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Artava - A Potent Diagnostic Tool In Gynaecology

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ABSTRACT: -

Artava (Menstrual blood) is one of the *Upadhatus* (secondary tissue) of *rasa dhatu* (body tissue); which is used to define the menstrual blood or female sex hormones or ovum at different contexts. However, most commonly the term *Artava* (Menstrual flow) refers the menstrual blood. The color, texture, smell of menstrual blood picturises hormonal status of women. In classic texts, the variation in color, texture, smell of menstrual blood (*Artava*) and other associated factors are described in detail under the topic of *Artava Dushti* (menstrual disorder). The endometrium undergoes the great changes during endocrine cycle; thus, the menstrual blood may vary in color and texture which depends upon the factors such as health conditions, hormonal changes and pathological factors. Hence, *Artava* (visible menstrual blood) is an easy source and important diagnostic tool to make an approach towards diseases. Uterus disorders ranging from benign to malignant tumours as well as endometriosis can cause abnormal menstrual bleeding and are frequently diagnosed through endometrial biopsy. Yet the proteome of menstrual blood is an easily available non-invasive source of endometrial tissue. Classical texts explain types of menstrual disorders hearing *Artava Dushti* (menstrual disorder). They also describe in details color, texture, specific smell, amount and other associated features like type of pain in details in *Vata*, *Pitta* and *Kapha Dushti*. So, only by observing menstrual blood variation we can find out disease associated with it. Thus, study of *Artava* (menstrual blood) and *Artavadusti* (menstrual disorder). according to Ayurveda may be a major diagnostic tool for diagnosis of underlying gynaecological pathology in current gynecology scenario.

Keywords:- *Artava*, *Menstrual blood*, *Artava Dushti*, *Panchendriya Pariksha*, *Proteomes*.



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INTRODUCTION

Ayurveda is science of life. Its main motto is to maintain the healthy status of person along with to treat the sick. To diagnose the pathological conditions *Panchendriya Pariksha* (examination by five senses) is done. Especially in gynaecological pathologies *Artava* or menstrual blood is the potent indicator to underline pathology. It is the sole visible entity that is exhausted by the acharyas for diagnosis of various gynaecological diseases. Though the word *Artava* refers to menstruation or menstrual blood, ovum and ovarian hormones with reference to context in Ayurveda, yet under the heading of *Artava Dushti* only menstrual disorders have been described. In classics features of *Shudha Artava* (Pure menstrual blood) are also described i.e., color, texture, amount and duration of normal menstrual flow etc. The variation in normal color, texture, smell etc. of menstrual blood described in detail under the topic of *Artava Dushti* (menstrual disorder):

- *Vataja*
- *Pittaja*
- *Kaphaja*
- *Kunapgandhi* (smells like dead body)
- *Granthibhuta* (non/in-complete liquefaction)

- *Putipuya* (putrid and purulent)
- *Ksheena* (oligo zoospermia)
- *Mutrapurishgandhi* (smell like urine and faeces)

In Ayurvedic texts, the concept of *Tridosha* and *Panchmahabhuta* (five great elements) is applied. Everything is made up of *Panchmahabhuta*. *Artava* (menstrual blood) is also *Panchmahabhautik* (dominant *Mahabhuta* being *Tejas*). *Tridosha* in Ayurveda is *Vata*, *Pitta* and *Kapha*. Characteristics (Guna) of *Tridosha* are:²

1. ***Vata***: *Ruksha* (dry), *Sheeta* (cold), *Laghu* (light), *Sukshma* (fineness quality), *Chala*, *Vishad*, (clearness quality) *Khara* (roughness)
2. ***Pitta***: *Ushna* (hot), *Tikshna* (sharp), *Drava* (liquid), *Amla* (sour), *Sara* (mobility), *Katu* (pungent)
3. ***Kapha***: *Guru* (heavy), *Sheeta* (cold), *Mridu* (soft), *Snigdha*, *Madhura* (sweet), *Sthira* (immobility) And *Pichchhila* (Sticky).

The color and consistency of *Artava* (menstrual blood) changes according to vitiated *Dosha*. In ancient time, there were no such advanced laboratory techniques thus the examination of *Roga* and *Rogi* (Patient) was done of following types:

1. *Dashvidha Pariksha* (Ten-fold examination)
2. *Ashtvidha Pariksha* (8-fold examination)
3. *Shadvidha Pariksha* (6-fold examination)
4. *Trividha Pariksha* (3-fold examination)
5. *Pariksha* (examination) of *Artava* (menstrual blood) can be done with *Shadvidha Pariksha* (6-fold examination). Before examining the *Dosha* vitiated *Artava* (menstrual blood) we must know the characteristic of *Shudha Artava* (Pure menstrual blood). In Ayurveda characteristics of *Shudha Artava* (pure menstrual blood) are explained. At first, the colour of *Shudha Artava* (pure menstrual blood) according to different acharya⁴-

Gunjaphala Sannibham - Blackish Red

Padma - Pinkish Red

Aalaksannibham - Brownish Red

Indergopsankasm - Bright Red

Shasakasruk Partimam - Red

Ishatkrushna - Slightly Blackish

Texture of *Shudha Artava* (menstrual blood) is *Nipicha* i.e. there is absence of clots and frothing and smell is *Vigandh*⁵ i.e there is no additional smell. In associated features, *Shudh artava* (pure menstrual blood) should be without *Daha* (burning) and *Arti* (pain). Classic texts explain types of menstrual disorder hearing *Artava Dushti* (menstrual disorder), where the various features of *Dosha* vitiated *Artava* (menstrual blood) other than *Shudha Artava* (pure menstrual blood) are mentioned.

In modern medical science the health of endometrium is being recognized as a critical factor

in female fertility and proteomes and transcriptomes from endometrial biopsies at different stages of menstrual cycle have been studied for both diagnostic and therapeutic purpose, but it is an invasive method. In recent study, non-invasive source of endometrial tissue i.e., proteomes, was found in menstrual blood. Proteome is nothing but collection of proteins which is in menstrual blood in exposure to hormone stimulation of endometrium. Analyzing proteins is more difficult process because there are at least 20 different amino acids are needed that can make up a protein. Additionally, there is currently no known high output technology to make copies of a single protein. So proteins are studied indirectly, e.g., using computational methods and analysis of genomes. A study was conducted to define the menstrual blood proteomes by using different five methods⁶. Middle day sample in liquid form and tampon form were collected from healthy female volunteers and stored in -80°C until processed. When analysed through five different methods, a total of 1061 proteins were identified of which 385 unique proteins were found in the menstrual blood when they compared to that of circulating blood and vaginal discharge. It was found that during different endometrial phases; proliferative, secretory and menstrual phase, specific types of proteomes were secreted indicating respective functions. It was known that during different uterine pathologies, there is change in biochemistry and cellular composition of endometrium shed in menstrual blood. Hence, the proteomes present in the menstrual blood could be an important diagnostic tool for determination of

underlying pathology or physiology. There is change in menstrual blood specific proteomes and thus the color and texture of menstrual blood also changes. Under heading of *Artava Dushti* (menstrual disorder), we understand the changes in color and texture and smell of menstrual blood according to *Dosha*. According to ayurveda, *Artava* (menstrual blood) is visible and can be examined through *panchendriya* (five senses). The changes in *Artava* (menstrual blood) or menstrual blood according to different diseases of female genital tract are enumerated here.

***Vataj Artavadusti*^{7,8}:**

In *Vataja Artava Dushti*, color of menstrual blood is of *Vataj Vrana* i.e., reddish, blackish red and dark violet and *Artava* (menstrual blood) becomes thin, dry, frothy and scattered (very small clots mixed with liquid substance) excretes slowly, irregularly with sound and pain; specially perforating or piercing type of pain.

***Vatiki Yonivyapada*⁹:**

It has symptoms like stiffness, roughness, pain, pricking sensation, sensation of creeping ants, etc. Local symptoms and other disorder of *Vata*. Other associated symptoms are like fatigue or lethargy etc. Also found. The menstruation appears with sound, is painful, frothy, thin and dry (absence of mucus). Chakrapani has explained that this type of bleeding per vaginum may occur during intermenstrual period. *Susruta* has described local symptoms only.

***Vataja Asrigdara*¹⁰:**

In *Vataja Asrigdara*, the discharged menstrual blood is also frothy, thin, rough, blackish or reddish or resembling washing of flower of *Plasha* in color;

comes with or without pain. It is associated with severe pain in sacral, groin and cardiac region, flanks, back and pelvis. *Susruta* also mentioned its aftertaste as *Kasaya* (astringent), smells like iron and cold.

***Pittaj Artava Dushti*^{7,8}:**

In it the color and pain of *pitta* is found. The *Artava* (menstrual blood) vitiated by *pitta* is yellowish or bluish in color, is free from unctuousness, smells like pus, fungus, blood or has putrid smell; the excreted blood is hot, associated with severe burning sensation and feeling of heat at the time of its excretion. *Harita* has defined the color resembling to the flower of *Japa* or saffron or blood and has added dysuria in the symptoms.

***Pittaja Yonivyapad*⁹:**

The vitiated *Pitta* reaches reproductive organs and produce burning sensation, suppurations associated with fever and heat. The menstrual blood becomes blue, yellow or black in color excess in amount, hot and smells like dead body. This type of vaginal bleeding occurs even during intermenstrual period or this disease resembles *Pittaja Asrigdara*.

***Paittika Asrigdara*¹⁰:**

The symptoms of menstrual blood in it are blue, yellow or blackish in color, hot, comes in profuse amount and associated with pain. It is associated with burning sensation, redness, thirst, mental confusion, fever and giddiness. *Susruta* and *Vagbhata* have mentioned that the blood vitiated by *pitta* becomes blue, green, blackish or resembles with the water mixed with smoke or *Rasanjana* or cow urine color has musty or fishy smell, being bitter (*Katu*) in taste is not liked but ants or flies,

does not coagulate because it is hot (*Ushna*), if put in water spreads like moon light.

***Kaphaja Artava Dushti*^{7,8}:**

Artava (menstrual blood) vitiated by *Kapha* is expelled as whitish or yellowish in color mixed with bone marrow like discharge is too much thick, slippery and unctuous in texture and settles down if put in the water. *Harita* has added retention of urine, stiffness or idleness, lethargy, drowsiness and sleepiness etc. Symptoms also.

***Kaphaja Yonivyapad*⁹:**

In its symptoms like unctuousness, coldness, itching and dull pain in vagina is found. The women look anemic and discharges yellowish unctuous menstrual blood is the opinion of *Charaka*.

***Kaphaja Asrigdara*¹⁰:**

In it the excreted menstrual blood is slimy, pale, heavy, unctuous, cold, mixed with mucus and thick is discharged with mild pain. Other symptoms such as vomiting, anorexia, nausea, dyspnoea and cough etc. Are also present.

***Kunapagandhi Artavadusti* (smells like dead body)^{7,8}:**

This *Artavadusti* (menstrual disorder), is caused by *Rakta* (blood). In this condition the amount of blood discharged during menstruation is more and red like fresh blood. It is also associated with heat and burning sensation etc. Features of *Pitta*.

***Granthibhuta Artavadusti* (non/in-complete liquefaction)^{7,8}:**

It is caused by vitiation of *Vata* with *Sleshma* and has association of other features of both the *Doshas* (pain due to *Vata* and unctuousness due to *Kapha* etc.)

***Putipuya Artavadusti* (putrid and purulent)^{7,8}:**

Putipuya or *Puya Artavadusti* (putrid and purulent) is caused by *pitta* with *Kapha Dosas* is the opinion of *Susruta* and *Vagbhata 1*, *Vagbhata 2* says it to be due to *Rakta* (blood) with *Pitta*. This menstrual disorder is characterized with other features of *Pitta* and *Kapha* (burning sensation, fever and heat due to *Pitta*, heaviness etc. Due to *Kapha*)

***Kshina Artavadusti* (oligo zoospermia)^{7,8}:**

It is caused by *Pitta* with *Vayu*. In this condition menstruation is delayed, menstrual blood is scanty and associated with pain in vagina. It also has the features of *Vata* and *Pitta* both *Dosas*.

• ***Mutrapurisagandhi Artavadusti* (smell like urine and faeces)^{7,8}:**

It is caused due to vitiation of all three *Dosas* so it has features of all the three *Dosas*.

***Artavaksaya*⁸:**

In the event of deficiency or loss of *Artava* (menstrual blood), the menstruation does not appear in its appropriate time or is delayed, is scanty and does not last for three days. There is also pain in vagina. *Chakrapani* opines that this pain is due to aggravation of *Vayu* caused by loss of *Artava* (menstrual blood) which fills this region.

DISCUSSION

In Ayurveda, we can make a diagnostic approach by using *Artava* (menstrual blood) color, consistency, smell etc. According to vitiation of *Dosha* and diseases there are specific changes in menstrual blood. So, in ayurvedic perspective *Artava Pariksha* (menstrual blood examination) is done by

Panchindriya (five senses) and will become a very important tool in diagnostic and therapeutic purpose.

In this modern era, we can correlate *Artavadusti* (menstrual disorder) with different diseases on the basis of their most similar symptoms. According to the symptoms of *Pittaja Artava Dusti* it may be correlated with infections such as chronic pelvic Inflammatory disease, chlamydia trachomatis infection, trichomonas vaginitis, neoplasm etc. In a research study, *Kaphaj Artavadusti* is correlated with chronic endometritis, end cervicitis with oligomenorrhoea. *Kunapganghi* (smells like dead body) *Artavadushti* (menstrual disorder) be correlated with pyometra due to infection of genital

organs and carcinoma, *Granthi Artavadusti* (non/incomplete liquefaction) with endometrial hyperplasia, *Putipuya Artavadusti* (putrid and purulent) with acute endometritis and carcinoma leading to pyometra, *Ksheena Artavadusti* (oligozoospermia) with oligomenorrhoea, *Mutrapureeshagandhi Artavadusti* with cervical carcinoma at 4th stage. *Vataja yonivyapad* with atrophic vaginitis and hypoeestrinism, *Pittaja Yonivyapad* (gynecological disorder) with chronic inflammatory condition of female genital tract, *Kaphaja Yonivyapad* with Trichomonal or Monilial vulvo vaginitis, *Saannipatiki Yonivyapad* with chronic infective disorder of reproductive system.¹¹

Table 1: Various Characteristics of Artava (menstrual disorders) in Different Diseases According to Panchendriya Pariksha

<i>Sparsindriya pariksha</i> (consistency)	<i>Chakshuindriya pariksha</i> (color)	<i>Srotenidriya pariksha</i> (shabd a)	<i>Rasindriya pariksha</i> (Senses examination)	<i>Ghranindriya pariksha</i> (smell)	<i>Vedna</i> (pain)	Other symptoms	Diseases
Frothy thin, rough, cold	Blackish or reddish or washing of flower <i>palasa</i>	-	<i>Kasaya</i> (astringent)	Smells like iron	With or without pain (in sacral, cardiac, & groin region)		<i>Vataja asragdara</i>
Thin, dry, frothy, scattered	<i>Aruna</i> (red) <i>Krishn</i> (black) Violet black	-	-	-	Perforating or piercing type		<i>Vataja Artava dusti</i>
Thin, dry (absence of mucosa), frothy	<i>Aruna</i> , <i>Krishna</i> , <i>pinkish</i> or <i>blsckidh</i>	With sound	-	-	Severe pain in groin region, flanks etc.	Numbness, roughness, Stiffness, sensation as if creeping of ants in yoni, fatigue, lethargy	<i>Vatika yonivyapad</i>
Scattered, frothy, non-unctuous	Light red, black, yellow or blue	-	-	Purulent or putrid smell	May or may not be	Heat and burning sensation	<i>KshinArta va</i>

Normal	Normal	-	-		-	Pain in yoni	<i>Artavaksa ya</i>
Free from unctuousness	Yellowish or bluish	-	-	<i>Visra Gandhi</i> (like pus or putrid smell)	Burning sensation or feeling of heat		<i>Pittaja artavdusti</i>
<i>Ushna</i>	Blue, yellow or black in color	-	-	Like dead body	Burning sensation or feeling of heat in yoni	Fever, generalized heat, local suppuration	<i>Pittaja yonivyapa d</i>
Hot, does not coagulates	Blue, yellow or blackish in color	-	Bitter (<i>katu</i>)	Fishy smell	Pricking or burning sensation	In profuse amount menstrual blood, thirst, mental confusion, fever	<i>Pittaja asragdar</i>
Too much thick, slippery or lubricous	Whitish or slightly yellowish	-	-	<i>Kaphaja gandh</i>	Sleshma vedna i.e., kandu(itching)	Retention of urine, stiffness or idleness, lethargy, drowsiness and sleepiness	<i>Kaphaj Artavadus ti</i>
Unctuous	Yellowish	-	-	-	Painless	Itching, excessive coldness and dull pain in yoni	<i>Kaphja yonivyapa d</i>
Slimy, unctuous, cold, thick	Pale	-	Salty	Smells like fat	Mild pain	Vomiting, anorexia, nausea, dyspnea	<i>Kapaja asrigdara</i>
Slimy	Yellow or resembling ghrita, bone marrow or muscle fat	-	-	Foul smelling	Burning sensation	Fever, anemia	<i>Sannipatika asrigdara</i>
Unctuous	Whitish pale	-	-	-		Burning sensation and pain in yoni	<i>Sannipatika yonivyapa d</i>
	Yellowish or bluish				Pain in lumbosacral and groin region	Fever, tenderness and inflammation in yoni	<i>Paripluta^{1 2}</i>
Thick, mucoid				Purulent	Present		<i>Granthibhoot Artavadus ti</i>
	Red like fresh blood			Like Dead body	Present (<i>pitta vedna</i>)		<i>Kunapagandhi Artavadus ti</i>

Thus, menstrual blood proteomes are specific to hormonal cycle and there is presence of specific proteomes in specific diseases found. In modern research proteomes fascine (fscn1) found in cervical and ovarian cancer and tissue distribution of this proteomes in ovary. Normal function of this proteomes is providing rigidity, remodeling and cell

migration. Protein wnt (wnt) found in menstrual blood is specifically found in endometrial cancer (55) in, its tissue distribution is endometrium and its normal function is to regulate proliferation and differentiation in endometrium. Following table shows the proteomes found in menstrual blood in specific diseases¹³:

Table 2: Various proteomes found in menstrual blood in a specific disease with normal function and tissue distribution

Diseases	Tissue Distribution	Function	Protein
Breast Carcinoma	Placenta	Mediates Cell Growth Migration Differentiation and Mmp-2 And 9	Epithetical Discoidin Domain Containing Receptor 1(Ddr1)
Cervical, Ovarian Cancer	Ovary	Actin, Bundling Protein Provides Rigidity, Cytoskeleton, Remodeling and Cell Migration	Fascin (Fscn1)
Endometrial Cancer	Endometrium and Endometrial Hyperplasia and Carcinogenesis	Regulates Proliferation and Differentiation in Endometrium	Wnt (Wnt)
	Uterus, Placenta, Decidua, Cervix, Ovary	Apoptosis Intract With Tumor Necrosis Factor	Map Kinase Activating Death Domain Protein (Madd)
Endometriosis	Late Secretory Endometrium	Apoptosis, Inflammation, Vascularization and Apoptosis	Tumor Necrosis Factor Receptor Superfamily Member 16 Tnfril Urocortin 3 (Ucn3)

CONCLUSION

Ayurveda has a vast region of research. There is more needful research is required in *Artava pariksha* (examination of menstrual disorders) to use it as a diagnostic tool or therapeutic tool. *Artava* (menstrual disorders) consistency, color, smell etc. Are different in different diseases. So, it is an easy source to make an approach in diagnosis of underline diseases.^[14] Ayurveda has detailed description of *Artava* (menstrual disorders) according to *panchindriya pariksha* (examination of senses) but in modern era we have much more advanced techniques to study the changes in menstrual blood according to hormonal changes and we can study these *Artava* (menstrual disorders) changes in a different way in forms of proteomes by examining the visible menstrual blood or we can say it is molecular relation of color and texture change of menstrual blood which was examined in ancient times by *indriya pariksha* (examination of senses). So ayurvedic practitioner may concentrate to *Artava* (menstrual disorders) appearance and elaborate it in many ways. Many more studies are going on *Artava pariksha* (menstrual blood) and many more are required as this diagnostic field is still obscure. It may open the new arena for diagnosis in gynecology.

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