

Uterine Fibroids

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Abstract

BACKGROUND AND OBJECTIVES: Uterine fibroids(also known as leiomyomas and myomas) are most common non-cancerous tumors that mainly affects the smooth muscles of the uterus, with highly spreadable in older women. Leiomyomas can occurring at any age of the women but leiomyoma is mostly develop in 25-40% of women of generative age; however there are different results are seen from different population.

The pathogenesis of uterine fibroids is not yet well known. The main aim of this review was to estimates the probable connection between the use of pills and takes place of leiomyomas in women of generative age. Myomas symptoms include abnormal bleeding during mensuration leading to anaemia, tiredness, urinary retention, back pain constipation, and discomfort in lower abdomen pregnancy loss and other consequences. It's aslo included with reproductive problems like impaired fertility, complication and adverse effect outcomes. In addition to more then 250,000 supracervical hysterectomies, in excess of 35,000 fibroidectomy and 20,000-30,000 of leiomyomas embolizations and other procedures are performed for symptomatic leiomyomas per years in the india.

Thirty percents of the reproductive women dealing with the symptoms of leiomyomas and between them, around 37% needed to hospitalisation due to the serverity of the disease. The myomas treatments included supplements with iron, birth control hormones remedies, painkillers, drugs modulating the estrogen receptors, gonadotropin-releasing hormone agonists and surgery for the removal of uterine fibroids. In 2025, the estimated healthcare costs of myomas in private hospital are varied from 55,000 to 60,000 in india.

Keywords: uterine fibroids, contraceptive pills, supracervical hysterectomies.

INTRODUCTION

A uterine fibroids (also known as uterine leiomyomas) is a commonest benign uterine neoplasm, with an evaluation rate of occurrence of 25%-50% in women during the generative years and develop from the neoplastic alternation of a mutated myometrial smooth muscle stem proliferating below impact of the ovarian steroid progesterone.It consists a huge amounts of extracellular matrix that mainly composed of fibronectin and glycosylated macromolecules.

Pathogenesis of uterine leiomyomas is not clearly not known.The vital role of steroid hormones of an ovarian in the pathogeny of myomas is maintained by epidermiological, clinical and experimental proof. The estradiol and progesterone impacts that are deeply connected and that include the complex medication molecular pathways, uterus is manily composed of myometrium and its internal lining of mucosal endometrium, in which an fertilized egg is implants and grow vigorously. The middle layer of the uterus is a strudy smooth muscle layer, which contributes the bulk of the uterus and its structural

stabilities. During every menstrual cycle, the middle layer undergoes to the cell proliferation and cell enlargement for the physical residence of an upcoming pregnancy.

Estradiol and progesterone are the most strongest applicants to play such important roles, In such that as a results to estrogen that is enables to progesterone activities and progesterone itself released by the ovules, the myometrial cell proliferate and self-renewing. The alteration of a severe gene may arises in a proliferating myometrial smooth muscle cell; this is the major event that starts abnormal cell growths. finally, the proliferation of this altered smooth muscle cell may combined the modification- free tumor-related fibrocytes and released extracellular matrix to contributes to a clinically apparent tumor.

These can be identified by their position comparative to the layers of the uterus (as subserous, intramural or submucous) and can be individual and numerous.

EPIDEMIOLOGY AND ETIOLOGY

Uterine leiomyomas are non- cancerous tumors that developed from the uterine smooth muscle tissues, whose progress is relying on estrogen and terone.

Uterine leiomyomas are uncommon earlier puberty, increase in frequency throughout the generative years, and decline in size later menopause. Estrogen synthesised in uterine leiomyomas tissue permits for endogenous formation of estradiol and progesterone receptors that assists growths of the tumors in the presence of these hormones. The most common harmful factors for the uterine myomas growth are expanding of the age.

AGE :-

A study of USA is carried out with randomly selected women between the age of 30-50 years (those are screened by medical report, and sonography) showed that the rate of frequency of the uterine leiomyomas by the age 30 was 57% among African- American women, increasing to >75% by age 50, whereas Caucasian women showed an rate of frequency of 40%by age 35.

PERIOD START BRFORE THE AGE OF 12 YEARS :-

Numbers of studies in addition mostly from the previously have been reported an growing hazards of uterine leiomyomas with the previously duration of the first period and the recently information supports the earlier scientific theories and informations and newer updates confirm these findings.

Previous era of menstrual is also a highly hazardous reasons for other harmones arbitration states such as uterine lining cancer and ductal carcinoma. The biological methods aren't known, and they are may and may not be the similiar for the unlike hormonally arbitration states.

PSYCHOTROPIC DRUGS :-

We should has been collecting a latest proof that has been mentioning an association between alcohol and psychotropic drugs ingestion with a hazardous condition growing uterine fibroids, particularly with proof are collected gathered from the women's health study.

This is more dangerous for those women who drink than for women who have never consumed alcohol and these are depend on dose reponse for either periods of efficacy utilization and numbers of beverage daily in life. Amongst women <30 years of age has the highest group of caffeine ingestion with increased uterine hazardous states.

OTHERS POSSIBLE FACTORS :-

Uterine infections, hormonal, metabolic, dietary, stress, and environmental factors are the other factors that support the occurrence and risk of the uterine leiomyomas. The basic biological progress of infectious tumors suggested that injury caused mainly by infection or inflammations from various pathways, results in leading to enhanced extracellular matrix, cell division and decline cell deaths, timely in tissue repairs abnormality.

Raised progesterone level that is also a major impact that increases the development of uterine leiomyomas.

CLINICAL FEATURES :-

Uterine leiomyomas are classified based on locations: submucosal, intramural, subserosal. A tumor's size, numbers and locations significantly influence its symptoms and the available treatment options as these factors determine in the tumor's impact in the uterus.

The very usual sign is abnormal bleeding usually menstrual bleeding excessive amount during menstrual cycle, the other symptoms such as discomfort in the lower abdomen, genital pain, back pain constipation urinary retention.

- Every uterine leiomyoma occurs from an altered smooth muscle unspecialized cell into the strong myometrium layer that gives anatomical integrity for the uterus. A uterine leiomyoma benign tumor is comprised of these altered neoplastic smooth muscle stem cells, tumor-related fibroblasts cell, and variable numbers of extracellular matrix.
- There are 2 very important mostly ordinary somatic mutations, affect the mediators complicated subunit 12 and highly mobility group HMGA2 genes, which are related with different histopathology phenotypes.
- The ovary steroid progesterone and its nuclear receptor the progesterone receptor are necessary for the growth and ongoing expansion of a leiomyoma. Thus leiomyomas increased related with the states of higher progesterone production including ovulatory phase and the early pregnancy.
- Uterine leiomyomas mainly affect the internal layer of the womb, i.e., the mucous membrane of the uterus, to cause heavy bleeding during menstrual, anemia and pregnancy loss in up to 30% of all the women.
- Treatment included in uterine fibroids such as removal of the uterine fibroids or even the entire uterus and to decrease the and reduce uterine artery embolizations to extremely reduce these neoplasms.
- Medical treatment included such as selective estrogen receptors modulators, levonorgestrel IUS, antifibrinolytic agents, combined oral contraceptive, vitamin D, other hormonal agents etc.

DIAGNOSIS :-

Firstly of all we have to find out the exact location, characterization and measurement which is important so that we can know about the natural history of tumor and after clarifying it, we can cure it by giving medical therapy accordingly which is very much necessary.

The optimal selection of patients for medical therapy, non surgical, methods, or surgery depends on an exact the size, numbers, and position of uterine fibroids. Imaging technologies are available for clearing the identification of uterine leiomyomas include ultra sonography, saline- infusion sonography, and MRI.

ULTRASONOGRAPHY :-

Ultrasonography is much cheaper as compared to other techniques, hence most of the patients to considered it right to get ultrasonography done. There are various medical therapy is available for patient but the most effective medical therapy for patients are sonography is most frequency used by the transabdominal and transvaginal routes has been arranged most frequently, due to its ease and low cost. Transabdominal and transvaginal both are perfectly size should be scans. Transvaginal scans are more sensitive as compared to transabdominal for the diagnosis of small uterine fibroid. However, when the uterus is enlarged or posterior side appears slightly the uterine fundus, the uterine fundus may appear to be turned outward. If a patient is affected by obesity, a transabdominal views is always of limited value. If ultrasonography is done by a expert person they can easily detect 5mm or even the smallest uterine fibroids on transvaginal. Uterine fibroids that develops usually appear as solid bodies with a clearly defined shape. These are usually of equally reflective as the uterine muscle layer but sometimes. They can be less resonant, because of this the uterus may appear larger than normal or changes may be seen in the size of the uterus. whereas it is more obvious in definitely calcified.

Whenever, a pelvic mass is recognised we should include an examination of urinary system in the ultrasonography. The etiology of uterine fibroids on ultrasonography is usually performed easily, but the focal adenomyosis can look first like uterine fibroids and due to their similar appearance, pedunculated uterine fibroids are sometimes mistaken for adnexal fibroids.

Whenever we have doubts about the creations of the pelvic mass at ultrasonography, we can get our doubts cleared by getting MRI performed.

SALINE INFUSION SONOHYSTEROGRAPHY :-

Saline infusion sonohysterography-based representation is usually used for the characterization of focal uterine masses diagnosed on ultrasound images. When performing a transvaginal ultrasound, uterine endometriosis as a region of increased echogenicity to that of the myometrium.

Furthermore, uterine fibroids are very difficult to distinguish from blood clots and abnormal cell masses, and then the uterine fibroids may make the endometrium ambiguous or it may also easily to predict the thickness of the endometrium. initially saline infusion sonohysterography is used to detect because they after appear as a thickened endometrium.

Nevertheless, we can see abnormal cell growth much better with saline infusion sonohysterography in which the saline separates the uterine cavities. Saline infusion sonohysterography which is also effective in identifying characteristics change in endometrium and focal intracavitary protusions. However there is limited ability to distinguished between endometrium abnormal cell multiplication or endometrial cancer. In order to achieve an excellent strain image, care must be taken to avoid originating adverse disfigurement in the uterine muscle layer so that the patient can tolerate the pain.

A large numbers of patients may need further verification using saline infusion sonohysterography to diagnosed uterine fibroids.

The conclusion is that diagnosis accuracy with saline infusion sonohysterography is limited, whereas MRI and ultrasonography exist with much better tolerance and greater accuracy.

MAGNETIC RESONANCE IMAGING (MRI) :-

Magnetic resonance imaging, although very expensive can detect uterine fibroids very precisely and accurately. In particular, it can detect even the smallest uterine fibroids that ultrasonography and saline

infusion sonohysterography cannot detect.

MRI is very precise in identifying uterine fibroids and differentiating uterine fibroids from focal adenomyosis, with a sensibility of 90%-95% and a distinctiveness of 70%-93% . Therefore MRI is much more vulnerable than ultrasonography is detecting or identifying uterine fibroids. In this it does not involve the use of high-energy radiation, and it can easily demonstrate regional body formation of the uterus.

MRI demonstrates the ability to see fibroids as small as 5.5mm or we can easily see many types of leiomyoma such as subserosal, intramural, submucosal etc. it can easily identify and highlight uterine fibroids even in areas that ultrasonography and saline infusion sonohysterography cannot. This is a very valuable equipment which is also used when a patient comes to the emergency department for verification of complications of dubious intensity leiomyomas. Smooth muscle cells or fibrous connective tissue both form uterine fibroids.

As a uterine fibroid grows, its ability to provide blood usually increases and it undergoes different stages of necrosis, which may cause varying intensity relative to the surrounding myometrium, and the T2W imaging of the myometrium on is lower in intensity. The sign feature is associated with the most ordinary form of deterioration, which is the condition in uterine fibroids.

Uterine fibroids that show excellent range in their MRI appearances with cystic reformation when they undergo into the intense deterioration.

MEDICAL :-

Now a day most of the patients want to get short-term therapy done because it is becoming increasingly difficult to get long-term therapy done. In long-term therapy with new medical agents we don't seem to be getting much benefits but because of that we seem to be getting more risky conditions, that's why most of the patients like to do short-term therapy.

- Short-term therapy gives us temporary relief from symptoms for a short periods of times. This medical therapy is extremely beneficial for those women who are suffering from leiomyomas and for those women who do not like to undergo surgery due to some medical issues.
- To reduce the size of the uterine fibroids, control blood flow and improve hemoglobin level, instead of doing surgery, we can treat them with other medical therapy also difficult techniques like reducing the size of the leiomyomas can also be done easily.

Kyleena IUS

The levonorgestrel intra-uterine device (kyleena) is very effective and can reduce the amount of menstruation blood and this is completely opposite to surgical treatment, which does not cause any problems.

It reduces menstruation bleeding upto 95% within few months, and this mostly women like to consume it whenever she suffering from high bleeding flow. After testing LNG-HCC, it has been seen that due to this the hemoglobin level is decreasing and this has to be done only after looking at the size, location and numbers of fibroids.

SELECTIVE ESTROGEN RECEPTOR MODULATORS

These are a specific class of non-steroidal compounds, that shows a specialized agonist and antagonist estrogen activities. It is commonly used in the treatment of ERpositive malignancy especially in the context of the lobular carcinoma example being cloniphene citrate, bazedoxifene and raloxifene.

The latest report from Italy, states that women who consumed 50 mg doses of raloxifene for more than two years. It has been observed that there has been no change in the size of the uterine fibroids. To understand the action of serum, it is the first seen that it changes the action of estrogen receptor, which result there is no differential gene expression (DGE) of which specific estrogen-responsive gene in different tissue.

Any molecule that has been blocked the estrogen receptor then it has been the potential to alter the therapeutic against leiomyomas because it impacts the growth of the uterine fibroids.

OTHER HORMONAL AGENTS :-

A published study in 2007 suggested the use of cabergoline as a medical treatment for uterine fibroids. the author has told in this report, the uterine volume was seen to decrease by more than 50% within few weeks.

A few years later, a group of physicians performed a test in which they compared cabergoline and triptorelin embonate with each other. Triptorelin is a gonadotropine releasing hormone agonist. He compared with of them and told that uterine fibroids has shrinkage and corrected all the complications that came out in sonography and clinical.

Gestrinone is a steroid hormone that controls the properties of both anti-estrogen and anti-progesterone receptor in various tissues. A recent report from the Italy describes the uses of gestrinone for women who suffering from uterine fibroids.

This author stated that its intake reduce the uterine volume by approximately 35%+/-10% and this study has shown that its esternal shrinks the size of the uterine fibroids by upto 55%. Gestrinone is a contraceptive agents and it eliminates many unfavourable effects like, discomfort in joint pain, changes to the voice etc.

VITAMIN D :-

Today's latest documentation tells us that vitamin D is an anti- fibrotic element. Which reduce the growth of leiomyomas cell or in cultured human leiomyomas cell cause cellular suicide. A study has shown that vitamin D level are significantly lower in women who suffer from uterine fibroids as compared to healthy women.

The main purpose of this study is to check the serum levels of vitamin D and compare uterine fibroids patients with healthy women. A total of 65 patients suffering from uterine fibroids were included in this test, who were repeatedly subjected to pelvic ultrasound for 2 years in which measurements were being taken. In which measurement was being done of total uterine volume or volume of individual uterine fibroids damages.

That shows there is a significant correlation between the dose response and severity of vitamin D level in serum and leiomyomas. Now a days, many patients prefer taking vitamin D as it helps in the easy prevention of uterine fibroids and it is a powerful counter part in the context of the novel therapy options.

CONCLUSION: -

In conclusion it has been told in this article that uterine fibroids is a benign tumor (non- cancerous). It affects the reproductive tract of women and it is the second most common tumor in the world. The present comprehensive articles represents one of the most dangerous diseases that has been seen in women.

This has been in women after menstruation begins. Here it has been seen occur most in women between 30 to 40 years of age. Uterine fibroids has many side effects by which we can diagnose the disease such as high bleeding, discomfort in the lower abdomen, back pain, constipation, etc. Till now there is no medicine or technology to cure it completely, but a ghost medicine has been made to stop it.

To identify uterine fibroids, ghost technologies have been developed such as ultrasonography, magnetic resonance imaging etc. Which makes it easy to detect even the smallest leiomyomas. Scientist performed experiments on ghosts to know about uterine fibroids, how much total uterine volume it contains and how it damages the entire uterus.

Vitamin D is also used in the treatment of uterine fibroids and it is an anti-fibrotic agents. Vitamin D inhibits the growth of apoptosis. The main aim of this study is to determine the serum levels of vitamin D of healthy women and compare with those women who suffering by uterine fibroids. During diagnosis it is told which technology can be used to detect uterine fibroids.

Ultrasonography is much cheaper than MRI. It cannot detect small sized uterine fibroids whereas MRI can easily detect even the smallest leiomyomas.

Whenever a pelvic mass is recognized we should include an examination of urinary tract in the ultrasonography. Apart from this, uterine fibroids can also be treated with surgery in which the uterus is completely removed. Surgery with ghost is more risky because in this the patient experiences more pain during or after the surgery.

Doctors advise patients to focus on a balanced diet rich in fiber, cruciferous vegetables (carrots, sweet potatoes) and whole grains (brown rice). Include lean proteins like white meat and fish and consider high-potassium food such as avocados and bananas. Avoid excessive red meats, sugar, alcohol etc but leiomyomas patients are not allowed to eat dairy products.

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