Hysteroscopic Myomectomy

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Shilpa Sharma and Shalu Gupta

6.1 Introduction

Uterine fibroids are the most common benign tumors of women in the reproductive age group. On the basis of postmortem studies, the prevalence rates are quoted to be varying from 20% to 50% [1]. The age group found to be most commonly presenting with myomas is the reproductive age group.

These are smooth muscle cell tumors of the uterus and have interweaving fibrous tissues that may contain collagen, fibronectin, and proteoglycan [2]. Pathogenesis of myomas is still not clear, but both estrogen and progesterone are found to have a major role in the proliferation of the tumor [3, 4]. Fibroids are rarely seen before menarche and generally start regressing once a woman attains menopause. As the myomas grow, they usually follow the path of least resistance, i.e., either they grow toward the abdominal cavity or toward the uterine cavity becoming subserous or submucous fibroids, respectively (5–10% of uterine fibroids) [5].

Although all uterine fibroids arise from myometrium, they are classified by their location in the uterus into three major clinical categories: subserosal, submucosal, and intramural. There can be single or multiple myomas in a uterus.

Subserous myomas needs surgical removal if the size is more than 7 cm in size they do not need surgical removal. Sometimes myomas smaller than 7 cm may cause symptoms due to their location, i.e., either they may cause bladder symptoms if present anteriorly or bowel discomfort if posteriorly located, and it may necessitate its removal. Myomectomy for subserous fibroids is either done laparoscopically or by a laparotomy. Similarly, **intramural fibroid** may be removed laparoscopically or by a laparotomy. Laparoscopic myomectomy has many advantages over laparotomy due to shorter convalescence period and better cosmesis. Laparoscopic myomectomy includes

S. Sharma, DGO, DNB, MNAMS, FNB (✉)
Aveya Natural IVF Fertility Centre, Delhi, India

S. Gupta, MS, DNB, MNAMS, FNB
IVF and Fertility, Cloud 9, Gurugram, Haryana, India

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removal of the myoma as well as repair of the myometrium through the endoscope; hence it requires more technical expertise than most other procedures which are done laparoscopically. The use of laparoscopic myomectomy is now gaining widespread acceptance due to increased training as well as availability of better equipment.

Women with **submucous fibroids** present with clinical symptoms such as menorrhagia, spasmodic dysmenorrhea, and inability to conceive in some. Submucous fibroids can arise from the anterior, posterior, or the lateral wall of the uterus. These are most commonly located at the body of the uterus but may also be present at the fundus or the isthmus. If present at the cornual end, then it may cause infertility by interfering with the transfer of the sperm at the uterotubal junction [6]. These myomas are found to have higher rate of malignant transformation and increased association with chronic endometritis [6]. Incidence of antenatal and postnatal complications such as preterm labor, postpartum hemorrhage, and operative deliveries is higher in women with submucous fibroid [7].

Submucous myomas can be treated by hysteroscopic resection or by subtotal or total hysterectomy through open or laparoscopic access. Hysteroscopic techniques are now preferred as it preserves fertility, is less invasive, and retains the menstural functions in the women, too. However some myomas may not be amenable to be treated hysteroscopically.

6.2 History of Hysteroscopic Myomectomy

Initially fibroids were treated with either by performing hysterectomy or doing a myomectomy through laparotomy. But with the developments in surgical techniques and instrumentation, accessibility of fibroids became easy with the application of laparoscopy. As the hysteroscope was introduced, the submucous fibroids became accessible and could be removed from the inner surface of the uterus. Initially the myomas were removed either by twisting the pedicles of the pedunculated fibroids with the help of ovum forceps or the fibroid pedicle would be cut with the help of scissors inserted through the hysteroscopic sheath.

In 1976, Neuwirth and Amin first reported resection of a fibroid using a resectoscope used in urology. They had used 32% dextran as a distension medium and monopolar current [8]. Later in 1987, Hallez used a specially designed resectoscope that used 1.5% glycine with continuous flow and cutting current [9].

With advances in instruments and increase in knowledge, hysteroscopic myomectomy is now the standard technique for management of submucous myomas.

6.3 Presurgical Evaluation of Submucous Fibroids

Removal of submucous myoma can be difficult most of the times, and hence it is necessary to decide the extent of the myoma before attempting the procedure. Fibroids can be evaluated using either transvaginal ultrasound scanning

(TVS) and/or sonohysterography (SHG) and office hysteroscopy. These diagnostic modalities enable us to assess the location, number, and size of the fibroid and also the depth of myometrial extension. SHG or office hysteroscopy delineates the intracavitary component of the fibroid as well as it may show any other intracavitary pathology. In a comparative study published in 2011, saline infusion sonography had a sensitivity of 99% and positive predictive value of 96% for submucous myomas. Hysteroscopy had a sensitivity, specificity, positive predictive value, and negative predictive value of 98%, 83%, 96%, and 91%, respectively, for all pathologies of the uterus. In conclusion, SIS was found to be superior to the TVS for diagnosing uterine pathologies and is equivalent to hysteroscopy, which is considered as the gold standard [10].

SHG is superior to TVS as it identifies not only the exact location of fibroid but also the exact proportion of the myoma that protrudes into the uterine cavity and hence helps in classifying the myoma and also deciding on the mode of treatment. In cases of multiple fibroids, or if differentiation between adenomyosis and fibroid is difficult or in obese patients where TVS or SIS is technically difficult to perform, magnetic resonance imaging (MRI) may be helpful [11, 12].

6.4 Classification of Submucous Fibroids

The classification used most commonly was developed in 1993 by Wamsteker et al. and adopted by the European Society for Gynecological Endoscopy (ESGE). This classification only considers the degree of myometrial penetration of the submucous fibroid (Table 6.1) [13].

In 2005, Lasmar et al. proposed a new classification of submucous fibroids that can be used preoperatively. This system of classification considers the degree of penetration of fibroid into the myometrium, extension of the base of the fibroid in relation to the wall of the uterus, size of the fibroid (in cm), and location of fibroid (Table 6.2). For each parameter, a score is given ranging from 0 to 2, and depending on the total score, patients are divided into three groups. The Lasmar score is found to have a better correlation to the surgical outcome as compared to when only the ESGE classification was used [14, 15].

Table 6.1 ESGE classification of submucous myomas [13]

Type 0	Entirely within the endometrial cavity No myometrial extension (pedunculated)
Type I	<50% myometrial extension <90° angle of myoma surface to uterine wall
Type II	≥50% myometrial extension ≥90° angle of myoma surface to uterine wall

Table 6.2 Step W classification of submucous myomas [14]

	Size (cm)	Topography	Extension of the base	Penetration	Lateral wall	Total
0	<2	Low	<1/3	0		
1	2–5	Middle	1/3–2/3	<50%		
2	>5	Upper	>2/3	>50%	+1	
Score	**Group**	**Complexity and therapeutic options**				
0–4	I	Low complexity hysteroscopic myomectomy				
5–6	II	High complexity hysteroscopic myomectomy. Consider GnRH use. Consider two-step hysteroscopic technique				
7–9	III	Consider alternatives to hysteroscopic technique				

Source: Lasmar RB et al. Submucous myomas: a new presurgical classification to evaluate the viability of hysteroscopic surgical treatment—preliminary report. J Minimal Invasive Gynecol, 2005; 12(4):308–11. Reproduced with permission from Ricardo Lasmar

6.5 Instruments

Operative hysteroscope or resectoscope is the main equipment required for removal of submucous myoma. It has channels for instillation of medium, for the telescope and an extra channel for the insertion of operative devices such as loops or electrodes. Both monopolar as well as bipolar electrosurgical equipment can be used, though the distension media would change as discussed in the chapter of instruments. The use of monopolar currents requires a nonconducting media such as sorbitol 5% or glycine. The use of bipolar current has been found to be much safer and hence now preferred by most surgeons.

6.6 Hysteroscopic Techniques

The surgical technique would mainly depend upon the type of the myoma and its location in the endometrial cavity. Also the experience or the expertise of the surgeon may favor one technique over the other [16].

6.6.1 Office Hysteroscopic Myomectomy

Advent of smaller diameter hysteroscopes of diameters of 3–5 mm has now allowed many uterine pathologies to be treated without the need of cervical dilation and anesthesia and hence tackled at outpatient department itself. Smaller fibroids that are completely within the uterine cavity (G0) can be treated in office settings. The fibroid is first divided into two halves, and then each half is separated from the base in two or three slicing attempts. These are then pulled out with the help of a grasper.

Evidence is limited due to methodological weaknesses of studies evaluating hysteroscopic myomectomy in office settings, such as absence of a control group and short follow-up period. Larger trials are required to further evaluate the usefulness of this technique.

6.6.2 Fibroids Completely Within the Uterine Cavity (G0)

6.6.2.1 Resectoscopic Excision by Slicing

The method of slicing consists of repeated and progressive passage of the cutting loop through the fibroid starting from the top and then proceeding downward to the base. This procedure is also useful for the pedunculated fibroids (Figs. 6.1, 6.2, 6.3, 6.4, and 6.5).

During the resection of the fibroid, the fragments of the fibroids start accumulating within the cavity making the visibility poor, and these may require removal before any further attempt to slice and complete the procedure. The best way to remove them is under direct vision after grasping the loose tissue with loop or grasping forceps. Nowadays resectoscope with automatic chip aspiration is also available. The procedure should be considered complete when

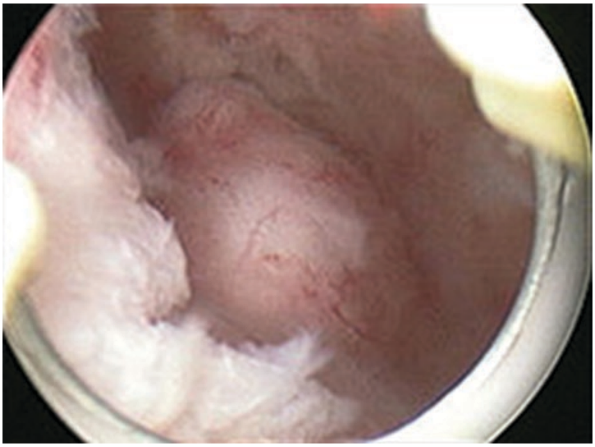

Fig. 6.1 Hysteroscopic view of submucous myoma before myomectomy

Fig. 6.2 Removal of myoma with slicing technique with the help of a cutting loop

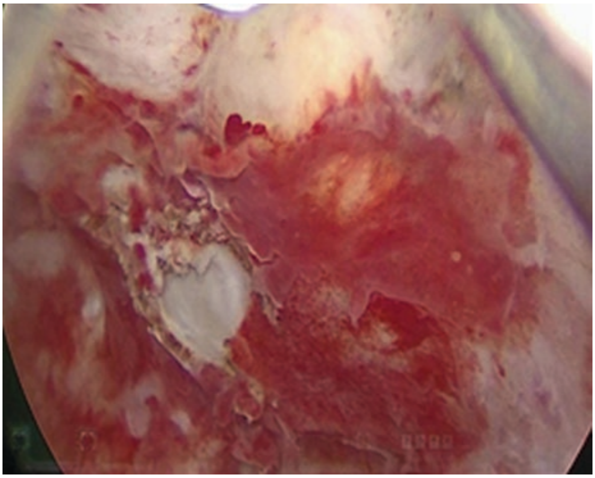

Fig. 6.3 Partially removed myoma

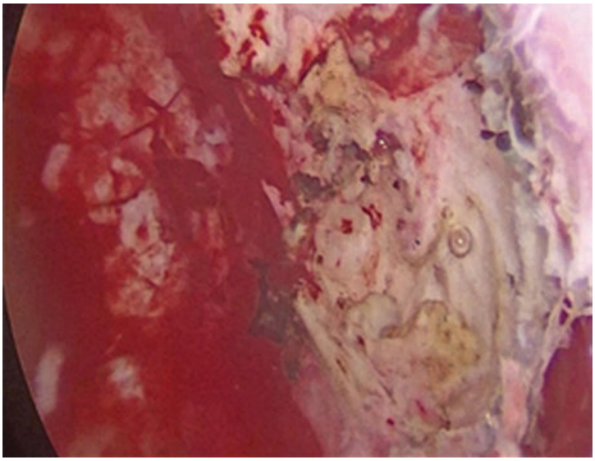

Fig. 6.4 Completely removed myoma

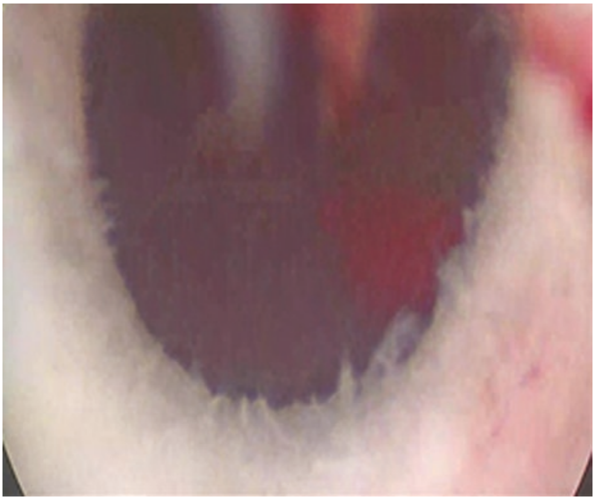

Fig. 6.5 Panoramic view of the cavity after removal of myoma

the base is smooth and regular and the fasciculate structure of the myometrium can be seen.

6.6.2.2 Cutting the Base of the Fibroid and then Extracting the Fibroid

In case of a pedunculated fibroid, the pedicle may be cut with the help of either a loop electrode or Nd: YAG laser. The fibroid can then be removed either under direct vision using Issaacson optical tenaculum or blindly using forceps. Some surgeons leave the resected fibroid tissue inside the cavity itself so that it is extruded during menstruation later.

6.6.2.3 Ablation by Nd: YAG laser

Small fibroids (<2 cm) can be ablated using Nd: YAG laser. In this method, the laser is first used to ablate the superficial blood vessels followed by dragging the laser against the fibroid multiple times, till the entire tissue is flattened out. This is known as the *touch technique*. The disadvantage of the technique is that no tissue is available for histopathology and also that the laser equipment is expensive and hence limiting its use.

6.6.2.4 Vaporization of Fibroid

In this technique spherical or cylindrical electrodes are used for vaporization of the fibroid. The electrode is moved slowly over the fibroid, and the current is only applied when we are moving toward the surgeon. This technique is continued till the myoma is reduced to such a size that can be easily removed by a tenaculum or a forceps.

The disadvantages of this technique are uterine perforation, gas embolism, and unavailability of tissue for histopathology. These complications can be managed by taking certain precautions during surgery. The surgeon should take care of the time for which the pressure has been applied, wattage of current used. The anesthetist should constantly monitor the end-tidal CO_2 of the patient and keep the operator informed avoiding serious complications.

6.6.2.5 Morcellation by Intrauterine Morcellator (IUM)

A newer technique that is morcellation by IUM preserves tissue for histological examination. This technique is effective for fibroids that are classified as G0 and G1 but not for G2. This technique may have a shorter learning curve and is faster as the tissue fragments are aspirated through the instrument only. This is a newer technique; hence further studies are needed for long-term follow-up and complications.

A retrospective comparative study was conducted in two centers from January 2012 to December 2013 with a total of 83 patients with submucous myomas type 0, 1, and 2. Thirty-four patients underwent hysteroscopic morcellation using MyoSure, and 49 had hysteroscopic resection using Versapoint-24F bipolar loop. There were 36 (71%) type 0 and 1 myomas and 15 (29%) type 2 in morcellation group versus

44 (59%) myomas type 0 and 1 and 31 (41%) type 2 in electrosurgical resection group ($p = 0.17$). The mean operative duration was 30 min in morcellation group, compared to 31 min in bipolar resection group ($p = 0.98$). Complete myoma removal was achieved in 22 (64%) patients in morcellation group and in 34 (69%) in bipolar resection group ($p = 0.65$). There were no differences in the adverse events between both groups. The prevalence of postoperative intrauterine adhesion was 10% in morcellation group and 13.8% in bipolar resection group ($p = 0.69$). In this short comparative series, hysteroscopic morcellation and bipolar loop resection were associated with comparable results for removal of submucous myomas [17].

6.6.3 Fibroids with Intramural Component (G1–G2)

Fibroids with intramural component are best treated in hands of experts as these are technically challenging with higher chances of complications. Fibroids with size more than 5 cm and with intramural components, i.e., G1 or G2, should not be removed hysteroscopically, as there are chances of incomplete resection and makes the surgery difficult.

Several techniques have been described having the same objective, i.e., to make intramural component as intracavitary.

6.6.3.1 Excision of the Intracavitary Component Only

Several authors in the past proposed that only the intracavitary portion of the fibroid could be excised leaving behind the intramural component [8]. It was on the assumption that the endometrium may grow over the intramural component and hence the fibroid may behave as an intramural one. But this proved to be useless because as the fibroid grew, it would have an intracavitary expulsion due to volumetric expansion, and hence the symptoms would persist. This procedure finally fell into disrepute.

6.6.3.2 Fibroid Excision Using the Two-Step Technique

This procedure was first described in 1990 by Donnez [18]. The procedure is based on the fact that as the myomectomy of intracavitary portion of myoma is performed, the intramural component grows toward the uterine cavity becoming intracavitary. In his first published paper in 1990, he treated 12 patients using this technique. Later on he published another study which had 78 patients in whom the largest portion of the myoma was present in the myometrium. In these set of patients, only four patients needed a third operative hysteroscopy, whereas 95% of patients only needed two hysteroscopies [19].

Steps of this technique:

1. The patient receives 8 weeks of GnRH agonist prior to scheduled surgery.
2. First hysteroscopy: Removal of the intracavitary portion of myoma using the splicing technique. After this the laser is made to enter the myoma at 90° angle, and the myolysis is done to shrink the size of the myoma. This is the first surgical step.

3. The patient now receives 8 weeks of GnRH agonist.
4. Second look hysteroscopy is performed, and the residual intracavitary fibroid is removed by the splicing technique.

The advantage of this procedure is that it is safe as it involves the removal of intracavitary portion only. But the disadvantages are that it involves two separate interventions. This may as well increase the cost of the procedure due to two surgeries involved as well as the need of multiple GnRH agonist injection. Only myomas with a reduced intramural development or of small dimensions can be treated with this technique.

6.6.3.3 One-Step Techniques for Complete Excision of Myoma

1. **Excision of intramural component by slicing**

   After the removal of the intracavitary portion by the splicing technique, the intramural portion is also removed in the similar manner. During the procedure the infusion of the media is stopped and restarted intermittently which leads to start of uterine contractions and changes the intrauterine pressure causing uterine massage which pushes the myoma into the cavity from the intramural region. This step is continued several times along with manual uterine massage till the entire tissue has been extruded and removed.

   In a study published by Zayed et al. which included 49 patients, the mean diameter of the myoma removed was 51.94 ± 5.58 mm. Complete resection of myoma by this technique was possible in 45 (91.84%) of women. Out of the 17 women who had infertility, 9 did conceive. One-step complete resection of myoma was more successful if myoma was single (97.5%), the size was <6 cm (97.73%), or Lasmar score was <7 (100%) [20].

   The complications associated with this technique are bleeding, intravasation, and perforation. The use of electrosurgical current while working at the intramural portion of myoma may also damage the adjacent normal myometrium.

2. **"Cold loop" myomectomy**

   In 1995 Mazzon first described this technique using cold loop, and it involves three steps [21]:

   (a) **Excision of the intracavitary component**: The intracavitary portion of the myoma is removed using the splicing technique. The excision stops at the level of the endometrial surface. This helps during the next step to identify the cleavage plane between the myoma and the myometrium.

   (b) **Enucleation of the intramural component**: Now the cold loop is inserted at the edge of the myoma at the endo-myometrial interface, and the fibroid is dissected away from the myometrium. During this step no electrosurgical current is used, and the loop is used mechanically or in cold manner. Subsequently a single tooth loop is used to hook out and also cut the fibrous bridges between the myoma and the myometrium.

   (c) **Excision of the intramural component**: Once the fibroid has been enucleated, the myoma now lies within the cavity, and this is further treated as intracavitary fibroid.

The disadvantages of this procedure are that it needs an experienced surgeon and the availability of a cold loop that limits its use. Studies to assess its efficacy are still lacking.

3. **In toto enucleation**
   (a) **Litta's technique**: With the Collin's knife, an elliptical incision is made at the endometrium at the interface of the myoma and the uterus till the zone where the cleavage between the myoma and the myometrium can be started. Connecting fibrous tissues are cut, the myoma is pushed into the cavity, and the myoma is then removed using the splicing technique. This technique was used successfully in 41 patients out of total of 44 patients with submucous fibroids (G2) with mean size of 3.2 cm (range 2–4 cm) [22].
   (b) **Lasmar's technique**: This technique was successfully used in 98 women where an "L"-shaped Collins electrode was used to cut the endometrium around the myoma, then mobilizing the fibroid from all directions into the cavity. Once the myoma is intracavitary, then it was either removed by splicing or in cases of small fibroids with the help of the grasper [14].
4. **Two resectoscope techniques** have been described but is limited in its use due to feasibility of the procedure [23]. This technique uses two resectoscopes of 7 and 9 mm size and hence its name. First using the smaller diameter resectoscope, the myoma is cut deep enough till the top of the myoma with an irregular surface is visualized, which is easier to grasp. The myoma is further dissected, and a specially designed myoma grasper further pulls the myoma into the cavity, using rotating and pulling action that completes the procedure. In case of inability to remove due to larger size of myoma, 9 mm resectoscope can be used to remove part of myoma to make passage smooth.

6.7 Outcomes of Hysteroscopic Myomectomy

Hysteroscopic myomectomy is proved by most studies to be both effective and a safe technique for treating menstrual disorders with up to 70–99% efficacy [24]. A number of factors may affect the success rate such as incomplete removal of the myoma and other causes of menorrhagia as well as development of a new fibroid. The size and number of fibroid have value in prognosticating the patient before the surgery. The surgical technique of myomectomy does not affect the success rates [25]. Various studies have evaluated the effect of hysteroscopic myomectomy on the reproductive outcome of the infertile women [26–29, 31]. The pregnancy rates reported after the hysteroscopic myomectomy varies from 16.7% to 76.9% with a mean of 45%. Such a disparity in the reported success rates is likely due to some other associated factor for infertility, discrepancy in follow-up, or differences in characteristics of patients including age and whether they had primary or secondary infertility [27]. As widely investigated, myomas as a sole cause of infertility is very uncommon and is thought to be sole cause in 1% of women; therefore, reproductive outcome after hysteroscopic myomectomy is influenced by other factors as well.

Fernandez et al. in 2001 reported that if fibroid was the sole cause of infertility, then pregnancy rate of 41.6% can be achieved by its removal; if one or more factors were present, the pregnancy rates were 26.3% and 6.3%, respectively [28].

Previously infertile women with G0 and G1 class of fibroids are likely to be benefitted from hysteroscopic myomectomy [29]. This was in contrast to women with G2 fibroids who did not show any benefit in comparison to the control group (women who had not undergone hysteroscopic myomectomy).

Many meta-analyses have assessed the impact of fibroids on IVF cycles [26, 27, 29].

Pritts compared infertile women with and without submucosal fibroids and found a significantly lower pregnancy rate (RR 0.32), implantation rate (RR 0.28), and delivery rates (RR 0.75) in patients with submucosal fibroids [26]. An updated meta-analysis by Somigliana et al. also found a significantly lower pregnancy and delivery rates for women with submucosal fibroids [odds ratio (OR), 0.3] [27]. Even Donnez and Jadoul found that submucous myomas are associated with lower pregnancy rates [29].

Only two studies evaluated IVF outcome after hysteroscopic myomectomy [32, 33]. Meta-analysis of these two retrospective studies reports that hysteroscopic myomectomy does not negatively affect the chances of pregnancy in IVF cycles [27]. However these results have to be taken with caution as they are on basis of two retrospective studies with few patients only.

6.8 Operative and Long-Term Complications

Hysteroscopic myomectomy as compared to other hysteroscopic procedures is associated with higher incidence of complications. Complication rate is reported to be between 0.3% and 28%. The two most frequent complications are fluid overload and uterine perforation. Other complications include cervical injury, air embolism, and bleeding. Late sequel includes intrauterine adhesions (IUA) and uterine rupture during subsequent pregnancy [34].

6.8.1 Uterine Perforation

Perforation of the uterus may occur during dilatation of the cervix while inserting the hysteroscope or during resection of myoma. The chances of perforation are increased if there is a large intramural component or an aggressive resection is carried out for the intramural portion [35]. The management of perforation would depend on the condition of the patient as well as whether any surrounding structure has been damaged or not.

In a study published in year 2003, data was collected from five hospitals over a period of 12 years. Overall 3541 hysteroscopic electrosurgeries were performed, of which 1468 cases were of transcervical resections of endometrium (TCRE), 797 cases of transcervical resection of myoma (TCRM), 783 cases of transcervical resection of endometrial polyp (TCRP), 189 cases of transcervical resection of uterine septa (TCRS), 112 cases of transcervical resection of uterine adhesion (TCRA), and 192 cases of transcervical removal of foreign body (TCRF). All surgeries were performed under ultrasonographic or laparoscopic guidance. Cases of uterine perforation were divided into two groups: entry-related or technique-related.

Uterine perforation was observed in 16 cases (0.45%). Out of these 16 cases, seven were due to cervical dilatation, one was due to insertion of the hysteroscope, and eight were caused by electrode. The incidences of uterine perforation of different operations were TCRA 4.46% (5/112), TCRF 3.12% (6/192), TCRE 0.27% (4/1468), TCRM 0.13% (1/797), and TCRP and TCRS none. These 16 cases were all diagnosed during operations, ten cases (62%) by 2D ultrasound and (or) laparoscopy and six cases (38%) by hysteroscopy and clinical features. 13 cases were complete uterine perforations, among them two were diagnosed by laparoscopic monitoring, five by ultrasound monitoring, four by hysteroscopy, and two by symptoms and ultrasound, and three cases were incomplete uterine perforations in which two were diagnosed by laparoscopic monitoring and one by ultrasound monitoring. According to the authors as the half of uterine perforation cases happened while entering into the uterine cavity, hence utmost attention is needed while introducing dilator or hysteroscope. The other half was related to technique, and hence the type of surgery and surgeons experience is of importance [36].

6.8.2 Intravasation and Electrolyte Imbalance

This has been categorized as the most serious complication of hysteroscopic myomectomy. At present a standard definition of fluid overload is lacking. The intravasation of the fluid used to distend the uterine cavity can cause hyponatremia, pulmonary/cerebral edema, heart failure, and even death [35, 37]. The fluid is absorbed mainly via the vessels in the myoma and also through peritoneal absorption. Fluid deficit of 1000 mL of nonelectrolyte media causes drop of serum sodium of 10 nmol/L, making 1000 mL as cutoff for nonelectrolyte media. With isotonic electrolyte media used with bipolar systems, deficit of even >1000 mL can be easily tolerated by healthy women, but the same may not be true with advanced age and with associated comorbidities (weight/cardiovascular or renal diseases, etc.). So the upper safe limit for isotonic media still remains undefined especially in relation to age, weight, and medical fitness of woman [38].

The main factor responsible for extravasation seems to be the intramural extension of the fibroid mainly due to damage to larger-sized vessels. Other factors include being the length of the operation, the size of the fibroid, and the total inflow volume. Till the evidence to define an upper safe threshold for isotonic media is absent, the BSGE/ESGE Guideline Development Group recommends a limit of 2500 mL for healthy fit women [38]. However, in the elderly or those with comorbid conditions such as cardiovascular disease and renal disorders, the thresholds should be lowered, and upper limits for fluid deficits should be 750 mL for hypotonic solutions and 1500 mL for isotonic solutions [38].

During surgery a close watch on the fluid balance, difference in the amount of inflow and outflow including the fluid that has leaked through the vagina, should be noted. The procedure should be abandoned before excessive fluid is absorbed. The use of bipolar instruments along with normal saline has reduced this complication tremendously.

6.8.3 Postoperative Intrauterine Adhesions

The incidence of postoperative IUA after hysterosocpic myomectomy ranges from 1% to 13% [39]. One can minimize the risk by avoiding forceful manipulation and trauma to healthy tissue around the fibroid. Surgeon should use minimal electrosurgery during the surgery especially in cases with multiple fibroids. One can use either barrier agents such as levonorgestrel-releasing intrauterine device or Foley's catheter to reduce the development of adhesions. Postoperative use of estrogens and progesterones is also recommended by some authors. No single method has been proven to be efficacious at preventing the development of intrauterine adhesions following hysteroscopic operative procedures.

6.8.4 Uterine Rupture During Pregnancy

Uterine rupture may occur during future pregnancy especially if the myometrium has been disrupted during myomectomy. The patient should be explained about the risk of uterine rupture and advised to avoid pregnancy for at least a year. Although only very few cases of uterine perforation are reported [39–41], some surgeons prefer cesarean section over vaginal delivery in post myomectomy pregnancies. However, the evidence in support of cesarean section preventing uterine rupture is lacking.

Conclusions

Hysteroscopic removal of submucous myomas using the splicing technique is the most common and well-accepted technique for G0/G1 class of myomas. Among various other methods of hysteroscopic myomectomy, recently available intrauterine morcellator may be a valid alternative to the splicing method. Small fibroids can be treated at outpatient department with the use of small diameter office hysteroscopes. Various techniques for complete removal of the myoma have been described that may include the use of hydro-dissection, GnRH agonist, and even the two-stage surgical technique, but mostly these procedures have either limited success or very few studies to its credit hence limiting their widespread acceptance. Hence, the surgical management of G2 submucous myoma needs greater technical expertise because not only it is technically difficult but is also associated with higher complication rates. Careful selection of cases with thorough presurgical evaluation along with experienced surgeons in a fully equipped setup is recommended for hysteroscopic myomectomy.

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