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Step by Step® Interventional Ultrasound in Obstetrics & Gynecology

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2nd Edition

JAYPEE

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CHAPTER

Interventional Ultrasound in Daily Obstetrical-Gynecological Practice

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INTRODUCTION

The bimanual examination is still the main stay of the gynecological examination especially in resource poor settings; but even with experienced hands it can only furnish a limited assessment of pelvic structures.

Ultrasonography has improved the gynecological examination by adding an objective component, giving an insight into the precise size, internal appearance and structures of pelvic organs. It is also beneficial in patients with profuse vaginal bleeding, chronic medical conditions, children and girls who have not experienced intercourse.

We will discuss the different applications of office ultrasonography as related to invasive procedures done by gynecologist.

THE UTERINE CAVITY

Intrauterine Device

Most common indications of USG in this respect are:

- Confirm proper insertion of IUD
- Localize the IUD in case of "missing thread" within or outside the uterus

- Evaluate the cause of pain and bleeding in these patients.
- Myometrial invasion of IUD can be diagnosed when it extends beyond endometrium
- Correct positioning of IUD is measured on the longitudinal scan if the fundal distance is no more than 1/3rd greater than the thickness of the anterior and posterior uterine wall
- In difficult IUD extractions, USG helps in complete removal of device.

Minor Uterine Surgery

- USG helps in assisting in performance of intrauterine surgical procedures like curettage, excision of polyps and intracavitory fibroid; correct localization of instruments inside the uterine cavity
- It also helps in determining the completeness of a MTP, and D&C by showing an empty uterine cavity.

Postpartum Uterine Evaluation

Useful in case of PPH to diagnose retained bits of placenta and an USG guided D&C will reduce the chances of perforation and perform a compete procedure.

Sonohysterography [Saline Infusion Sonography (SIS)]

It is a fluid enhanced TVS which can distinguish between intracavitory tissue and polyp or fibroids.

Ultrasound-guided Prenatal Diagnostic Procedures

Chorion villus sampling, amniocentesis and fetal blood sampling can establish the presence of fetal disease.

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THE FALLOPIAN TUBE

Color flow sonosalpingography and 3D contrast sonosalpingography is used to determine tubal patency and uterine cavity.

USG guided transcervical tubal catheterization can be performed in ambulatory settings and is fast replacing the more invasive procedures (abdominal and laparoscopic surgery). It is also enhancing IVF fertilization in patients with tubal occlusion.

This technique not only diagnoses the tubal disease but is also employed in treatment of tubal occlusion by transcervical balloon tuboplasty with fluoroscopy and ultrasonography.

Permanent Contraception

Transcervical tubal catheterization can be used to occlude the tubes by cryocoagulation, electrocoagulation silicone plugs and chemical injection, but all are associated with high failure rates.

Assisted Reproduction

USG guided tubal catheterization can be performed for tubal placement of embryos and gametes is a simple procedure and there is no radiation risk.

Ectopic Pregnancy

In early detected ectopic pregnancies by TVS, local deposition of cytodestructive agents (methotrexate) may reduce the amount of medication delivered and its serious systemic side effects.

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THE CERVIX

Cervical incompetence is the inability of the uterus to maintain a pregnancy until term due to cervical defect—congenital or acquired due to trauma, cone biopsy or tumors.

The cervical length and internal os diameter can be effectively measured by ultrasonography especially TVS. So, the most important predictor of preterm birth before 30 weeks gestation was an internal os diameter of 5 mm or more and cervical length of less than 2 cms.

Cervical effacement starts at the level of internal os and can be easily detected by TVS and prevent measures to prevent abortion or preterm labor can be taken by complete bed rest, to uterine relaxants and cervical encirclage preferably at 13–14 weeks of gestation.

USG is employed to guide the placement of suture and determine if the internal os is closed effectively and good cervical length is achieved or not.

USG is advantageous in providing the exact location of internal os, location of membranes, decreased risk of puncturing the amniotic sac and visualization of actual closure of the cervix after placement of the suture and follow-up.

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Salient Features

- After the huge success of the first edition of this book, the authors have come out with the second edition
- The book simplifies the commonly used interventional procedures in obstetrics and gynecology step by step for the newcomers in the field to learn and as a ready-reckoner to refresh their skills for the practicing clinicians.

Narendra Malhotra is a great academician and medical teacher of this field and has given many practical tips for these procedures. He is currently President of INSARG. He is Past President of FOGSI, ISAR, ISPAT, IFUMB; Vice President of WAPM & SAFOG and a stalwart in the field of infertility has been teaching the subject for years.

Nidhi Gupta is a Professor of Obstetrics and Gynecology at SN Medical College, Agra with a vast experience in the field of Obstetrics and Gynecology. She is an excellent teacher and academician with a passion for teaching.

Neharika Malhotra is a young dynamic obstetrician and gynecologist from Agra. She is a bright upcoming star in the field of infertility with new ideas and methodology of teaching. Chair YTP committee FOGSI.

Jaideep Malhotra is a great academician and medical teacher of this field and has given many practical tips for these procedures. She is Past President of FOGSI, ASPIRE, ISAR, IMS; President of SAFOM & ISPAT and a stalwart in the field of infertility has been teaching the subject for years.

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