



Review Article

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PATHOPHYSIOLOGY OF UTERINE FIBROID AN AYURVEDIC PERSPECTIVE: A REVIEW

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ABSTRACT

Uterine fibroid is a benign outgrowth affecting the uterus. It is also known as leiomyoma. It is commonly seen in women aged 30-40 years. The Location of fibroid is an important determinant in clinical presentation, the common sites involved are outer layer (sub serosal), myometrium(intramural), inner cavity (sub mucus). They are mostly multiple and vary in size and shape. Mostly they are asymptomatic; if symptomatic they are characterized by menorrhagia, metrorrhagia, menometrorrhagia dysmenorrhea, infertility, abortions, and pressure symptoms like abdominal distension, low backache, stress incontinence, urinary retention, and constipation.Uterine fibroid is a condition where Guru(quality promoting growth), manda (quality which is responsible for slow action) and snigdha guna (quality which causes nourishment) dominated prakupita kapha (potent factor which initiate pathology) results in impaired artava(ovarian steroids) formation due to samana vayu (factor executing steroidogenesis and oogenesis) dysfunction and subsequent mamsa vrddi (muscular hypertrophy) in garbhasya (uterine myometrium). The asymptomatic fibroids are kapha pradhana (affecting myometrium), submucous fibroids presenting with menstrual irregularities are vata pitta anubandha avastha (affecting endometrial vasculature), and subserous fibroid presenting with pressure symptoms are vata anubandha avastha (pressure to visceral structure).

Keywords: Agantu kapha, samana vayu, artava dusti, mamsa vrddi, srotodusti

INTRODUCTION

The incidence of uterine fibroid is markedly increasing nowadays, and many are being accidentally diagnosed during ultrasound screening. The disease uterine fibroid also known as leiomyoma, is a benign growth of smooth muscle and fibrous tissue within the uterine myometrium. It is classified as intramural, submucous and subserous fibroid based on its location within the uterus. It is one among the common reason for hysterectomy. Hence more people are approaching for Ayurveda management. The disease needs proper understanding through Ayurveda based on dosha (factors which initiate the pathogenesis), dushya (factors which undergo dysfunction), Agni (factor responsible for transformation), srotas (cellular level channels), vyadhi avastha (stage of the disease) in order to get properly diagnosed and managed. In Ayurveda the pathology is said to be initiated when prakupita dosa (potent factor for initiating pathology) with various gunas (peculiarities or qualities) interact with the dusyas, this interaction creates dysfunction within the structures and produce the manifestation of lakshana(symptoms) of the disease¹. The site of the disease is decided by the specificity of nidana (causative factor), it is mentioned that impairment of srotas² and vata vaigunya³ are the most important factors in disease localization and hence specific sroto dushti nidana (factors causing dysfunction of cellular channels) & panchavayu nidana (factors causing dysfunction of five types of vayu) are the key determinants in the pathology. Instead of naming the disease as granthi (benign tumor), arbuda (malignant tumor) or vidrudi (abscess) etc., giving emphasis on identifying the dosa nidana(etiology), the status of prakupita Agantu dosha (Doshas developed through extraneous sources), the sthani doshas (doshas at the site of the pathology which undergo dysfunction later) and vyadhi avastha (state and stage of the disease whether acute or chronic etc) can significantly

contribute in proper understanding of the uterine fibroid⁴. The following work aims at comprehensive understanding of the above key factors involved in the pathophysiology of uterine fibroid.

Etiology and Risk factor

The exact etiology is unknown, however increased risk is associated with factors like nulliparity, obesity, increased body mass index, Poly cystic ovary syndrome, hyperoestrogenic state, black women, high fat diet, family history and Reduced risk is associated with multiparity, menopause, COC, smoking⁵

It's understood that chromosomal abnormality and various polypeptide growth factors such as epidermal growth factor, insulin like growth factor, transforming growth factor, estrogen and progesterone are involved in the growth of leiomyoma under the influence of oestrogen⁶

The risk factors like obesity, high fat diet, hyper estrogenic state, increased body mass index, poly cystic ovarian disease and the involvement of various growth factor is very much suggestive of association of prakupita kapha⁶(biochemicals which can initiate pathology) dominated with guru⁷ (quality promoting growth) manda⁸ (quality which is responsible for slow action)and snigdha guna⁹ (quality which causes nourishment) causing rasa dushti (impaired rasa dhatu which serves as the precursor of artava) and subsequent artava dushti¹⁰ (unopposed oestrogen and anovulation).

The artava (functional reproductive structure) is considered as upadhatu (by product of metabolism) of rasa dhatu¹¹. The rasa dhatu is transformed to artava by rasa dhatvagni (transforming factor at the level of cellular metabolism) under the influence of

samana vayu (vayu which maintains the transforming factor) which is responsible for agni sandeepana (metabolic excellence) and proper execution of transformation within artava vaha srotas¹² (channels involved with steroidogenesis and folliculogenesis). Due to the dysfunction of samana vayu¹³ following its interaction with excessive snigdha, manda and guru guna the proper transformation of artava is affected resulting in the formation of dusta artava (altered steroidogenesis and anovulation). This initiates the growth of leiomyoma by abnormally stimulating the Garbhasaya (uterine myometrium). Garbhasaya being the moolasthana (prime structure) of artava vaha srotas¹⁴ there is smooth muscle hypertrophy leading to the development of uterine fibroid (Table 1).

Symptom Dosha Analysis

Submucus fibroid

Menstrual irregularities are very common with submucus fibroids. It can be menorrhagia, menometrorrhagia or metrorrhagia. Congestive dysmenorrhea¹⁵ (due to venous congestion), spasmodic dysmenorrhea¹⁶ (due to uterus undergoing spasm as it tries to expel the large clots and excess blood) are the types of dysmenorrhea frequently associated.

- **Menorrhagia-** is the commonest presentation following increased endometrial surface area due to submucus fibroid, it's also associated with hyperoestrogenism and endometrial hyperplasia¹⁷, In Ayurveda such symptom is termed as asrgdara¹⁸ (abnormal uterine bleeding) and is following pitta¹⁹ dysfunction (dysfunction in haemostasis) at Garbhasaya gata sira²⁰ (endometrial vasculature). Pitta dysfunction in raktadhatu (cellular components of blood) and its upadhata sira (Endometrial vasculature) results in bleeding presentation. Teekshna²¹ (factor which cause secretion), usna²² (factor which promotes the bleeding) and drava²³ guna (factor which increases fluidity) dominance in pitta dosha is responsible for the above dysfunction.
- **Menometrorrhagia-** Irregular prolonged acyclic bleeding can also occur in uterine fibroid due to associated anovular cycles. Anovulatory bleeding is due to sama pitta²⁴ (impaired metabolite in combination with transforming factor) with snigdha (factor which causes nourishment), drava, and teekshna guna causes dysfunction of dhatvaagni (local autocrines and paracrine hormones helping in the maturation and ovulation) leading to anartava (anovulation) and asrgdara (abnormal acyclic uterine bleeding).
- **Metrorrhagia** – Midcycle spotting are also seen in some cases of fibroid following surface ulceration²⁵ over the submucus fibroid, this again is considered as pitta dysfunction with teekshna guna causing asrgdara due to vrana (surface denudation) (Table 2).
- **Congestive dysmenorrhea²⁶:** Submucus fibroid presents with dysmenorrhea 2-3days prior to periods and gets relieved or gets milder with onset of menstruation. Similar feature of relief of dysmenorrhea after the onset of menstruation is seen in a yoni roga called udawartni²⁷ which is vata pradhana (dominance of dysfunction in vata dosha causing the pathology). Since the congestion is relieved with the flow of menstrual blood the involvement of vyana vayu²⁸ (the factor which executes the proper flow of rakta) and apama vayu²⁹ (responsible factor for expulsion of menstrual blood) dysfunction is understood. Secondary infection of endometrium can also cause congestive dysmenorrhea due

to endometritis in such cases the vata and pitta doshas³⁰ (factor responsible for inflammation) are involved. Visada guna of vata dosha (factor which reduces circulation and secretions) and usna guna of pitta dosha (the factor which initiates inflammation) are playing a dominant role in congestive dysmenorrhea associated with fibroid.

- **Spasmodic dysmenorrhea:** Dysmenorrhea with onset of periods and lasting for 1-2days or more is following abnormal uterine contraction due to apama²⁹ dysfunction by rooksha guna (factor causing abnormal contraction). The visada³⁰ (factor which reduces circulation and secretions) guna of vata causes ischaemia which is also seen in cases with spasmodic dysmenorrhea (Table 3).

Subserous fibroid

Pressure symptoms like acute retention of urine, increased frequency, stress incontinence, constipation, low back ache, is due to vata dysfunction³¹, since vega (urges) are controlled by vata. Following the pressure to the nearby structure by mama vrdhi, (myoma) there is obstruction to the movement of vata (structures representing vata in pelvic cavity) present locally as said in udawarta³² (condition associated with reverse peristalsis). Here it is the Rooksha guna of vata is the factor causing abnormal symptoms

Pressure symptoms like low back ache, stress incontinence, urinary retention, constipation, flatulence etc. are following vimarga gamana (abnormal execution of activity) of vayu in pakwasaya (pelvis)³³ (Table 4).

Asymptomatic fibroids

60% of Intramural fibroids remain asymptomatic; the asymptomatic benign growth can be understood as the feature of prakupita kapha dosa causing mama vrdhi³⁴ (hypertrophy of muscle) in the uterine myometrium, the asymptomatic nature is following its very slow growth, as it takes several months to grow. Hence manda guna (sluggish activity) of kapha is the factor responsible for its slow growth (Table 5).

DISCUSSION

Uterine fibroid needs clearly understanding of pathogenesis, with emphasis to the status of different dosha, their key gunas and its interaction with dusya (Dosa, dhatus, mala, upadhatus etc). This disease initially following prakupita kapha in Rasa dhatus with manda guru & snigdha gunas interact with uterine myometrium by causing increased oestrogen receptor formation/ due to dusta artava lead by samana vayu dysfunction and thereby leading to leiomyoma. The manda guna of prakupita kapha is responsible for its very slow growth. Only after its substantial increase in size of the tumor the symptoms are produced this is the reason behind asymptomatic fibroids. Menstrual irregularities like menorrhagia, menometrorrhagia, metrorrhagia, dysmenorrhea, pressure symptoms, infertility, abortion etc are common features of submucous fibroids. The agantu kapha (extraneously derived kapha) interacts with sthani pittam³⁵ (pittam which resides in the endometrium) and vyana vayu²⁸ (controller of function of blood circulation in endometrial vasculature) and apama vayu²⁹ (initiator of menstrual efflux) present in the endometrium and myometrium to cause menstrual irregularities. Similarly, in the subserous fibroid the agantu kapha interacts with sthani vayu in pakwasaya (apama vayu present in pelvis) producing the above said pressure symptoms.

Table 1: Key factor involved in the samprapti (pathophysiology) of uterine fibroid

Risk factors	Gunas	Dosha	Agni	Srotas	Dusya
Obesity	Guru	Kapha	Samana vayu	Rasa vaha Artava vaha	Rasa
High fat diet	Snigdha				Artava
Poly cystic ovarian disease	Manda				Mamsa Garbasaya

Table 2: Pathogenesis in submucus fibroid with abnormal uterine bleeding

Symptom	Gunas	Dosha	Dushyam
Menorrhagia	Drava Teekshna	Pitta	Artava and Rakta
Menometrorrhagia	Snigdha Drava Teekshna	Sama pitta	Artava and rakta
Metrorrhagia	Teekshna	Pitta	Artava and rakta

Table 3: Pathogenesis in submucus fibroid with dysmenorrhea

Symptom	Gunas	Dushya	
		Sthani dosa	Dhatu
Congestive dysmenorrhea	Visada usnam	Vyana vayu Apana vayu Pachaka Pittam	Rakta Mamsa
Spasmodic dysmenorrhea	Ruksha, visada	Apana vayu	Mamsa

Table 4: Pathogenesis in subserous fibroid with pressure symptoms

Symptoms	Gunas	Doshas	Dusya
Low back ache			Mutrasaya
Stress incontinence			Pakwasaya
Urinary retention			
Constipation			
Flatulence			
	Rooksha Laghu	Apana vayu	

Table 5: Pathogenesis in asymptomatic fibroid

Symptom	Gunas	Dosha	Dushya
Asymptomatic uterine fibroid	Snigdha Guru Manda	Kapha	Mamsa Artava

CONCLUSION

The disease uterine fibroid is initiated by agantu kapha causing mamsavaha sroto dushti in garbhasaya resulting in mamsa vriddi (muscular outgrowth). The submucous fibroid and subserous fibroid are the updravas produced following vata pitta dysfunction and vata dysfunction respectively. Kapha prakupita nidana is the hetu strongly initiating the pathology by altering the function of samana vayu in artavaaha srotas at garbhasaya.

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