VOLUME-7, ISSUE-11, NOVEMBER-2018 • PRINT ISSN No 2277 - 8160

Original Research Paper

Ayurveda

PATHOGENESIS OF ENDOMETRIOSIS - AN AYURVEDIC PERSPECTIVE

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ABSTRACT

Endometriosis is considered to be as the 3rd leading cause for gynaecologicalhospitalisation (Mcleod, 2010)characterised with severe pain and other symptoms like menstrual irregularity, infertility etc. There are so many theories regarding the pathogenesis of the disease, but none of these is capable of exploring its pathogenesis as a whole.In ayurvedic classics there is no specific condition or disease which can be exactly correlated to endometriosis.According toacharyas, for treating a disease it is not necessary to know its name but is mandatory to know its pathogenesis.Depending upon its clinical signs and symptoms we can consider the different entities like yonivyapath,raktagulma, raktapitta etc. and treat accordingly. The main aim of the treatment is to reduce the pain, restore fertility and to prevent the recurrence of symptoms

KEYWORDS : endometriosis, yonivyapath ,vatiki, udavarthini

INTRODUCTION

Endometriosis is a multifactorial disease characterised by inflammatory changes in pelvic cavity,symptoms of pain, infertility, menstrual irregularity etc. It reduces the quality of life of females because most of them suffer from severe pain.176 million women world-wide are affected withendometriosis(Adamson et al, 2010) and it is a leading cause for infertility in 25-40% of infertile women(Ozkan, 2008). It was discovered by surgeon Thomas Cullen (Brosens, 2011).Schrön described it as "female disorder in which ulcers appeared in the abdominal, the bladder, intestines and outside the uterus and cervix, causing adhesions". Sampson coined the term endometriosis in the year 1921(Brosens, 2011).first histological descriptions regarding endometriosis was given by Von Rokitansky(Benagiano, 2011). Endometrium is theMucous lining of the uterine cavity. It consist of surface epithelium and lamina propria.surface epithelium is a single layer of ciliated columnar epithelium &lamniapropria consist of stromal cells, endometrial glands, vessels and nerves only with the presence of endometrial glands and stroma it can be histologically diagnosed as endometriosis. Endometriosis is clinically defined as the presence of viable, estrogen sensitive endometrial like glands and stroma found outside the uterus, resulting in a chronic inflammatory reaction. Depending on the site it can be classified as interna and externalnterna means with in the uterus ie in the myometrium contains both glandular and stromal components. Due to vigorous curettage or excess estrogen results in endometriosis interna or adenomyosis and externa means outside the uterus .it can be seen in abdominal ,extra abdominal or even in remote sites(Dutta , 2012).

PATHOGENESIS OF ENDOMETRIOSIS.

Endometriosis is often known as disease of theories,Because there are so many theories regarding the pathogenesis of the disease like retrograde menstruation ,coelomic metaplasia ,direct implantation, lymphatic theory ,vascular theory ,genetic , immunological theory etc but no single theory has proven sufficient to explain the pathogenesis of this disease. But the main event in the process of disease is implantation or metaplasia of endometrial tissue. There are evidence showing that genetic, endocrine, immunological [both local and systemic] and environmental factors play an important role in the genesis and development of endometriosis (kobayaskhi et al, 2003).

1] metaplastic theory- coelomic pluripotent mesothelial cells lining the peritoneum undergoing metaplasia into endometrial tissue. [this theory explains endometriosis in abdominal visera, rectovaginal septum and the umbilical region] the germinal epithelium of the peritoneal serosa and ovary can be transformed by metaplasia , the induction theory posses that one or several endogenous biochemical or immunological factors could induce endometrial differentiation in undifferentiated cells(Giudice et al, 2012).
2] Direct implantation theory explains the implantation of endometrial tissue in abdominal scar and episotomy scar
3] Family history – illustrate that 10 – fold increased risk in those women with first – degree relative who have endometriosis (Matalliotikis, 2008).
4] Retrograde flow of menstrual blood into the pelvis through the fallopian tube. This retrograde transplanted endometrial tissue and cells attach to peritoneal surfaces establish a blood supply , and invade near by structures(Giudice et al, 2010)The implantation and invasion of the viable cells from retrograde menstruation into the peritoneum and from there to other ectopic sites is the most widely accepted theory(Chen, 2002).

Normally the peritoneal fluid contains variable amount of macrophages, mesothelial cells,lymphocytes, mast cells , oesnophilsetcthenormal concentration of peritoneal fluid leucocytes is 0.5 to 2.0* 10^6 / ml of which approximately 85% are macrophages (Syrop, 1987).The reflux of menstrual blood along with endometrial tissues through the fallopian tube results in the entry and presence of free red blood cells leads to the activation of immune system results in the increased concentration of macrophages in the peritoneal fluid (kumar& Ashok, 2014).Certain chemoattractant cytokines particularly RANTES and IL-8, facilitates macrophage recruitment into the peritoneal cavity. Lysis of the red blood cells in the peritoneal cavity by the immune system results in an iron overload in the peritoneal fluid ,the ectopic endometrial tissue and the peritoneum adjacent to the lesion (Mansour, 2009).Iron overload was observed in the cellular and peritoneal fluid compartment of the peritoneal cavity was of endometriosis patient suggesting the role in its pathogenesis (Langendonckt, 1997).

The iron is a catalyst that generate free radical which is a cause for the reactive oxidative stress.OSincreases vascular endothelial growth factor [VEG]production ,which promotes the growth of the endometrial implants and stimulates angiogenesis. This effect is partly mediated through glycodelin which is a glycoprotein whose expression is stimulated by OS , It acts as an autocrine factor within the ectopic endometrial tissue by augmenting the expression of VEGF (Agrawal, 2013) ie,theendometriotic lesion as well as activated macrophages secretes VEGF.

The activated macrophages also secrete a glycoprotein called cytokines having chemo attractant, proliferative, differentiative effects and also certain growth factors. Certain cytokines like TNF[tumor necrosis factor], RANTES,monocyte chemoatractant protein -1[MCP-1],etc plays an vital role in the inflammatory process.Cytokines are probably responsible for endometrial cell proliferation and implantation of endometrial cells or tissue in ectopic sites. More over cytokines increased tissue remodelling through there effects on the matrix metalloproteinases(Osteen, 1999).The matrix metalloproteinases 9 is involved in the degradation of extracellular matrix and the lesion also secrete haptoglobulin which decreases the adhesion and phagocytic

function of macrophages.

There are both local and systemic immunological alterations associated with endometriosis , though the mechanism through which they contribute to the development of endometriosis is still unclear(Urata et al, 2007)But the significant role of the immune system in the pathogenesis of endometriosis has been recently documented. There is a significant role of the immune system in the pathogenesis of endometriosis has been recently documented (Lebovic , 2007).This explains why most of the women with retrograde menstruation does not develop endometriosis.

The ectopic endometrium under the influence of both systemicand local Estrogen undergoes cyclic growth and shedding which further leads to the proliferation and invasion of the nearby structures.

AYURVEDIC PERSPECTIVE

During menstruation, the endometrial tissue is shed out along with blood, along with other fluids and debris. As per Ayurveda, vata dosha is responsible for all the movements in the body, and it is also responsible factor for the menstrual flow also especially the apanavata . In ashtangasamgraha it is clearly mentioned that removal or expulsion of artava, is the prakruta function of apana vata. So for the retrograde menstrual flow there will be a disturbance in the normalcy of apana vata along with other factors also.

As there is no specific nidana mentioned for endometriosis we can consider the sāmānya nidana like due to

- Mithya aharavihara
- Dustaarthava
- Beejadosha
- Vishamasthaangashayana
- Apadravya
- Daiva

We can correlate the sāmānya nidana with the proposed etiology of endometriosis.

DISCUSSION

The samprapti of the disease can be correlated with the modern proposed theories.The Genetic theory can be correlated with the daiva or purvakritakarma,theImmunodeficent theory can be correlated with the mithyahara and vihara and the Implamtation theory,metaplastic theory,lymphatic theory and the blood born spread theory can be correlated as vitiation of vata and due to its tiriyakgamana .Depending on dusti and gathi of vata the adisthanaof the endometrial implants is determined , if vyana vata is vitiated along with the udana vata the implants may be seen in remote sites. Apanavāyu is associated implants of endometrial tissues is usually seen in pelvic sites.

While assessing the sampraptighatakas we can see that the pradhāna Doshais Vataand AnubhandaDosas are Pitta And Kapha . theDoosyas are Rasa , Raktha and Raja. The Srotas affected are rasa, raktha and arthavavaha. As a result of arthavavaha srotodu tī there is sanga, vimargagamana and granti formation are seen in the arthavavaha srotas and depending upon on the dusti is the adisthana of the disease.

While observing the symptoms there are subjective variations of symptoms are observed. In general the symptoms are dysmenorrhea ,dysparunea, abdominal pain ,pelvic pain , pain on defecation [dyschezia] and micturition.Abnormal menstruation like menorrhagia , polymenorrhea . Epimenorrheaetc none of the patients have all the symptoms. The mode of approach of treatment depends on the individual symptoms which is explained in the table (1)

Features	In Ayurveda	Reference
Dysmenorrhoea	Vatiki yoni vyapad Udavartini	.....कुर्याद्रुक्तोदायमसुप्तता ....[.A.H U] ...सरुगार्ता.... रजसोगमनादूर्धं....[Ch.Chi.30]
Dyspareunia	Paripluta	....ग्राम्यधर्मेणुग्भूशम्....[M.N 62/3]
Melena Haematuria	Raktapitta	.....मेढ्रयोनिगुदैरधः.....[.A.H..Ni 7 / 3]
Menorrhagia with dysmenorrhoea	Vatajapradara	किंशुकोदकसङ्काशं.....कुरुतेवेदनांतीव्रामे तत्.....[Ch.Chi.211/30]
Chocolate cyst	Vatajagranthi	आयम्यतेव्यथ्यतएतितोदं.....कृष्णोअमृदुर्बु
Adhesion and retroversion	Antarmukhi	.....योनिस्रोतसिसंस्थितः वक्रयत्यानन्योन्याः.....[.Ch.Chi29/30]

Table 1

And the treatment also depend on the dosa involved and extend of the disease. Thedosha involvement can be assessed with the help of clinical symptoms as well as with the help of ultrasound finding.

	PREDOMINENT DOSHA	MODERN CO-RELATION
1	Vata dominant stage	Implantation , cyst formation ,patient may present with symptoms like pain
2	Vata, kapha stage	Cystic and adhesion formation
3	Kapha vata dominant stage	Extensive adhesion formation
4	Vata pitta stage	Hormone imbalance, burning micturition, disorders of menstruation ,ovulation , infertility

Table 2

CONCLUSION

Endometriosis is an enigmatic disease. Usually individual variations are seen the presenting symptoms and pain is the most common symptom. The pradhāna dosha is vata but the treatment should be decided after considering theanubandhadosha also.the treatment of vātika yoni vyapad, udavarthini, pariplutha, rakta pitta, vātaja pradhāna, vātika granthietc can also be applied depending upon the symptoms.