ACTA FAC MED NAISS UDC 618.14-006-085

Review article

ACTA FAC MED NAISS 2007; 24 (1): 33-40

Vekoslav Lilic[1], Biljana Djordjevic[2]
Zorica Stanojevic[3], Aleksandra Petric[1]
Goran Lilic[1], Radomir Zivadinovic[1]
Sonja Pop-Trajkovic[1]

[1] Clinic of Gynecology and Obstetrics Nis
[2] Institute of Pathology Nis
[3] Clinic of Oncology Nis

GENESIS, CLINICAL PRESENTATION, DIAGNOSIS AND TREATMENT OF UTERINE MYOMAS

SUMMARY

The aim of the paper was to consider the pathophysiological genesis of uterine myomas, especially diagnostic and therapeutic modalities, stressing the principles leading to rational decision-making process in individualized myoma management.

The method presents a review of the recent literature on uterine myomas and synthesis of different authors' experiences.

Uterine myomas are the most common solid tumors in the female pelvic cavity. There is an increasing body of evidence of their genetic basis and of their growth related to genetic predisposition, hormonal influences and various growth factors. Diagnostic proceedings are numerous. There is a broad range of therapeutic options, including medicamentous, surgical and radiologic interventions. Most uterine myomas should be be serially monitored, observing the development of their symptoms or progressive growth.

In the last 50 years, highly sophisticated diagnostic and therapeutic technologies have been developed regarding uterine myomas. Nowadays, the available means allow us to be more flexible, with safe treatment modalities which can be and must be adjusted to respective clinical situations.

Key words: **myoma, hysterectomy, myomectomy, laparoscopy, embolization**

INTRODUCTION

Uterine myomas are among the most common entities in the gynecological practice. Diagnosis and treatment of myomas have changed significantly during the last century and will probably continue so in the course of time. Our aim was to consider the pathophysiology of myoma, with special attention paid to diagnostic and therapeutic options and the principles which could make a decision-making process as rational as it can be. This paper aims at presenting the authors' recommended approach to diagnosis and treatment of myoma patients, as the result of published data and individual clinical experience. For that purpose, Medline was searched with key words such as “myoma”, "leiomyoma", "fibroid", “myomectomy" and "hysterectomy".

Uterine leiomyomas are variously called myomas, fibroids, fibromyomas, leiomyofibromas. For the purpose of clarity, we will use the term Myoma. The following data indicate the importance of the disease: myomas are the most common pelvic tumors in women and occur in 20-40% of the women in their reproductive age. In the USA, 600.000 hysterectomies are performed yearly for myomas (1). Uterine myoma diagnosis is the most frequent indication for hysterectomy. Uterine myomas are benign tumors originating in the smooth muscular uterine tissue, though sometimes they originate in

Corresponding author. Tel. 018 537 236; 064 120 402 1

the smooth muscle of the uterine vessels. They vary in size from grain-sized ones to large uterine growths. They can be solitary and multiple and can be found inside the myometrium (intramural) extending outwards to serosa (subserous) or inwards to the uterine cavity (submucous). Myomas can also be situated on a peduncle or prolapsed through the external opening of the cervical channel (2).

Myomas are estrogen-dependent tumors. Their growth is related to their exposure to circulating estrogens. They decrease during menopause and other hypoestrogenic conditions. They express maximal growth during the generative age of a female, when estrogen secretion is at its highest, and growth curve is especially slope in the decade preceding menopause (probably as the consequence of anovulatory cycles with unopposed circulatory estrogen). Myomas can sometimes grow during pregnancy, which is probably related to estrogen, as well as an increased blood flow in pregnancy and edema. Estrogen receptors are present in a higher concentration within myomas than in the adjacent myometrium. They bind 20% more estradiol E-2 per mg of cytoplasmic protein compared to adjacent normal myometrium(3). Their growth pattern as well as the location within uterus seem to be the major determinants of clinical manifestations of myomas.

CLINICAL MANIFESTATIONS

Most patients with uterine myoma are asymptomatic. When symptoms do occur, they correlate with the myoma site, its size or already induced degenerative change. Commonly, the only presenting symptom is copious menstrual bleeding, attributed to vascular endometrial changes. An obstructive effect of intramural myomas on uterine vasculature leads to the ectasia of endometrial venules. Proximal congestion occurs as the result in myo- and endometrium, which leads to excessive bleeding during cyclic endometrial shedding. Increased uterine cavity and endometrial surface contribute to increased menstrual bleeding (4). Hypermenorrhoea can be aggravated by the presence of endometritis, histologically verified in the endometrium covering submucous myomas. Disturbances of local growth factors and aberrant angiogenesis are also involved in bleeding abnormalities in women with uterine myomas. Pain, as a symptom of myoma, is relatively rare. It usually occurs with the torsion of pedunculate myomas, then with cervical dilatation by a submucous myoma with protrusion through the inferior uterine segment, or with caseous degeneration of myoma in pregnancy. In all the aforementioned cases the pain is acute and requires immediate management. Adenomyosis is a common finding in patients with myomas and, if diffuse, can cause pain, but magnetic resonance imaging can differentially diagnose it from myoma. Moreover, ectopic pregnancy, rupture or the torsion of ovarian cyst, as well as an acute pelvic inflammatory disease, have to be considered in every woman with manifested myomas and acute abdominal pain.

Pressure and increased abdominal circumference are encountered more commonly than pain. These two symptoms develop insidiously, are less obvious and not clearly described. With increase in size of myomas, pressure to the adjacent viscera develops, with urinary tract manifestations, such as urinary obstruction and compression of one or both urethers. Out of gastrointestinal symptoms, obstipation and tenesmus occur as the result of posterior uterine wall myoma pressing the rectum and sigmoid colon. Pressure to the rectum is rare, except in the cases of incarcerated myomatous uterus in the Douglas pouch, or it contains one large solitary myoma in the posterior wall. Infertility is rarely caused by myomas but it can result from submucous myomas or with very distended, enlarged uterine cavity which prevents normal implantation or transport of spermatozoa. Cervical dislocation induced by myoma can adversely influence the deposition of semen into the cervical orifice. In the same manner, intramural myomas can lead to the obstruction or dysfunction of tubal orifices or intramural portion of the tubes. In patients undergoing *in vitro* fertilization, myomatous distortion of endometrial cavity is associated with lower number of pregnancies and the rate of spontaneous abortions up to 50%.

Uterine myomas also influence repeated spontaneous pregnancy interruptions. Though there are no prospective studies on the matter, most authors agree that reproduction outcomes are improved after surgical treatment of myomas (5).

Malignant transformation of myomas is very rare. It is even thought that leiomyosarcomas occur independently and can be unrelated to benign leiomyomas. According to Korskaden and Sing, myoma malignancies occur in less than 0.13% . More recently, in the series of 1322 women who underwent hysterectomy or myomectomy for symptomatic myomas, uterine sarcoma (leiomyosarcoma, endometrial stromal sarcoma and mesodermal tumor mixtus) was found in 0.23% .

GROWTH PATTERNS OF MYOMAS AND DIAGNOSTIC PROCEEDINGS

Nowadays, rapid growth of uterine myomas is considered to be the one corresponding to the pregnancy age of 6 weeks of gestation achieved in one year, especially if it is postmenopausal growth,

which should prompt tumor resection even in the absence of other symptoms. Rapid growth of myomas is usual during pregnancy (6). Due to that fact, in young non-pregnant women and older postmenopausal women rapid growth should arouse suspicion of malignancy . But, as already mentioned, risk of malignancy stays very low even in rapidly growing myomas. Small asymptomatic myomas require just monitoring, in three-month intervals at start, aiming to establish the growth rate. If the growth rate is constant, gynecologic examinations should safely be scheduled in 4-6 months intervals. Uterine myomas commonly remain constant in size over many years. Myomas are prone to rapid growth during the fifth decade of life. In most asymptomatic myomas observation is the sufficient management, provided that the clinician has verified that the pelvic mass consists exclusively of myoma and does not contain ovarian neoplasm.

Surgical approach should be applicable in women approaching menopause. Ultrasound examination also helps to more precisely establish the growth pattern of myoma related to the impressions obtained during gynecological examination. Intravenous pyelography can sometimes be necessary to define renal or uretheral characteristics when there is a strong suspicion of uretheral distortion induced by myoma. In special cases, CT can be a useful adjunct to ultrasonography. However, there are reports stating that in 5% of the uterine myoma patients, CT subsequently found ovarian tumor at the time of surgery. Magnetic resonance imaging offers better differentiation of pelvic mass source (7). Regardless of the visualization proceedings, surgical exploration may be necessary in cases of diagnostic uncertainty.

Hysterosalpingography is especially effective in the delineation of endometrial cavity borders and patency of Fallopian tubes in infertile patients with uterine myomas, as well as in women prior to *in vitro* fertilization. Hysterosalpingography and sonohysterography can further help in precise determination of the site spread and operability of submucous myomas within plans for surgery in non-infertile women. Careful observation is an adequate management measure for most myomas. Most myomas are asymptomatic; they are located within the pelvic cavity and are rarely malignant.

THERAPY

Management of uterine myomas may involve one of the following principles or their combinations: expectant approach (continual observation), medicamentous treatment (GnRH analogues, progestational agents, antiprogestins), surgical treatment (myomectomy or hysterectomy), embolization of uterine artery and other approaches, such as high-frequency echosonography, laser treatment, cryotherapy and thermoablation. Indications for surgical treatment of myomas are abnormal uterine bleedings refractory to conservative management, strong suspicion of intrapelvic malignancy, growth of myoma after menopause, infertility (when there is distortion of endometrial cavity or obstruction of one or both tubes), repeated spontaneous miscarriages with distortion of endometrial cavity, pain and pressure symptoms influencing life quality, urinary tract symptoms with frequent urination or urinary obstruction, as well as hypochromic anemia due to secondary chronic bleeding. The choice of the appropriate treatment should be based on careful consideration of a multitude of factors, medical as well as social, including age, parity, plans regarding future pregnancies, assessment and severity of symptoms, size and number of myomas, site of myomas, other accompanying medical problems, possible malignancy, approaching menopause and wish to preserve uterus.

Therefore, for a woman with completed reproduction hysterectomy can be most beneficial, while myomectomy is adequate for nulliparas. A patient with submucous myomas can be treated with hysteroscopic resection, while for a woman with subserous myoma on a peduncle and severe symptoms laparoscopic resection can be of use. In the past, uterine myomas were most commonly treated with hysterectomy, while myomectomy was not regarded adequate, and observation and hormonal treatment were not commonly utilized. However, the introduction of ultrasonography, hysteroscopy, laparoscopy, CT, MR, and the development of GnRH analogues have significantly influenced therapy for uterine myomas and led to the creation of various options for their diagnostic and therapeutic management. The availability of various modalities enable gynecologists today to indivudualize diagnosis and treatment, to consider the problems of each individual patient, her needs and aims, and then to rely on sound principles based on clinical experience, since there are no two identical cases. Numerous factors have to be taken into account before we could devise the best management approach for each indivudual case of uterine myomas (8).

HYSTERECTOMY

Hysterectomy is the second most common large surgical procedure performed in women in the USA, immediately after cesarean section. Up to the age of 40, 20% of women undergo hysterectomy, and one third up to the age of 65. Indications for hysterectomy include uterine myomas (33.5%), endometriosis (18.2%), uterine prolapse (16.2%)

and carcinomas (11.2%).

The removal of uterus has been the procedure of choice whenever there was a need to surgically treat uterine myomas, after consideration of parity-related information. Hysterectomy is also the approach of choice whenever there is a rational probability of a malignancy within myoma, when suspicious characteristics are detected on MRI or CT, or when myomectomy is not technically feasible, as in the patients with severe leiomyomatosis. Specific exceptions are solitary subserous or pedunculated myomas and submucous myomas which could be hysteroscopically removed.

Many patients ask, quite logically, why their uterus should be removed if leiomyomas are the sole problem. This rational inquiry, however, does not exclude the consideration whether that myomatous uterus will be morphologically normal and able to function normally after extensive myomectomy. Clinical decision-making should therefore be guided by a number of factors, including above all the age of a patient with leiomyomas and her childbearing plans. If the patient is near her menopause and is not further interested in childbearing, the decision is easier to make than in woman with multiple myomas, in her third or fourth decade of life and with childbearing expectancy.

The level of patient compliance and relaxation regarding hysterectomy is very important. For many women hysterectomy means the loss of sexuality and womanhood. Several recent publications have reported improved quality of life in most women after hysterectomy and concluded that the intervention did not adversely influenced sexuality (9). In the study of Weber, hysterectomy for myomas has not adversely influenced sexual function, and uterus and cervix are not necessary for coital orgasm – controls demonstrated significant improvement in the severity of symptoms, the level of depression and anxiety, and general quality of life .

An additional benefit of hysterectomy for myomas in menopausal women is the elimination of the need for progestational agents and possibility of estrogen use without consequential bleeding and relief from the care regarding myoma growth during estrogen substitution. The need for routine gynecologic controls after hysterectomy is simplified compared to frequent visits required in the past for myoma growth monitoring (10).

Hysterectomy for uterine myomas is associated with the risk of complications. Anatomic uterine distortions increase the risk of injuring adjacent structures, above all the urinary tract and intestine. Adhesions from previous conservative surgery can aggravate technical difficulties and increase the chance for bowel injury. Urinary tract injuries tend to occur with myoma growth into the broad ligament or with its spread into the pelvic cavity. Additional problems associated with hysterectomy for uterine myomas are the possible development of stress incontinency and prolapse of the vaginal vault. On account of that, conservation of the cervix has been suggested, with the rationale that supracervical hysterectomy requires shorter operative time, that it is associated with reduced risk of injury to the urinary tract and that it hypothetically reduces the risk of vault prolapse as the consequence of preservation of the uterosacral ligament and *ligamentum cardinale*. The preference of surgeons to perform bilateral oophorectomy within the surgery for uterine myomas is worthy of consideration. We do not remove ovaries routinely in women below 45 years of age, except in case of associated pathology or after explicit request of the patient (11). Hysterectomy for uterine myomas is an acceptable choice in patients with relatively severe bleeding, pain, pressure or anemia refractory to treatment and with fertility as an irrelevant issue.

We always let patients make the final decisions. However, hysterectomy is routinely recommended to such patients.

ABDOMINAL MYOMECTOMY

Myomectomy is a method of choice when uterus is to be preserved and for solitary pedunculated leiomyomas. It should be taken into account as well in women with symptomatic myomas with childbearing as a not very important issue and who would like to have their uterus preserved. Among the indications for myomectomy we may include the impact of myomas on infertility and premature pregnancy terminations due to the nature and site of myomas. Myoma location is the most important element, since it can influence the ability to sustain pregnancy. Submucous leiomyomas markedly influence fertility and repeated pregnancy losses. Myomectomy is thus recommended before the stimulation with gonadotropins necessary for *in vitro* fertilization. Myomectomy is also recommended in patients with large myomas which could prevent the access to the ovaries during oocyte aspiration. The wish to preserve the uterus cannot be neglected. Modern technology with *in vitro* fertilization, exogenous hormonal endometrial preparation and embryo donations make possible that even in women without ovaries uterus can serve as a gestational vehicle.

After the decision to perform myomectomy and after meticulous preparatory assessment, surgeons decide on the most appropriate surgical technique. Hypermenorrhea and other types of abnormal bleeding require endometrial evaluation before myomectomy in women over 35 years of age.

In those with risk of endometrial pathology, eg. in those with data on chronic anovulation or peri- and postmenopausal bleeding, endometrial evaluation should be mandatory. This can be effectuated either by out-patient endometrial biopsy (if there is a concern about sample adequacy), or by hysteroscopy and curettage. Hysteroscopy can establish the size, shape and site of submucous myomas, as well as the possibility of hysteroscopic resection. Detailed endometrial samples can also be obtained by hysteroscopy. After hysteroscopy, definitive operation should be postponed for approximately six weeks in order to minimize the risk of infection due to possible endometrial contamination. Hematologic status should be checked before surgery. Bleeding correlates with preoperative size of the uterus, weight of the removed myomas and operative time. Among the general principles important for abdominal myomectomy we may include adequate exposure of the myomas, hemostasis, careful handling of reproductive organs and prevention of adhesions. Multiple myomectomy is often more difficult and time-consuming operation than hysterectomy. However, several retrospective studies have not demonstrated any significant differences in operative morbidity between these two procedures, though the hysterectomy patients have had injuries to the urethers, bladder and bowel, while in those with myomectomy there have not been any visceral intraoperative injuries. The decision to perform hysterectomy is usually based on the expected difficulties associated with myomectomy (12). Therefore, in women with large, multiple myomas and those with previous multiple myomectomies, the recommendation of hysterectomy could be preferred. A well-devised randomized prospective study was thus necessary to finally resolve the issue of the advantages and shortcomings of abdominal hysterectomy and myomectomy.

In certain cases, cervical myomas can be removed through the vaginal approach. A myoma can be removed through already dilated cervix, performing anterior medial cervical incision repaired with single sutures. Preoperative and perioperative antibiotic therapy is recommended because of the risk of ascendent infection from the vagina. When extended miometrial resection is required for myomectomy, cesarean section delivery is recommended for the next pregnancy, which does not mean that it is indicated whenever there was endometrial cavity intervention. It should be explained to patients wishing to get pregnant and previously had myomectomy at the site of interstitial tube portion that intrapelvic adhesions or anatomic lesions as the consequence of dissections at this site can be an additional cause of postoperative infertility.

HYSTEROSCOPIC MYOMECTOMY

Hysteroscopy is used to resect submucous myomas with very good results. Indications for hysteroscopic myomectomy are abdominal bleedings, previous spontaneous pregnancy terminations, infertility and pain. Among the contraindications we may include cervical cancer, infection of distal reproductive tract, inability to distend uterine cavity and tumor spread deep into the myometrium. Long-term control studies report that in about 20% of the patients there is a need for additional treatment 5-10 years after initial resection, the percentage approached to in abdominal myomectomy. Relapses can be explained by incomplete removal of myomatous tissue or repeated myoma growth .

The European hysteroscopic society classifies submucous myomas according to the level of myometrial penetration. The category T:0 contains all pedunculated submucous myomas. Submucous myomas with penetration below 50% into the myometrium are classified as T:I, while those with penetration over 50% are classified as T:II (13). The categories T:0 and T:I of myoma can be hysteroscopically removed by less experienced surgeons. T:II category usually requires abdominal resection, and hysteroscopic resection should be performed by specially trained hysteroscopic surgeons.

LAPAROSCOPIC MYOMECTOMY

Laparoscopic myomectomy is feasible if the myoma is easily accessible, as is the case with superficial subserous or pedunculated myomas. These myomas can be morcelated and removed via laparoscopic cannula or displaced into the Douglas space and removed via colpotomy (14). Uterine rupture during pregnancy after laparoscopic resection of leiomyoma has been reported and attributed to inadequate reconstruction of the myometrium. Laparoscopic assisted myomectomy involves laparoscopic dissection of myoma from the uterine wall and their extraction via minilaparotomic incision, avoiding thus large abdominal incisions. These procedures have not yet been standardized to the level abdominal myomectomy has, and the surgeon should be skilled in operative endoscopy. The patient preparing for this type of myomectomy should be aware of the risks involved in conservative operative treatment and the risks of hysterectomy for myomas. The possibilities of hysterectomy instead of the recommended myomectomy should be explained to the patient. This occurs rarely, but preoperative open discussion is critical to maintain the patien trust in her doctor. Rare and unusual cases of diffuse uterine leiomyomatosis detected during

myomectomy sometimes prevent the removal of myomas and dictate hysterectomy. Most patients who wish to retain their childbearing potential would choose myomectomy over hysterectomy, whenever there is a choice. For those who plan conception in the near future, a pause of 4-6 weeks is suggested after the operation because of the significant myometrial disturbance during myomectomy. For infertile patients HSG is recommended four months after the intervention in order to assess the anatomy of the uterine cavity and tubes.

EMBOLIZATION OF THE UTERINE ARTERY

Embolization of the uterine artery for myomas was described first in 1995. The principle is simple. Limiting of blood supply to the myoma (infarction) can lead to its reduced volume. Embolization material is introduced through fluoroscopically guided transarterial catheter introduced into the common femoral artery to selectively occlude the arteries supplying the myomas. The procedure is performed by a radiologist, under non-anesthetized sedation (15). This minimally invasive intervention is recommended in patients with symptomatic, larger myomatous uterus, in women who do not wish extirpation treatment and those who are poor candidates for major surgery. Most patients require one-day hospitalization for analgesia. The procedure is not without side effects and complications. The pain may persist for more than two weeks after the intervention. Postembolization fever, postembolization syndrome, pyometra, insufficient myoma regression, sepsis, hysterectomy and even fatal outcome have all been reported after several embolizations of uterine artery. Ovarian insufficiency has been noted in 1-2% of women after the embolization procedure. The effect of embolization of uterine artery on future fertility is still under question. Embolization of uterine artery can be included as a possibility into the management plan for symptomatic myomas, and the patient should be informed about it.

HORMONAL THERAPY

Progestagens Noretindron, Medrogeston and medroxyprogesteron acetate are used with success in the reduction of size of myomatous uterus. It has been thought that these compounds create an anti-estrogen effect by inhibition of gonadotropin secretion and by suppression of ovarian function (16). Progestagens can also exert direct anti-estrogen effect at the cellular level.

Analogues of gonadotropin releasing hormone (GnRH)

Analogues of gonadotropin releasing hormone have been successfully used to induce hypoestrogenism in various estrogen-dependent diseases, such as endometriosis, pubertas praecox and uterine myomas. This could be a promising approach as a primary tool of conservative therapy for myomas or as an adjunct to myomectomy. The effects of progestational treatment, as well as the treatment with GnRH analogues, are transitory, and several cycles after the administration had been stopped, myomas regain their pre-treatment size. Additional therapy of 3-4 months should reduce the size myomas and facilitate surgical treatment, with a lesser loss of blood. The approach have special advantages regarding facilitation of hysteroscopic resection of submucous myoma, since the resection largely depends on the tissue volume. After a cycle of GnRH analogue treatment, myomectomy is performed through the hypovascular myometrium, with blood-loss reduction (17). In spite of their efficacy in myoma size reduction, the use of GnRH analogues is associated with significant short- and long-term side effects, such as postmenopausel symptoms and osteoporosis. Hormonal re-substitution can ameliorate some of these symptoms, but can also favourably impact myoma size. In some cases, intense intrapelvic pain may accompany myoma shrinkage during GnRH analogue treatment. The results of clinical studies of GnRH analogue treatment for myomas are variable; instant and accurate prediction of the patients who will have favourable response to GnRH analogues is, as it seems, impossible .

Long-term treatment of young patients is not practical nor it is desirable due to probable bone tissue loss and the consequences of hypoestrogenism caused by prolonged GnRH analogue treatment. For perimenopausal women, in which the volume of myomas can be stabilized with menopause, short-term GnRH analogue treatment can obviate the need for operative treatment.

OTHER APPROACHES

Davis et al. report on the procedure in which myomas are removed by enucleation or morcelation, posterior or anterior colopotomy, or both, depending on the myoma position. Uterine incisions are closed layer by layer, and then colpotomy is closed. The procedure was performed vaginally in 32 patients. Though maybe useful in selected cases, the approach was associated with prolonged hospitalization and limited to carefully selected patient groups with small number of easily accessible leiomyomas (18).

Carbon dioxide laser is also used as an adjunct to surgical myoma treatment. During laparotomy, small myomas are directly vaporized by laser, and medium-sized and large myomas are excised. However, the technique has not yet gained wider acceptance since there are no long-term results of prolonged follow-up of larger patient series (19).
More recently, magnetic resonance (MR) guided high-frequency focused ultrasonography has been reported as a tool to destruct myomatous cells. This non-invasive method is still in its experimental stages and, as such, cannot be recommended as a clinical modality of myoma treatment (20).

CONCLUSION

Detailed understanding of uterine myoma pathogenesis, clinical presentation and availability of diagnostic tools are the key factors in selecting the treatment direction for each patient with myomas. This paper presents the broad range of currently available treatment approaches. Experience and skill of each individual surgeon is of utmost importance in selecting myoma treatment. These concluding remarks are the authors' assessment based on the collective experience in myoma treatment. First, we think that surgical treatment of myomas is not always necessary and should be utilized only for certain indications, such as uncontrollable pain or bleeding, progressive and significant growth, as well as poor reproductive potentials with previous exclusion and treatment of other potential causes. Further, myomectomy, rather than hysterectomy, should be the choice when the preservation of reproductive potential is the objective. The approach of myomectomy should be selected based on the myoma site and the treatment approaches thought of as the best by individual surgeons.

Continual observation without surgery is recommended mostly to the patients approaching their menopause. Our principal indication for GnRH analogue use is to obtain amenorrhea in order to facilitate hypochromic anemia correction before surgery. Some authors have found that preoperative treatment with GnRH analogues preceding myomectomy leads to increased fibrousness of myoma capsule and thus to more difficult resection of the myoma within. As for uterine artery embolization, we believe that it is most effective in patients with large symptomatic myomas who are poor candidates for surgery and who have high risk of general anesthesia, as well as for those who refuse extensive surgery. The experience with uterine artery embolization is not sufficient and it is too early for us to know whether the procedure is curative or with transient results. We determine our surgical approach endoscopically or with laparotomy, based on the size, number, distribution and site of myoma. Hysterectomy has its characteristic place in myoma treatment due to its definitiveness. Hysterectomy is our common recommendation for menopausal or perimenopausal women, but the women who wish to preserve their uterus should not be compelled to undergo hysterectomy. Basically, all treatment methods, and especially the invasive techniques, should be reserved for the patients with symptomatic myomas. In asymptomatic cases, serial follow-up of growth and development of symptoms is quite sufficient and safe. Finally, we can conclude that the management of myomas remains the same, but diagnostic and therapeutic approaches have been adjusted to allow for flexibility in tailoring our own management approach according to the needs in each individual case.

REFERENCES

1. Wilkox LS, Koonin LM, Pokras R, Strauss LT, Xia Z, Peterson HB. Hysterectomy in the United States, 1988-1990. Obstet Gynecol 1994;83:549-55.

2. Buttram VC Jr,Reiter RC. Uterine leiomyomata: etiology, symptomatology, and management. Fertil Steril 1981;36:433_45.

3. Earber M,Conrad S, Heinrich WL, Herrmann WL. Estradiol binding by fibroid tumors and normal myometrium. Obstet Gynecol 1972;40:479-86.

4. Ferrer-Brown G, Beilby JO, Tarbit MH. Venous changes in the endometrium of myomatous uteri. Obstet Gynecol l971;38:743-51

5. Propst AM, Hill JA. Anatomic faktors asociated with recurrent pregnancy loss. Semin Reprod Med 2000;18:341-50.

6. Rosati P,Exacoustos C, Mancuso S. Longitudinal evaluation of uterine myomy growth during pregnancy: asonographic study. J Ultrasound Med 1992;11:511-5.

7. Scoutt LM, McCarthy SM. Aplications of magnetic resonance imaging to gynecology. Top Magn Reson Imaging 1990;2:37-49.

8. Lefebvre G, Vilos G, Allaire C, Jefferey J, Arneja J, Birch C,et al. The management of uterine leiomyomas. J Obstet Gynecol Can 2003;25:396-418.

9. Farrell SA, Kieser K. . Sexualiti after hysterectomy. Obstet Gynecol 2000;95:1o45-51.

10. Rowe MK, Kanouse DE, Mitman BS, Berstein SJ. Quality of life among women undergoing hysterectomies. Obstet Gynecol 1999;93:915-21.

11. Sheth S, Malpania A. Routine prophylactic oophorectomy at the time of vaginal hysterectomy in posmenopausal women. Arch Gynecol Obstet 2002;251:87-91.

12. Rouzi AA, Jamis HS, Abduljabbar HS. Abdominal myomectomy versus abdominal hysterectomy for symptomtic and big uterine fibroids. Saudi Med J 2001;22:984-6.

13. Cohen LS, Valle RF. Role of vaginal sonography and hysterosonography in the endoscopic treatment of uterine miomas. Fertil Steril 2000;73:197-204.

14. Dubuisson JB, Chapron C. Laparoscopic myomectomy and myolysis. Billieres Clin Obstet Gynecol 1999;9:717-28.

15. Hurst BS, Stackhouse Đ, Matthews ML, Marshburn PB. Uterine arteri embolization for symptomatic uterine myomas. Fertil Steril 2000;74:855-69.

16. Vikhliaeva EM, Uvarova EV, Samedova N. The mechanism of the therapeutic effect of norethisterone in hiperplastic diseases of the endo- and myometrium in women of reproductiv age. Vopr Onkol 1999;36:683-9.

17. Stjernquist M. Treatment of uterine fibroid with GnRH-analogeus prior to hysterectomy. Acta Obstet Gynecol Scand Suppl 1997;164:94-7.

18. Davies A, Hart R, Magos AL. The excision of uterine fibroids by vyginal myomectomy: aprospective study. Fertil Steril 1999;71:961-4.

19. Chan AH, Fujimoto VY, Moore DE, Martin RW, Vaezy S. An image-guided high intensiti focused ultrasound device for uterine treatment. Med Phys 2002;29:216-20.

20. Keshavarzi A, Vaezi S, Noble LM, Paum MK, Fujimoto VY. Tretman of uterine fibroid tumors in as in situ rat model using high-intensiti focused ultrasound. Am J Obstet Gynecol 2000;183:6-11.

GENEZA, KLINIČKA SLIKA, DIJAGNOZA I TRETMAN MIOMA MATERICE

Vekoslav Lilić[1], Biljana Đorđević[2], Zorica Stanojević[3], Aleksandra Petrić[1], Goran Lilić[1], Radomir Živadinović[1], Sonja Pop-Trajković[1]

[1]Klinika za ginekologiju i akušerstvo u Nišu
[2] Institut za patologiju u Nišu
[3] Klinika za onkologiju u Nišu

SAŽETAK

Cilj rada bio je razmotriti patofiziološku genezu mioma uterusa, posebno dijagnostičke i terapijske modalitete, sa naglaskom na principe koji vode što logičnijem procesu odlučivanja u postupku sa miomima u svakom pojedinačnom slučaju.

Za metod rada korišćen je literaturni pregled u poslednjih nekoliko godina o miomima uterusa i sinteza različitih iskustava autora.

Miomi uterusa su najčešći solidni tumori karlične duplje kod žena. Sve je više dokaza da oni poseduju genetsku bazu i da im je rast povezan sa genetskom predispozicijom, hormonskim uticajima i različitim faktorima rasta. Dijagnostički postupci su raznovrsniji. Izbor terapije je širok i pored ostalog, uključuje farmakološke, hirurške i radiološki usmerene intervencije. Većina mioma uterusa može se pratiti serijski, opservacijom razvoja simptoma ili progresivnog rasta.

U poslednjih pedesetak godina došlo je do razvoja visoko sofisticiranih dijagnostičkih i terapijskih tehnologija za miom uterusa. Danas, sredstva koja su nam na raspolaganju dozvoljavaju veću fleksibilnost u lečenju sa bezbednim mogućnostima, koje se mogu i moraju podešavati prema pojedinačnoj kliničkoj situaciji.

Ključne reči: **miom, histerektomija, miomektomija, laparoskopija, embolizacija**