**On exposure to UV rays**

UV rays exposure cause increase production of melanocytes, thus increasing concentration of melanin. Melanin protects the skin from UV rays from the sun. More melanin production leads to tanning of the skin and tanning in return protects the skin from harmful UV rays.

**Melanin**

Melanin is formed by melanoblasts which are present normally, in the basal layer of epidermis and dermis.

**Composition of melanin**

The exact chemical composition is not known but, it is generally believed to be a polymer of tyrosine. The melanin producing cells contain an enzyme dopa oxidase. Which, in the presence of di-hydroxy phenylalanine, produces a dark cytoplasmic colour reaction.

The number and distribution of melanin producing cells of the body vary from individual to individual and they are genetically determined. Frequently, there is a congenital absence of these cells in various regions of the body, resulting in splochty areas of d-epigmentation known as vitiligo. Occasionally there is a total absence of melanoblasts in the skin, resulting in the production of albinism.
Melanocyte Stimulating Hormone (MSH)
Increase in concentration of MSH will cause darkening of skin. It is secreted by pituitary gland. It stimulates the production and release of melanin. This along with increase estrogen, causes increased pigmentation in pregnant women. Cushing’s disease due to excess ACTH may also result in hyperpigmentation, including areas not exposed to the sun; characteristic sites are skin creases(of hands), nipple, and the inside of the cheek. This occurs because MSH and ACTH share the same precursor molecule, proopiomelanocortin (POMC).

Haemoglobin
Hb is the oxygen carrying pigment in the skin. The red colour is due to haemoglobin. Hb is somehow also responsible for providing colour to the skin. People having more Hb are tend to have more pink reddish skin in compare to the people having less Hb whose skin are pale in colour. Skin become bluish during cyanosis, caused by excess reduction in haemoglobin.

Carotene
Carotene is a yellow to orange colour pigment. It is a precursor of vitamin A. Vitamin A is need for healthy skin and mucus membrane, immune system, good eye health and vision. Excess intake of carotene may cause a yellow or orange discolouration of the skin. Carrots, sweet potatoes, winter squash, spinach, apricots are the main sources of carotene.

Heat production in the body
Heat is produced in the body by following ways:
- Role of hormones
- Metabolic and muscular activities
- Shivering
- Brown fat tissue
- Radiation of heat from the environment

Heat loss in the body
Mainly heat is lost from skin in the body. Heat is loss from the body in following ways:
- Conduction
- Convection
- Radiation
- Evaporation
Panting

Regulation of Body Temperature
Skin has major role in regulation of body temperature. Sweat gland play major role in heat loss in the form of sweat. Broadly heat is loss by radiation, conduction, convection, and evaporation. In cold environment, heat loss is prevented by lipid content of sebum.

Thermoregulation
Thermoregulation is maintenance of body temperature, even when the surrounding temperature is very different. It is one of the homeostatis. Skin maintains thermoregulation by two ways:
- liberation of sweat at the skin surface
- by adjusting flow of blood in the skin layer (dermis).

Evaporation of sweat from the skin causes heat loss and provide cooling effect. When blood vessels dilates, more blood flows through the dermis, which increases sweating and the amount of heat loss from the body. During low temperature, less sweat is produced causing conservation of heat.

DISCUSSION
To the extent the factors which confer on the skin, its characteristic normal colour, is or are metabolically produced by specialized cells in the skin by the enzyme tyrosinase (dopa oxidase) to that extent we have a confirmation of the claim of ayurveda that there exists, in the layer of the skin, known as avabhasini, a pitta (or agni – Sushruta) known as bhrajak which is responsible for providing the skin with that pigment which confers on it its characteristic normal colour. The same is also true of the colour of the other structures of the body as the hair, eye, etc. Which, according to Bhela, is due to bhrajak pitta.

CONCLUSION
Pitta is an essential dosha of our body as its main function is in relation with digestion. It has five subtypes i.e pachak pitta, ranjak pitta, sadhak pitta, aalochak pitta and bhrajak pitta. In this article we have mainly focussed over bhrajak pitta. The main function of bhrajak pitta is to do bhrajan of skin i.e it provides lusture or complexion to the skin. It also regulates skin temperature. In modern it is correlated with melanin. Melanin is a pigment that gives human
skin, hair and eyes their colour. So, this article will provide us brief knowledge of pitta and bhrajak pitta along with its modern correlation.

REFERENCE