

International Federation of Fertility Societies

Global Standards of Infertility Care

Standard 10

Management of leiomyoma (fibroids) in a patient presenting with infertility

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| Name | Management of leiomyoma in a patient presenting with infertility |
| Version number | 10.0/IFFS/Standards |
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| Date of first release | July 2012 |
| Date approved by IFFS | July 2012 |
| Date of review | July 2015 |

Introduction

The goal of IFFS Practice Standards is to provide policy and decision-makers and the clinical and scientific community with a set of recommendations that can be used as a basis for developing or revising institutional or national guidelines on selected practice recommendations for infertility practice.

The document addresses minimal standards of practice but does not provide rigid guidelines but rather gives recommendations that provide the basis for rationalizing the provision of infertility services in view of the most up-to-date information available.

Because country situations and programme environments vary so greatly, it is inappropriate to set firm international guidelines on infertility practice. However, it is expected that institutional and national programmes will use these guidance documents for updating or developing their own infertility guidelines in the light of their national health policies, needs, priorities and resources. The intent is to help improve access to, quality of, and safety of infertility and assisted conception services. These improvements must be made within the context of users' informed choice and medical safety. Adaptation is not always an easy task and is best done by those well-acquainted with prevailing health conditions, behaviours, and cultures.

Rationale

Leiomyoma (fibroids) are commonly found in women presenting with infertility although the cause and effect relationship is unclear and there is a paucity of evidence to support treatment decisions^{1,2,3}. Leiomyoma may cause menstrual disorders, decrease the chance of conception and impact on the course and outcome of pregnancy. Diagnosis of leiomyoma in the assessment of a

woman presenting with infertility is important to provide advice and aide decision making in management. Treatment of leiomyoma may be necessary to improve reproductive outcome.

Treatments covered by this guidance

This guidance covers the diagnosis and treatment of leiomyoma in women presenting with infertility.

Recommendation for Practice⁴

Investigations

1. The presence of a leiomyoma should be considered in women suffering from menorrhagia and intermenstrual bleeding. In addition this diagnosis should also be considered in women complaining of an abdominal swelling and pelvic pressure symptoms.
2. Pelvic examination should be performed in all women with gynaecological symptoms although leiomyoma which may be of clinical significance in reproductive outcome may be missed.
3. Ultrasound imaging of the pelvis is a useful test for the detection of leiomyoma and should be considered as a routine examination in all women presenting with infertility with gynaecological symptoms. When combined with saline instillation into the uterine cavity (sonohysterography) it is a sensitive test for the detection of sub-mucous leiomyoma. Practitioners should consider both abdominal as well as vaginal ultrasound as significant leiomyoma may be missed by vaginal ultrasound alone^{5,6}.
4. Magnetic Resonance Imaging (MRI) is a useful test for the investigation of leiomyoma. It's sensitivity and specificity is similar to abdominal / vaginal ultrasound⁷.
5. Hysteroscopy should be undertaken in all patients suspected of having sub-mucous leiomyoma and those whose cavity is obscured by the presence of intramural leiomyoma.

Management

1. The decision to remove leiomyoma surgically is influenced by a number of factors including their position, size, the presence of multiple leiomyoma, whether they are causing symptoms and whether the patient has had repeated failed attempts at ART.
2. Sub-serosal leiomyoma do not impact on reproductive potential and their removal does not improve the chance of pregnancy. Their removal should only be considered if they are large and causing pressure symptoms or pain⁸.
3. Intramural leiomyoma may impact on reproductive potential possibly reducing fertility and increasing the risk of miscarriage. However, there is no convincing evidence to support the routine removal of intramural leiomyoma^{9,10}. Decision to treat should take account of a number of factors including the size of the leiomyoma – removal of those ≥ 5 cms being more likely to improve the chance of pregnancy^{11,12,13}, the age of the patient and the risks of

surgery¹⁴ including post operative adhesions and resulting impairment of fertility and the increased risk of caesarean delivery.

4. Sub-mucous leiomyoma are most likely to decrease the chance of pregnancy and their removal should be considered in patients presenting with infertility as by doing so the chances of pregnancy may be increased^{15,16}. Once again the quality of evidence in support of treatment is poor.
5. The impact of multiple leiomyoma and variation in their size is uncertain as there insufficient data to advise.

Non myomectomy treatments for leiomyoma

1. Whilst myomectomy is the accepted surgical management for leiomyoma that are considered to be affecting infertility, a range of minimally invasive “surgical” and medical treatments are now available for the management of leiomyoma.
2. Leiomyoma are usually oestrogen sensitive tumours and medical treatment involves hormonal suppression of oestrogen. Gonadotrophin-releasing hormone (GnRH) analogues have been the most widely used and reduce leiomyoma size by as much as 30% to 60%. They have the disadvantage of delaying fertility, causing oestrogen deficiency symptoms or require add-back therapy and leiomyoma will re-grow after cessation of therapy. Their use in an infertility setting should be confined to short term control of menorrhagia causing anaemia, or to reduce leiomyoma volume ahead of surgery¹⁷.
3. A range of minimally invasive ablation treatments have been introduced which combine with MRI Thermal Mapping to form a precise and effective means of treatment. The techniques include the use of laser, cryotherapy, radio-frequency ablation and MRI focussed ultrasound energy. These techniques produce varying degrees of shrinkage and symptom resolution but long term outcome data is lacking. Randomised controlled data comparing these treatments with other methods of treatment in patients presenting with infertility and using pregnancy rates as an outcome is lacking^{18,19,20}. The use of these techniques in an infertility setting should be considered in the context of clinical trials.
4. Uterine artery embolisation has become an established treatment for the conservative management of leiomyoma. It is combined with MRI imaging to increase precision. This technique results in varying degrees of shrinkage and re-growth occurs to a degree. The place of this technique in patients presenting with infertility has yet to be determined because of the uncertain impact on pregnancy due to of disruption in uterine blood supply^{21,22}.and the impact on fertility due to compromise of ovarian blood supply and consequent reduction in ovarian function. The use of this technique in the management of an infertility patient should be considered in the context of a clinical trial.

Surgical treatment of fibroids (Myomectomy)

1. In order to plan the optimum surgical approach for removal of leiomyoma, the number, size and position of the leiomyoma must be carefully assessed. The use of LHRH analogues prior to surgery has been advocated to enable a laparoscopic approach rather than open surgery. Appropriately powered, randomised controlled data is lacking and therefore this approach cannot be recommended.
2. Intramural or sub-serosal leiomyoma may be suitable for laparoscopic removal. This decision is determined by their size, number, and available surgical equipment and operative skills. The laparoscopic route avoids abdominal incision and enables a quicker recovery but there is no evidence of improvement in outcome as compared to open surgery²³.
3. Sub-mucosal leiomyoma are normally removed relatively easily by hysteroscopic resection. For large leiomyoma and those which are part sub-mucous and part intramural the procedure may be prolonged and increase the risk of pulmonary oedema and dilutional hyponatraemia because of intravasation of hypotonic distension media.
4. Following surgery practitioners may consider imaging of the uterine cavity and assessment of tubal patency, particularly if there is concern about the location of the leiomyoma and the possibility of disruption of the cavity or tubal integrity during surgery.

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