



## Operative Gynecology and High Risk Pregnancy

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### Editorial

A pregnancy is called high-risk if a mother or a baby has an increased chance of health problems; many factors and health conditions can contribute to high risk pregnancies [1]. Pregnancy with some existing health conditions like high blood pressure, diabetes, polycystic ovary syndrome, kidney diseases, autoimmune diseases, thyroid diseases, HIV/AIDS and obesity can be considered as high risks; also demographic factors like pregnancy at teen age, and first pregnancy after the age of 35 years, and lifestyle factors like smoking and alcohol use are known as risk factors for pregnancy [2]. Women with high risk need special attention, close monitoring, and specific management of outcomes as required.

Maternal-fetal Medicine (MFM) is a hugely growing branch of obstetrics that focuses on the medical and surgical management of high-risk pregnancies. Management includes monitoring and treatment including comprehensive ultrasound, chorionic villus sampling, genetic amniocentesis, and fetal surgery or treatment. This is a subspecialty to obstetrics and gynecology mainly used for patients with high-risk pregnancies and obstetricians who practice maternal-fetal medicine are also known as perinatologists [3]. Maternal-fetal medicine specialists are training in obstetric ultrasound, invasive prenatal diagnosis using amniocentesis and chorionic villus sampling, and the management of high-risk pregnancies. Some of them are further trained in the field of fetal diagnosis and prenatal therapy where they become competent in advanced procedures such as targeted fetal assessment using ultrasound and Doppler, fetal blood sampling and transfusion, fetoscopy, and open fetal surgery [4].

Previous tubal reconstructive surgery and myomectomy (removal of fibroid tumor) may increase the risk to the subsequent pregnancy. Virtually, at any stage of its development, surgical removal of an ectopic growth and/or the fallopian tube section where it has implanted is the fastest treatment for ectopic pregnancy. Surgery may be the only choice of treatment if a woman has internal bleeding due to ruptured ectopic pregnancy. However, if possible, surgery is often done through a small incision using laparoscopy. This type of surgery usually has a shorter recovery period. An ectopic pregnancy can be removed from a fallopian tube by using salpingostomy or salpingectomy [5]. In salpingostomy the ectopic growth is removed through a small, lengthwise cut in the fallopian tube (linear salpingostomy). The cut is left to close by naturally or is stitched closed. While in salpingectomy a fallopian tube segment is removed. The remaining healthy fallopian tube may be reconnected. Salpingectomy is needed when the fallopian tube is being stretched by the pregnancy and may rupture or when it has already ruptured or is largely damaged. Both salpingostomy and salpingectomy can be done either through a small incision using laparoscopy or through a larger

open abdominal incision (laparotomy). Laparoscopy takes less time than laparotomy and requires shorter hospital stay. But for an abdominal ectopic pregnancy or an emergency tubal ectopic removal, a laparotomy is usually required. When an ectopic pregnancy is located in an unruptured fallopian tube, attempt is made to remove the pregnancy without removing or damaging the tube. Future fertility of a woman after and risk of having another ectopic pregnancy will be affected by individual risk factors like smoking, extent of damage of fallopian tube. As long as there is one healthy fallopian tube, salpingostomy and salpingectomy have about the same effect on future fertility. But if the other tube is damaged, salpingostomy is desirable. This may improve the chances of having subsequent pregnancies in future.

Schippert et al. assessed the risk of Ectopic Pregnancy (EP) following the tubal reconstructive surgery. They mentioned in their work that EP is an adverse effect of tubal surgery with incidences up to 40% depending on the type, location, and severity of tubal disease and the surgical procedure. In the presence of acquired tubal disease, the EP rate following adhesiolysis, salpingostomy, salpingoneostomy, fimbrioplasty, and anastomosis was 7.9%. Previous abdominal surgeries, microsurgical procedures, hydro-/sactosalpinges, salpingitis, salpingitis isthmica nodosa, and peri-adnexal adhesions showed a significant positive correlation with EP as outcome. The highest EP rate related to all clinical pregnancies was 4.5% in smoking women of <30 years of age with tubal pathology following 'In vitro Fertilization' (IVF) [6].

To treat uterine fibroids, surgery can be used to remove fibroids only (myomectomy) or to remove the entire uterus (hysterectomy). Surgery is a reasonable treatment option when: heavy uterine bleeding and/or anemia has continued after several months of therapy with birth control hormones and a Non-steroidal Anti-inflammatory Drug (NSAID) [7]. In presence of fibroid pregnant woman may experience miscarriages or trouble getting pregnant. Surgical treatment options include: myomectomy, or fibroid removal. This may improve the chances of having a baby if the fibroid is inside the uterus and prevents a fertilized egg from implanting in the uterus. Removing fibroids in other locations of the uterus may not improve the chances of becoming pregnant. However, hysterectomy (removal of uterus) is recommended for women who have no future plans to have pregnancy. Myomectomy or hysterectomy can be done through one or more small incisions using laparoscopy, through the vagina, or through a larger abdominal cut (incision). The method depends on existing individual condition, including where, how big, and what type of fibroid is growing in the uterus and whether there is a plan for future pregnancy. If there is plan for a future pregnancy, myomectomy is one surgical option. Heavy, prolonged, and painful periods caused by uterine fibroids often stop naturally after menopause. Uterine

Fibroid Embolization (UFE) may also be a reasonable option, although it has some risks involved.

A Cochrane systematic review was done to compare the effects of using laparoscopic surgery for benign ovarian tumor during pregnancy on maternal and fetal health and the use of healthcare resources [8]. The reviewers described that the surgical management of ovarian tumors in pregnancy is similar to that of non-pregnant women. The procedures include resection of the tumor (enucleation), removal of an ovary or ovaries (oophorectomy), or surgical excision of the fallopian tube and ovary (salpingo-oophorectomy). The procedure can be done by open surgery (laparotomy) or keyhole surgery (laparoscopy) technique. The benefits of laparoscopic surgery include shorter hospital stay, earlier return to normal activity, and reduced postoperative pain. However, conventional laparoscopic surgery techniques required the infusion of gas carbon dioxide in the peritoneum to distend the abdomen and displace the bowel upward to create the room for surgical manipulation. Serious complications such as abnormally high levels of carbon dioxide in the circulating blood (hypercarbia) and perforation of internal organs have also been reported. These serious complications may be harmful to the fetus. The review concluded that the practice of laparoscopic surgery for benign ovarian tumour during pregnancy is associated with benefits and harms. However, the evidence for the magnitude of these benefits and harms is drawn from case series studies, which may be associated with potential bias. The results and conclusions of these studies must therefore be interpreted with caution. The authors' interpretation from this review is, available case series studies of laparoscopic surgery for benign ovarian tumour during pregnancy provide limited insight into the potential benefits and harms associated with this new surgical technique in pregnancy. The authors recommended that randomized controlled trials are required to provide the most reliable evidence regarding the benefits and harms of laparoscopic surgery for benign ovarian tumour during pregnancy.

One study done in Egypt evaluated the impact of Bilateral internal Iliac artery Ligation (BIL), Bilateral Uterine Artery Ligation (BUAL), Step-wise Uterine Devascularization (SWUD), and B-Lynch on infertility, ovarian reserve, and pregnancy outcome [9]. This study concluded that of the 4 procedures, BIL had the least deleterious effect on reproductive performance; SWUD increased the risk of premature ovarian failure, and B-Lynch increased the risks of endometriosis, intrauterine adhesions, placenta previa, and preterm labor.

In developing country setting there is often low rates of ANC checkups among mothers particularly in rural areas and home deliveries are very common [10]. In such settings, pregnant women are at risk of being unidentified as high risk mothers and may be diagnosed with complications very late, often at the time of delivery. A systematic review done on human resources and quality of emergency obstetric care in developing countries concluded that staff shortages are a major obstacle to providing good quality services to pregnant women [11]. Therefore identification of high risk pregnancies and timely management is a challenging issue in developing country

setting. Sensitization of the pregnant women and aware rising at their family and community level might be beneficial in such context, thereby women with high risks can seek medical consultation ahead of time and their family can play supportive role to obtain assistance from qualified/skilled health professionals as per need.

Since the mid 1950's almost all caesarean sections have been performed using a cut across the lower abdomen and the lower part of the uterus (Lower Segment Caesarean Section or LSCS), which have a much lower rate of complications if vaginal birth is later attempted. Because of this, most women today who have had a previous caesarean section can be offered the option of a Vaginal Birth after Caesarean section (VBAC) [12].

Finally, high risk pregnant women may require special laboratory tests to monitor the status of pregnancy such as: specialized or targeted ultrasound, amniocentesis, Chorionic Villus Sampling (CVS), cordocentesis, cervical length measurement, and biophysical profile [13]. These special tests are used to check on well-being of mother and baby. Finally, it is very important to consult with skilled care providers and discuss the risks and benefits of having operative surgery during pre-pregnancy and antenatal period and at the time of delivery to ensure safety of both mother and child.

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