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 vasana (factor executing steroidogenesis and oogenesis) dysfunction and subsequent mamsa vrdhi (muscular hypertrophy) in garbhasaya (uterine myometrium). The asymptomatic fibroids are kapha pradhan (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 vasana, artava dushti, mansa vrdhi, 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 uterus 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), dusha (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 dosha (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 disease. The site of the disease is decided by the specificity of nidana (causative factor), it is mentioned that impairment of srotas and vata vaigunya are the most important factors in disease localization and hence specific srotas dushti nidana (factors causing dysfunction of cellular channels) & panchavayu nidana (factors causing dysfunction of five types of vasu) are the key determinants in the pathology. Instead of naming the disease as granthi (benign tumor), aruba (malignant tumor) or vidradi (abscess) etc., giving emphasis on identifying the dosa nidana(etiology), the status of prakupita Agantu dosha (Doshas developed through extraneous sources), the sthni 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 fibroid. 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, smoking.

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 oestrogen.

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 kapha (biochemicals which can initiate pathology) dominated with guru (quality promoting growth) mandma (quality which is responsible for slow action) and snigdha guna (quality which causes nourishment) causing rasa dushti (impaired rasa dhatus which serves as the precurser of artava) and subsequent artava dushti (unopposed oestrogen and anovulation).

The artava (functional reproductive structure) is considered as upadhatu (by product of metabolism) of rasa dhatu. 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 Garbhasya (uterine myometrium). Garbhasya 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 congestion), metrorrhagia. C Submucus fibroid development of srotas following srotas which samana vayu feature of relieved with dysmenorrhoea Congestive vrana dysfunction is understood with dysmenorrhoea Submucus fibroid asrgdara and ovulation) snigdha cycles. can also occur in uterine fibroid due and its updhatu pitta asrgdara hyperplasia it's increased Menorrhagia also associated with there is s Menorrhagia with onset of menstruation Menorrhagia is the commonest presentation following surface ulceration due to associated anovular cycles. Anovulatory bleeding is due to sama pitta17(impaired metabolite in combination with transforming factor) with snigdha(factor which causes nourishment), drava, and teeksha guna causes dysfunction of dhatvaagni (local autocrines and paracrine hormones helping in the maturation and ovulation) leading to anartavam anovulation) and asrgdara(abnormal acyclic uterine bleeding).

Menorrhagia- is the commonest presentation following increased endometrial surface area due to sub mucus fibroid, it’s also associated with hyperoestrogenism and endometrial hyperplasia17. In Ayurveda such symptom is termed as asrgdara (abnormal uterine bleeding) and is following pitta18 dysfunction (dysfunction in haemostasis) at Garbhasya gata sira19 (endometrial vasculature). Pitta dysfunction in rakadhatu (cellular components of blood) and its upadhatu sira (Endometrial vasculature) results in bleeding preservation.Teeksha21 (factor which cause secretion), usma22 (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 pitta17(impaired metabolite in combination with transforming factor) with snigdha(factor which causes nourishment), drava, and teeksha guna causes dysfunction of dhatvaagni (local autocrines and paracrine hormones helping in the maturation and ovulation) leading to anartavam anovulation) and asrgdara(abnormal acyclic uterine bleeding).

Metrorrhagia – Midecycle spotting are also seen in some cases of fibroid following surface ulceration20 over the submucus fibroid, this again is considered as pitta dysfunction with teeksha guna causing asrgdara due to vrana(surface denudation) (Table 2).

Congestive dysmenorrhea26: Submucus fibroid presents with dysmenorrhoa 2-3days prior to periods and gets relieved or gets milder with onset of menstruation. Similar feature of relief of dysmenorrhoa after the onset of menstruation is seen in a yoni roga called udawartim17 which is vata pradhatma (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 apana 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 apana32 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 mamsa vrddi, (myoma) there is obstruction to the movement of vata (structures representing vata in pelvic cavity) present locally as said in udawarta29(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) in vyau in pakwasaya (pelvis)31 (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 mamsa vrddi24 (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, dhatu, mala, upadhatu etc). This disease initially following prakupita kapha in Rasa dhatu 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 there by 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 submucus fibroids.The agantu kapha (extraneously derived kapha) interacts with sthanī pittam33 (pittam which resides in the endometrium) and vyana vayu28 (controller of function of blood circulation in endometrial vasculature) and apana 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 sthanī vayu in pakwasaya (apana vayu present in pelvis) producing the above said pressure symptoms.
CONCLUSION

The disease uterine fibroid is initiated by agantu kapha causing mamsavaha srotu dushti in garbhasaya resulting in mamsa vrddi (muscular outgrowth). The submucous fibroid and subserous fibroid are the updravas producing the pathology by altering the function of samana vayu in nidana. The submucous fibroid and subserous fibroid are the hetu strongly initiating the pathology by altering the function of samana vayu in artavaaha srotas at garbhasaya.

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