Journal of Medical Practice and Review 2:4 (2018)
Everant.in/index.php/jmpr
Journal of Medical Practice and Review
Available online at http://jmpr.info/index.php/jmpr/index

Myoma Risk Factors (A Review)

Zahra Shahraki *[1]

[1] faculty of medicine,zabol university of medical sciences, Zabol, Iran

ARTICLE INFO

Corresponding Author:

Zahra Shahraki *

Keywords:- Myoma Risk Factors (A Review)

ABSTRACT

Introduction:

Myoma or fibroids are benign, smooth uterine muscle, composed of a large amount of external cellular matrix including collagen, fibronectin, and protoglichane.

Search strategy :

Searches were conducted by two independent researchers in international (PubMed, Web of science, Scopus and Google scholar) and national (SID, Magiran) databases for related studies from the inception of the databases to September 2017.

Discusion:

Myomas are commonly diagnosed in women after the age of 40. It is not still known that whether this is owing to their increased information or the increased growth of myoma affected by hormone changes during this period. Premature menstruation at ages younger than 10 results in increased risk of myoma. The risk of myoma incidence is 2.5 times higher among women whose first-degree relatives had suffered from myoma. Cellular damages or inflammations created as a result of the environmental factors of infection or hypoxia are considered as the mechanisms for the initiation of myoma formation.

©2018, JMPR, All Right Reserved

Introduction:

Myoma or fibroids are benign, smooth uterine muscle, composed of a large amount of external cellular matrix including collagen, fibronectin, and protoglichane (1).

Methods:

1.1. Search strategy

Searches were conducted by two independent researchers in international (PubMed, Web of science, Scopus and Google scholar) and national (SID, Magiran) databases for related studies from the inception of the databases to September 2017 (without time limitation) in English and Persian languages. To ensure literature saturation, the

reference lists of included studies or relevant reviews identifed through the search were scanned. The specifc search strategies were created by a Health Sciences Librarian with expertise in systematic review search using the MESH terms and free terms according to the PRESS standard . After the MEDLINE strategy was finalized, it was adapted to search in other databases. Accordingly, PROSPERO was searched for ongoing or recently related completed systematic reviews. The key words used in the search strategy were "Myoma ,

Risk factors " which were combined with Boolean operators including AND, OR, and NOT.

1.2 .Study selection

Results of the Literature review were exported to Endnote. Prior to the formal screening process, a calibration exercise was undertaken to pilot and refine the screening. Formal screening process of titles and abstracts were conducted by two researchers according to the eligibility criteria, and consensus method was used for solving controversies among the two researchers. The full text was obtained for all titles that met the inclusion criteria. Additional information was retrieved from the study authors in order to resolve queries regarding the eligibility criteria. The reasons for the exclusion criteria were recorded. Neither of the review authors was blinded to the journal titles, the study authors or institutions.

- **Age**

Myomas are commonly diagnosed in women after the age of 40. It is not still known that whether this is owing to their increased information or the increased growth of myoma affected by hormone changes during this period (2).

- **Internal changes of hormones**

Premature menstruation at ages younger than 10 results in increased risk of myoma. However, late menstruation after the age of 16 years old results in reduced risk of myoma . After menopause, when the estrogen level reduces, the number and size of myomas reduce significantly (3).

- **Family history**

The risk of myoma incidence is 2.5 times higher among women whose first-degree relatives had suffered from myoma (4).

- **Ethnic factors**

A comprehensive study conducted on reviewing medical and ultrasound data of women with myoma indicated that the risk of myoma incidence is 2.9 times higher among African-American women than that of Indo-European women; this increased risk has nothing to do with other risk factors. Moreover, myoma occurs at young ages in African-American women; there will be a significant increase in the number and size of myomas, and they will have more symptoms (5).

- **Weight**

According to the studies conducted, the risk of suffering from myoma increases by 21% per each 10 per 1 kg overweight . Obesity increases the conversion of adrenal androgens to estrogen and reduces the sexual hormones to globulin. Thus, the accessible estrogen increases and this can justify the increased prevalence and growth of myoma (6).

- **Diet**

Few studies have been conducted on the relationship between diet and growth of myomas. However, it has been recently stated in a study that beef as well as other kinds of red meat and pork result in the increased prevalence of myomas. However, green vegetables significantly reduce the prevalence of myoma. It is hard to rely on such studies; the amount of calorie and fat have not been measured in such studies (7).

- **Sport**

The prevalence rate of myoma is 40% less among the athletes than that non-athletes. It is not still known whether this difference is owing to the effects of sport or it is resulted from less conversion of androgen to estrogen as a result of reduced body fat (8).

- **Pregnancy**

Increased marital sexual relationships reduces the prevalence rate and number of clinical manifestations of myomas . Pregnancy at middle ages (25-29) protects the body against the development of myoma (9).

- **Smoking**

Smoking is likely to result in reduced incidence of myoma. There are several factors that reduces the bioavailability of estrogen in the target tissues. One of these factors is reduced conversion of androgen to secondary estrogen through inhibiting aromatase by nicotine or stimulating more bonding of sexual hormones to globulins (10).

- **Tissue damage**

Cellular damages or inflammations created as a result of the environmental factors of infection or hypoxia are considered as the mechanisms for the initiation of myoma formation (11).

- **Clinical symptoms**

Although myomas almost never result in mortality, they affect the individual's quality of life in many cases (12).

- **Abnormal bleeding**

Having myomas is not the not the sole factor of abnormal bleedings; other factors need to be taken into account as well . However, the amount of bleeding and menstrual cycles are associated with the location of myomas. A study indicated that the amount of menstrual bleeding is slightly more in women with myoma than other women (13).

- **Pain**

The studies have indicated that women with myoma suffer more pelvic pains than those without myoma (14).

- **Urinary problems**

It seems that myoma is likely to result in different kinds of urinary problems such as frequent urination and nocturnal enuresis (15).

- **Gestational problems**

The existence of submucosal myomas reduces gestation, and removing it results in increased gestation. However, intramural or subserosal myomas seem to have no effect on gestation (16).

- **Diagnosis**
- **Pelvic examinations**

Subserosal and intramural myomas are commonly diagnosed with clinical pelvic examinations based on the largeness, abnormal shape, and stiffness of uterus (40). For diagnosing subserosal myomas, one needs to conduct ultrasound, hysteroscopy, or MRI (17).

- **Imaging**

The patient's correct selection of pharmacological treatment, non-aggressive processes, or surgery depends on the accurate estimation of the size, number, and location of myoma.

The techniques available for confirming the diagnosis include ultrasound, hysteroscopy, and MRI.

Vaginal ultrasound is a common and economical method, and it is helpful for distinguishing myomas from other pelvic problems. Large myomas are more accurately diagnosed by the simultaneous vaginal and abdominal ultrasound (18).

MRI is an excellent method for estimating the accurate specifications of myoma (especially submucosal myomas) (19). In comparison to other methods, the advantages of MRI include the lack of dependence on operator's techniques and accurate distinction of different kinds of myomas (20).

- **Pharmacological treatments**

Through using drugs, the doctor can regulate menstrual cycles and improve symptoms such as severe bleeding, menstruation, and pelvic pressure. The drugs cannot remove the myoma, but some drugs (such as GnRH agonists) are able to make the myoma smaller.

This group of drugs that are available in Iran as decapeptyl and diphereline. They create a temporary menopause by reducing the level of estrogen and progesterone. When menstruations stop, the fibroids become smaller and anemia will improve . These drugs are likely to be prescribed by doctors before performing the operation for making the size of myoma smaller.

Its prevalent complication is hot flash.

In the long-term use (more than one year), osteoporosis will be created (21). Other drugs such as oral contraceptive pills are effective on controlling and regulating menstruation.

Drugs such as Mefenamic acid that are hormonal can be useful in reducing pain and bleeding (22).

- **Surgical methods**
- **Hysterectomy**

Hysterectomy is considered as the last treatment method. Complete removal of uterus can be a proper method for those who are not willing to have any other children at higher ages (23).

- **Myomectomy**

Myomectomy refers to the mere removal of myoma by keeping the uterus in place. Myomectomy is conducted through the abdomen for myomas that are large and deep and have involved intrauterine layers .

Small myomas in small numbers can be removed by laparoscopy and mini-abdominoplasty (24).

Very small myomas located inside the uterine cavity can be removed by hysteroscopy. In this method, the surgeon enters hysteroscope into the uterus through vagina and cervix, observes the

inside parts of uterus and removes myoma by delicate instruments (25).

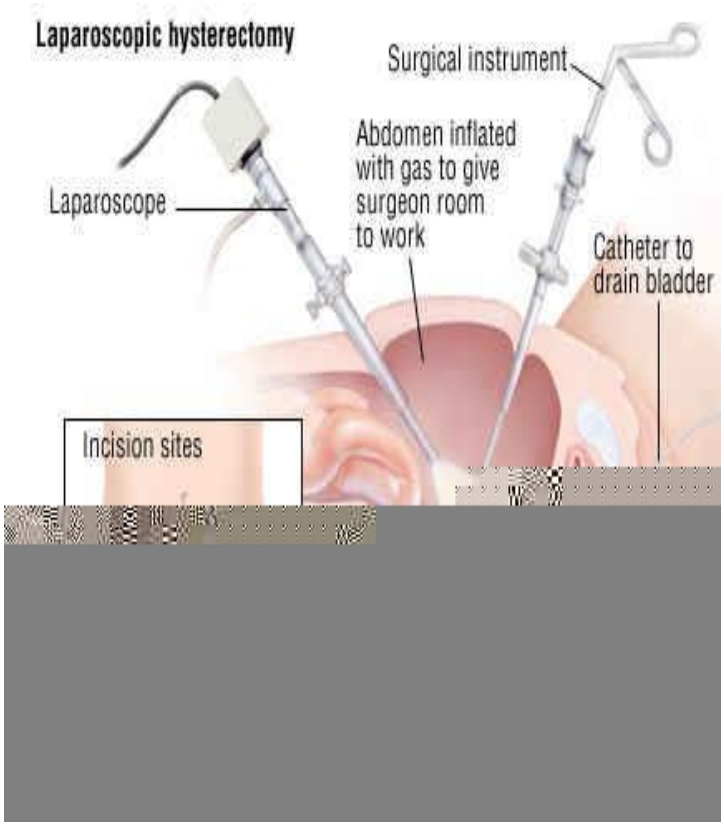

Figure 1. An overview of laparoscopy for removing myoma

In another method, endometrial ablation is conducted by using a hysteroscope. This means that the intrauterine is removed by using "cauter". In this method, the bleeding related to menstruation is stopped or reduced. However, there will be no change in the size of myoma (26).

There are other method such as uterine artery embolization. In this method, small materials enter the uterine artery by the radiologist. When the blood flow is cut off in myomas, their growth stops and they become smaller in size.

This method does not require a surgical cut. However, it is likely to have some complications including the loss of blood flow of ovaries or other pelvic organs.

Other new methods are being investigated and analyzed. One of these new methods is high-intensity focused ultrasound for destroying myomas (27).

References:

1. Parker WH, Einarsson J, Istre O, Dubuisson JB. Risk factors for uterine rupture after laparoscopic myomectomy. Journal of minimally invasive gynecology. 2010 Sep 1;17(5):551-4.
2. Chiaffarino F, Parazzini F, La Vecchia C, Chatenoud L, Di Cintio E, Marsico S. Diet and uterine myomas. Obstetrics & Gynecology. 1999 Sep 1;94(3):395-8.
3. Parker WH. Etiology, symptomatology, and diagnosis of uterine myomas. Fertility and sterility. 2007 Apr 1;87(4):725-36.
4. Wang JH, Zhao J, Lin J. Opportunities and risk factors for premalignant and malignant transformation of endometrial polyps: management strategies. Journal of minimally invasive gynecology. 2010 Jan 1;17(1):53-8.
5. Usta IM, Hobeika EM, Musa AA, Gabriel GE, Nassar AH. Placenta previa-accreta: risk factors and complications. American Journal of Obstetrics & Gynecology. 2005 Sep 1;193(3):1045-9.
6. Leonard F, Chopin N, Borghese B, Fotso A, Foulot H, Coste J, Mignon A, Chapron C. Total laparoscopic hysterectomy: preoperative risk factors for conversion to laparotomy. Journal of minimally invasive gynecology. 2005 Aug 1;12(4):312-7.
7. Kho KA, Nezhat C. Parasitic myomas. Obstetrics & Gynecology. 2009 Sep 1;114(3):611-5.
8. Yeniel O, Cirpan T, Ulukus M, Ozbal A, Gundem G, Ozsener S, Zekioglu O, Yilmaz H. Adenomyosis: prevalence, risk factors, symptoms and clinical findings. Clinical and experimental obstetrics & gynecology. 2007;34(3):163-7.
9. Bakshi S, Meyer BA. Indications for and outcomes of emergency peripartum hysterectomy. A five-year review. The Journal of reproductive medicine. 2000 Sep;45(9):733-7.
10. Payson M, Leppert P, Segars J. Epidemiology of myomas. Obstetrics and gynecology clinics of North America. 2006 Mar;33(1):1.
11. Wise LA, Palmer JR, Cozier YC, Hunt MO, Stewart EA, Rosenberg L. Perceived racial discrimination and risk of uterine leiomyomata. Epidemiology (Cambridge, Mass.). 2007 Nov;18(6):747.