An overview on Uterine fibroids

REVIEW ARTICLE

V. Harshaki, 2D.Harshitha,3M.UmaVysnnavi,4V.Navya,5G. Sadasiva Rao.

1Student, 2student, 3student, 4student, 5Head of the department of pharmacy practice.
1Department of Pharmacy Practice,
1Hindu College of Pharmacy, Guntur, Andhra Pradesh,India.

ABSTRACT: Uterine fibroids are the most common benign neoplasm of uterus. They may be single or multiple however each fibroid arises from a single cell. Natural cell process apoptosis is not regulated in those cells. fibroids remain asymptomatic. Hysterecctomy is preferred in women who no longer prefer childbearing and myomectomy is preferred in women who wish for pregnancy. This study provides an overview of uterine fibroids.

INDEX TERMS: uterine fibroids, apoptosis, hysterectomy, myomectomy.

INTRODUCTION

Uterine fibroids are the most common benign neoplasms of uterus. According to FIGO fibroids range from 0 to 8 and lower number indicates greater proximity to endometrium. Women may develop single fibroid or multiple fibroids and each fibroid may vary in size. Irrespective of the size of fibroid, each fibroid develops from a single cell supporting the concept of monoclonal development of fibroid2. Apoptosis is a physiological and highly regulated form of cell death that occurs in many normal and pathological tissues, it may be inhibited by activation of apoptosis blocking oncogen bcl-2 protein in response to genomic alterations. Uterine fibroids are not a single gene disorder. Chromosomal changes such as translocation, duplication and deletion are seen mostly in case of uterine fibroids. Deletion in chromosome 7, translocation in chromosome 7,12,14 and recurrent balanced translocation in chromosome 12 and 14 are the most common cytogenic abnormalities that leads to uterine fibroids2. There is a reduction in expression of tumor suppressor gene in fibroids when compared to adjacent myometrium, where as expression of a monocyte chemotactic protein with antitumor effects, oestrogen receptor gene and IGF-1 is increased in uterine fibroid cells than in adjacent myometrium. Autocrine stimulation of IGF-1 receptor plays a role in maintenance of normal myometrial growth and that disordered IGF-1 signaling may contribute to uterine fibroid growth.

SYMPTOMS

Most of the fibroids remain asymptomatic, however painful menstruation, non cyclic pelvic pain, infertility and recurrent miscarriage are the symptoms. Abnormal uterine bleeding, abdominal pain, increased abdominal girth, urinary frequency, constipation, pregnancy loss, dyspareunia and infertility remain as symptoms of uterine fibroids in many women4.

EPIDEMIOLOGY AND RISK FACTORS

Uterine fibroids are more common in black women. Afro-American women are at higher risk compared to American and Asian women .The risks associated with uterine fibroids include early menarche and use of oral contraceptives before 16 years of age. High LH independent of ovarian function, interactions of endogenous hormone during pregnancy, obesity, heredity, diabetes mellitus, and hypertension are associated with an increase in risk of uterine fibroids. However fibroids with familial prevalence behave differently to those that occur sporadically in families. Uterine fibroids are more common in nulliparous women with relative risk decreasing with increasing number of term pregnancies. Effect of oral contraceptives on fibroid risk is controversial. Smoking reduces risk of developing uterine fibroids in a dose dependent manner, it may be due to anti-oestrogenic effect of smoking or effects of relatively high levels of tissue free radical associated with smoking.

DIAGNOSIS

Uterine fibroids may be suspected upon abdominal or bimanual examination. There are various diagnostic tests to identify uterine fibroids among them ultrasonography remains the standard diagnostic test for confirmation of uterine fibroids3. The techniques available for diagnosis of uterine fibroids include MRI, CT, ultrasound, saline infusion sonography, hysterosalpingography, laparoscopy or laparotomy. MRI with gadolium contrast provide knowledge on devascularised fibroids and their relationship to endometrial and serosal surfaces 1.

TREATMENT

Hysterectomy is a preferred treatment option for women who have completed childbearing. In women who have fibroids ranging from 0 to 1 according to FIGO and have bleeding, hysteroscopic myomectomy is best chosen option. complications of hysteroscopic surgery that may interfere with fertility are intrauterine adhesions, occurring more frequently after removal of large myomas or after post surgical endometritis.
Women with heavy menstrual bleeding choose levonorgestrel releasing intrauterine device and tranexamic acid, (oral antifibrinolytic agent), as treatment. Treatment with mifepristone results in a decrease in symptom severity.

For Women who wish to plan pregnancy in future surgical myomectomy is suitable for symptomatic intramural and subserosal fibroids. Myomectomy by laparotomy or endoscopic techniques, remain the standard care for treating symptomatic fibroids in women desiring for fertility preservation. Still in women with large and multiple myomas or in women who underwent multiple myomectomies, myomectomy procedure is difficult to carry effectively.

The other techniques to treat uterine fibroids include myolysis, cryomyolysis, UAE and MRgFUS. Myolysis refers to destruction of uterine fibroids by focused energy that is believed to interrupt blood supply to tumors. Yet, myolysis is not appropriate for women who desire to become pregnant. Cryomyolysis uses super cooled probe to cause sclerochaline degeneration of fibroids. In UAE, uterine arteries are accessed under fluoroscopic guidance and injected with a mass of tricacyl gelatin microspheres or polyvinyl alcohol particles for occlusion. MRgFUS uses targeted energy to heat and destroy fibroid tissue by induction of coagulative necrosis. The energy is provided by a focused ultrasound beam containing high frequency, high energy sound waves. MRgFUS is not suitable for pedunculated tumors moreover pregnancy is not advised post procedure.

Uterine artery embolization is not suitable in case of degenerated fibroids and for pedunculated tumors as the risk of stalk being disconnect or infarct from uterus is more.

Growth of uterine fibroids is diminished under hypoestrogenic states such as menopause or during treatment with GnRHa but it is reversible. Continuous administration of a GnRHa produce hypomenorrhea or amenorrhea and can reduce the size of myomas without impacting fertility, generally GnRHa are used for a short period of 6 months. GnRHa are not useful when fibroids are predominantly calcified. Mitotic activity in fibroids varies in response to menstrual cycle, being highest in luteal phase and during pregnancy. Loss of oestrogen dependency leads to cytogenic abnormalities in fibroids.

PREGNANCY AND UTERINE FIBROIDS

The impact of myomas on fertility and pregnancy outcome would depend by the degree of anatomical alteration of the uterus and in particular of uterine cavity. Women with posterior located myomas had significantly higher miscarriage rates. An increase in risk of miscarriage was observed in women with uterine fibroids than in normal women. Preterm birth is supposed to be the most commonly reported adverse outcome of uterine fibroids. Women with uterine fibroids were more likely to require cesarean deliveries, even after excluding diagnoses such as placenta previa and breech presentation. There is an increased frequency of cesarean section in women with multiple fibroids. The risk of poor pregnancy outcome depends on the size and number of fibroids. Sub mucosal and small myomas increase the risk of spontaneous miscarriage, where as subserosal and large myomas do not increase the risk pregnancy loss. Hypertrophy and hyperplasia of myometrial cells is because of a series of hormones, cytokines and growth factors produced by fetoplacental unit through direct and indirect mechanisms. Extensive postpartum uterine tissue remodeling is associated with a reduced risk of uterine fibroid development.

RECENT TRENDS

- Radiofrequency ablation device was approved by FDA for destruction of fibroids during laparoscopy.
- Asoprisin induce apoptosis in leiomyoma cells but not normal myometrial cells, suggesting direct targeting of leiomyoma cells.
- Fibroids significantly increase in size during early pregnancy and then decrease in third trimester according to recent findings.

CONCLUSION

Most common benign neoplasm that occurs to uterus are uterine fibroids. Afro-American women are more prone to uterine fibroids. Irrespective of size, each fibroid develops from a single cell. Cytogenic abnormalities in fibroids are associated with a loss of oestrogen dependency. The symptoms associated with uterine fibroids include abnormal uterine bleeding, Abdominal pain, urinary frequency, constipation, pregnancy loss. They are easily diagnosed with the help of ultrasonography. Obesity, hypertension, diabetes mellitus play a role in increased risk for uterine fibroids. Hysterectomy remains the preferred treatment option in women completed childbearing and surgical myomectomy is the preferred option for women who wish to have subsequent pregnancy.

REFERENCES: