

## Advances in Management of the Infertile Couple

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### Surgical Management of Infertility

Surgical procedures are sometimes performed to correct problems related to fallopian tubes or uterus in order to allow for fertilization and proper implantation.

#### Fallopian Tube Surgery: [1,2]

Fallopian tube blockage may result from infection that leads to peritubal adhesions – Lysis of adhesions affecting the fimbria and or the tube as a whole allows the tube to capture the oocyte after ovulation and facilitates fertilization and movement of the embryo to implant in the uterus. Another type of fallopian tube pathology related to infection is known as hydrosalpinx. Salpingostomy in these cases has a limited success and liability of the tube to close again. In these cases, the best treatment is salpingectomy to be followed by IVF. If the hydrosalpinx is not removed, the tubal fluid is toxic to the embryo and leads to failure of implantation or demise of the embryo.

Another type of tubal disease is cornual obstruction which is diagnosed in about 15 percent of hysterosalpingograms. Tubal catheterization is usually done using fluoroscopy or hysteroscopy with a pregnancy rate of up to 60%. Another type of tubal surgery is related to reversal of tubal sterilization. Cases of pomeroxy sterilization or the use of clip or the ring are the best cases with high pregnancy rate of 40 to 80% [3].

#### Metroplasty

This procedure is performed for cases of septate uterus. These patients present with a history of recurrent miscarriages and premature deliveries. MRI usually shows a single uterus with a septum that could be partial occupying the uppermost part of the uterine cavity, or complete that extends to all the uterine cavity including the cervix. In some cases, this may be associated with a vaginal septum. MRI confirms the diagnosis of a septum and differentiates that from a bicornuate uterus or uterus didelphys.

These two malformations do not require any surgical treatment. Metroplasty is done for removal of the septum in a septate uterus. Hysteroscopy is performed with distension of the uterine cavity using glycine or saline. The septum is usually divided using YAG laser or hysteroscopic scissors, or resectoscope [4]. In order to decrease bleeding during surgery, some investigators prepare their patients using GnRH agonist or Danazol for 2-3 months preoperatively. The patients then are amenorrheic and there will be no bleeding during surgery. In the past, some investigators used an IUD inserted after the surgery in order to prevent adhesions.

#### Treatment of Asherman's Syndrome [6,7]

Interuterine adhesions result from curettage of the endometrium either post-partum or post-abortion. The condition could be mild or severe depending on the extent of the adhesions. Some cases were reported following intrauterine polyps, fibroids, or removal of a uterine septum. The symptoms will vary according to the extent of these adhesions. Patients will present with amenorrhea or oligomenorrhea, or hypomenorrhea. The treatment is surgical using hysteroscopy and lysis of the adhesions using hysteroscopic scissors or laser treatment. Following surgery, a barrier is put in the uterine cavity to prevent recurrence of adhesions. This includes Foley catheter or intrauterine device. In addition, administration of cyclic estrogen and progesterone was also suggested to stimulate endometrial proliferation. To help endometrial regeneration, some studies used stem cells from bone marrow with limited success.

#### Uterine Fibroids and Infertility [8]

Uterine fibroids or Leiomyomas are benign tumors of the uterus. They are classified according to their location as subserous, intramural, or submucous. They interfere with fertility depending on their location. Usually, the intramural and submucous varieties affect fertility the most due to negative effect on implantation especially with submucous variety. The treatment of fibroids is variable and new advances have been reported. Surgical

treatment is performed either by laparotomy or laparoscopy for the intramural and subserous myomas. Hysteroscopic surgery is performed for submucous myoma. The pregnancy rate following surgical treatment is 50-55%. Non-surgical treatment has been introduced successfully to reduce the size of the tumor. This includes uterine artery embolization, and MRI focused ultrasound treatment. In one study, the pregnancy rate following uterine artery embolisation was 50% as compared to myomectomy which was 78%. Some pregnancies were reported following MRI focused ultrasound treatment.

Recently, ulipristal acetate, has been used in some studies for medical treatment of the fibroids. This is a selective progesterone receptor modulator and has been shown to reduce the tumor size and treat bleeding associated with fibroids. Some pregnancies have been reported following treatment with ulipristal acetate.

### Male Infertility

The male factor is responsible for 20% of the etiology of infertility in the couple trying to achieve pregnancy. The evaluation of the male factor includes the history of infertility and any conditions that may affect the sperm, ejaculation, and relationship of the couple. The evaluation includes count, morphology and motility. The male is examined by urologist to evaluate the presence of varicocele, or any abnormalities in the testicles including masses or tumors [9,10].

In cases of oligospermia, varicose veins need surgical treatment. If there are no varicose veins, the endocrine studies have to be evaluated including thyroid, adrenals, gonadotropins and prolactin levels [11].

In patients with history of vas ligations, this should be treated surgically to perform vasovasostomy followed by sperm evaluation [12,13]. Treating the underlying factors will help in achieving pregnancy. However, if pregnancy does not occur within 3-6 months, then the treatment should be directed to assisted reproduction including intrauterine insemination and invitro fertilization [14].

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