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GYNECOLOGY

Evidence Based CLINICAL GYNECOLOGY



Editors
Devender Kumar
Nilanchali Singh
Anjali Tempe

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4

Minor Procedures in Gynecology

Bidhisha Singha

Minor procedures are the surgical procedures which are of short duration, has minimal risk, done under local anesthesia, sedation or oral analgesic. These procedures are usually done in outpatient department (OPD) minor operation theater (OT) as day care procedure. These procedures help in diagnosis and further management of the case.

Following is the list common procedures done in gynecology:

- Pap's test
- Visual inspection with acetic acid (VIA)
- Visual inspection with Lugol's iodine (VILI)
- Colposcopy
- Cervical biopsy
- Endometrial biopsy
- Dilatation of cervix
- Dilatation and curettage
- Office hysteroscopy
- Hysterosalpingogram
- Intrauterine insemination (IUI).

General principals: Prior to any procedure:

- Proper and detail history to be elucidated—chief complaints, menstrual history, any significant past and family history.
- General and systemic examination—to rule out any associated medical or surgical disorders.
- Gynecologic examination—Per speculum examinations are done first. Condition of cervix and vagina are noted. Any abnormal discharge, growth, amount of bleeding if present are to be noted.
- Bimanual pelvic examination done to assess the size, position, mobility of uterus, to rule out any adnexal mass.
- Patient explained about the procedure she has to undergo. The indication, risk, benefits, duration required, need of any anesthesia and interpretation of the test are explained.
- Consent for the surgical procedure is a must. The consent form should include the indication, risk associated and consent for any type of anesthesia.
- The position of the patient during the procedure is important.
- Bladder has to be emptied.
- Aseptic and *Universal* precautions are to be taken during the procedure. Proper cleaning and sterile drapping to be done wherever needed. Perineal area to be cleaned with savlon and betadine solution.

Type of analgesia depends on procedure, set-up and patient choice.

CONVENTIONAL PAP TEST

Ideal Screening test for cervical malignancy as it is inexpensive, easy to administer, well tolerated, poses no significant risk to patients. Detects both precancerous and cancerous cells.

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For detection of cervical cancer and its precursors, conventional cytology has a high test specificity (range 79–100%, mean –95%) and an acceptable test sensitivity (range 30–80%, mean 47%).[1]

Recommendations

- Pap's smear to be done for women from 21 years to 65 years every 3 yearly or for women 30 to 65 years every 5 yearly if Pap's and HPV testing done together.[2]
- Mandatory for the high risk group
  - Early intercourse
  - Early marriage
  - Smoking habits
  - Multiple sexual partners.

Patient Prerequisites[1]

- After the menstrual period
- Absteinance for 48 hours prior to test
- Avoid use of tampons, vaginal creams, contraceptive foams or jellies or vaginal medications for 48 hours prior to test
- Should be done prior to any vaginal examination.

Procedure

- Patient to be placed in dorsal position. No antiseptic solution or any lubricant should be used.
- Labia separated.
- Cusco's speculum gently introduced without any lubricant or jelly.
- Cervix is exposed and any discharge or growth or any bleeding should be checked.
- Whole of squamo—columnar junction is scraped using Ayre's spatula (wood/plastic). Ayre's spatula is rotated 360° firmly against the cervix keeping the longer tongue inside the endocervix.
- The spatula sample is quickly applied on the slide through a rotating motion of the cervical sampling face of the spatula across the glass slide. The slide should be initially marked for patient identification.
- Slide should be immediately fixed with a spray fixative or by placing in a jar containing 95% ethanol. It is important that the cellular debris are not air dried.
- Endocervical brush device—used to sample the endocervix. Combined sampling technique (conventional paps and endocervical sample with endocervical brush) has demonstrated the lowest false negative rates.
- Endocervical brush inserted into the endocervix until the junction of the bristles of the brush with the end of the handle is at the external os. The brush should be rotated only 180° (one-half turn) in the endocervical canal. Additional rotations not required. The sample is rolled at right angles to the slide near the frosted end. The sample is immediately fixed as in Pap' s smear.[1]

The adequate sample should have both endocervical and ectocervical cells of cervix.

Visual Inspection with Acetic Acid[3-7]

Physiological basis of VIA: Acetic acid causes reversible coagulation of intracellular proteins (nuclear proteins and cytokeratins). Areas of CIN or invasive cancer undergoes maximal coagulation due to higher content of nucleoproteins (large number of undifferentiated cells present in the epithelium) and prevent light from passing through the epithelium, as a result of which the subepithelial vessel pattern is obliterated and epithelium appears densely white.[3]

Other conditions where aceto-white areas seen are:
- Immature squamous epithelium
- Inflammation
- Leukoplakia
- Condyloma.

Differentiating points:
- *CIN/invasive carcinoma*: Acetowhite areas are dense, thick, opaque, well-demarcated margins, appear rapidly reverse slowly and last longer for 3–5 minutes.
- *Inflammation*: Aceto—white areas distributed widely in cervix and disappear quickly (within 1 minute).

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- *Leukoplakia/condyloma*: Stain intensely greyish white.
- **VIA negative**—means no acetowhite areas.
- **VIA positive**—means presence of acetowhite areas which are distinct, well defined, dense with regular/irregular margins.

VILI (Visual inspection with Lugol's iodine)[3-7]

Physiological basis of VILI: Iodine is glycophilic so there is uptake of iodine in glycogen containing epithelium on iodine application. Squamous metaplastic epithelium is glycogenated whereas CIN/invasive cancer cells contain little/no glycogen.[3]

- Naked eye visualization of cervix after application of acetic acid is simple test used for early detection of precancerous lesions and early invasive cancer.
- Used in low resources area as an alternative to cytology.
- Done after 5–12 days of menstruation.

Normal glycogen containing squamous cells—stain mahogany brown/black.

CIN/invasive cancer—appear as thick mustard yellow/saffron colored areas.

- **VILI negative**—normal uptake of iodine
- **VILI positive**—suggest presence of dense, thick, bright mustard yellow or saffron yellow iodine nonuptake areas seen in transformation zone or in the whole of cervix.

Procedure of VIA/VILI

- Procedure explained to patient.
- Consent taken.
- Patient placed in modified lithotomy position
- Inspection of perineal area and external genitalia for vesicles, papules, ores, ulceration or warts. Perineal area cleaned with antiseptic solution.
- Sterile Cusco's vaginal speculum inserted and cervix visualized. Any abnormality in cervix is to be noted. Identify the external os, columnar epithelium, squamous epithelium, squamo-columnar junction (SCJ) and transformation zone (TZ).
- Application of acetic acid 3–5% (VIA)/Lugol's iodine (VILI) gently over the cervix with cotton swabs. In VIA after application of acetic acid, wait for 1 minute in case of any doubt in VIA, acetic acid can be reapplied and test can be repeated.
- Squamocolumnar junction and the transformation zone to be assessed for any acetowhite areas (VIA)/Lugol's negative uptake areas (VILI).
- Any findings are to be recorded.

Biopsy to be taken from VIA positive/VILI positive areas.

COLPOSCOPY[8-11]

Colposcopy is a magnified illumination of lower genital tract including vulva, vagina and cervix. Colposcopic examination involves the systemic evaluation of lower genital tract with special emphasis on the superficial epithelium and blood vessels of the underlying stroma.

Role

- To locate abnormal appearing epithelium
- To direct biopsies of areas in which CIN or invasive cancer is suspected.

Indications

- Suspicious looking cervix
- Invasive carcinoma on cytology
- CIN–2 and CIN–3 on cytology
- Persisting low grade abnormalities (CIN–1) on cytology for more than 12–18 months
- Infection with oncogenic HPV
- Acetopositivity on visual inspection with acetic acid (VIA)
- Positive on visual inspection with Lugol's iodine (VILI).

Colposcopic Examination

- Procedure to be explained to the patient.
- History to be reviewed, consent to be taken.

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- Patient placed in dorsal lithotomy position. Perineal area cleaned with antiseptic solution.
- Cusco's self-retaining vaginal speculum inserted. If vaginal side wall retraction required, condom or latex glove finger can be applied over the speculum (tip of glove and condom must be cut).
- Cervix must be adequately visualized. Cervix to be inspected for any obvious findings and to be noted. Excess mucus to be removed with saline swabs. Transformation zone to be identified. Squamocolumnar junction should be visualized, if not endocervical speculum to be used. Colposcopy is considered unsatisfactory if SCJ is not visualized.
- Green filter to be used to evaluate the vessel pattern. Green filter absorbs certain wavelengths of light making the red color of vessel black.
- *Application of acetic acid (3–5%)*: Liberally applied over the cervix with swabs. Excessive rubbing or patting to be avoided. Second application should follow the first to ensure an appropriate acetowhite reaction. Acetic acid coagulates the mucus and remove it, facilitating penetration of acetic acid into cells. Cervix is assesed for acetowhite reaction after 1 minute of application.
- *Application of Lugol's iodine*: Lugol's solution stains normal mature nonkeratinized squamous epithelium, dark mahogany color which indicates presence of glycogen in cells. Absence of staining indicates a non-glycogenated state or a keratinized surface. Squamous metaplasia shows variegated staining and cloumnar epithelium stains mustard yellow color. Cervix is assessed for any Lugol's negative areas.
- Colposcopic-guided cervical biopsy and endocervical curettage to be taken if required. Biopsy is taken with punch biopsy forceps and it should be taken from posterior to anterior to prevent blood from obscuring the biopsy sites. Small lesions can be completely excised. In case of an ulcer biopsy should include an edge of the intact epithelium as well as portion of the ulcer. Monsel's solution (ferric subsulphate) can be used to achieve hemostasis.
- Speculum is removed gradually and the vagina is grossly inspected.

Findings are documented and tissues sent for biopsy if taken.

CERVICAL BIOPSY (PUNCH BIOPSY)

Indications

- Growth in the cervix
- Suspicious area in the cervix
- Ulcer in the cervix.

Procedure

- Patient placed in lithotomy position.
- Perineal area cleaned and sterile draping done.
- Vaginal speculum inserted and cervix visualized.
- Biopsy taken from growth if visible or aided with VIA/VILI/Colposcopy with a punch biopsy forceps. Biopsy should be taken in such a manner that it includes both the normal and abnormal area. Biopsies to be taken from posterior to anterior to prevent obscuring of the site with blood.
- Speculum removed.

Complications

- Bleeding—if bleeding is excessive, vaginal packing to be done
- Infection.

Random biopsies from the transformation zone increases the detection rate of high grade cervical disease by 20% in women who have negative colposcopy.[10]

Studies have shown that multiple directed biopsies during colposcopy increases detection of HSIL.[11]

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DILATATION OF CERVIX[12]

Indications

As a preliminary step to other procedures:
- Uterine curettage
- Early termination of pregnancy
- Intracavitary radiotherapeutic procedure
- Manchester repair
- Cervical conization
- Hysteroscopic procedures.

As a single procedure
- Post-traumatic stenosis of cervix
- Atrophic stenosis of cervix
- Postsurgical hematometra
- Pyometra.

Procedure

- Patient to be placed in lithotomy position.
- Perineal area cleaned and sterile draping done.
- Bladder to be emptied aseptically.
- Per speculum and bimanual pelvic examination done. This step of the procedure is important as the direction of uterine sound and cervical dilators are inserted according to the position of the uterus. Misdirection leads to complications like perforation.
- Posterior vaginal speculum inserted, cervix visualized. Anterior vaginal wall to be used if required.
- Paracervical block can be given if required.
- Anterior lip of cervix held with vulsellum and held with the left hand and gentle downward traction applied.
- Uterine sound is gently passed and utero cervical length measured. Contraindicated in pyometra as it increses risk of perforation.
- Dilatation of cervix—done gradually in order. Dilators are held on the right hand with the thumb posteriorly and first three fingers along the length of the dilator. Degree of the dilatation depends on the procedure. For curettage procedures dilated up to 7 mm. Dilators should not be passed more than the uterocervical length and excessive force to be avoided.

Complications[12]

- *Tear and laceration of cervix*: Occur due to excessive force used. If tear is suspected or seen, procedure to be abandoned immediately. If bleeding noted, suture is mandatory. If there is no bleeding, suturing helps to restore the anatomy. Late complications in lacerations—infection, bleeding, cervical incompetence.
- *Perforation of the uterus*: Sudden release of pressure suggestive of perforation. Position of the dilator or sound to be noted. Procedure to be abandoned immediately. Perforation can occur into—peritoneal cavity, broad ligament, bladder or an adherent viscus (rarely).
  - Monitoring of vitals are very crucial (half hourly pulse, blood pressure).
  - If vitals are normal, observation to be done
  - If infection is suspected, antibiotic coverage for 7 days.
  - If malignancy is demonstrated, early treatment recommended.
  - Perforation into broad ligament—occurs secondary to lacerations of cervix at or close to internal os. Uterine arteries or their major branches may be damaged. The most ommon symptom is pain. On examination doughy mass felt in broad ligament. If vessels not involved and no presence of infection or carcinoma.
- Conservative management is advised. In presence of significant hemorrhage—immediate laparotomy is required.
- *Peritonitis*: It may occur following perforation, rupture of pyosalpinx or tubo-ovarian abscess.
- *Pelvic cellulitis and parametritis*: Complaints of pain in lower abdomen, dyspareunia. On examination, there is tenderness during pelvic examination and movement of cervix, thickening of parametrium noted. Conservative management with antibiotics. In case if any mass is palpable, fine needle aspiration to be done to confirm presence of pus, which requires drainage.
- *Bleeding*: Early bleeding may be due to a tear, ruptured branch of cervical arteries. Offending vessel to be sutured if visible or

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pressure packing to be done if not. Strict vitals monitoring is necessary. If bleeding is profuse and site not detected, cervix can be split to demonstrate the bleeding point and if bleeding point still not visualized uterine artery ligation to be done.
  - Late bleeding are usually consequences of an unnoticed laceration or hematoma which are infected. Conservative management with broad spectrum antibiotics, packing and blood transfusion. If bleeding still persist—laparotomy with internal iliac ligation or hysterectomy.
- Vasovagal attack and even cardiac arrest.

DILATATION AND CURETTAGE[13]

Minor surgical procedure where the cervix is dilated and endometrial tissues are curretated and sent for biopsy.

Indications

- Abnormal uterine bleeding at any premenopausal age
- Postmenopausal bleeding
- Prehysterectomy in postmenopausal at risk for endometrial or endocervical carcinoma
- Hemorrhage not responsive to hormone therapy (therapeutic).

Contraindications

- Pregnancy
- Acute pelvic inflammatory disease
- Pyometra
- Acute cervical or vaginal infections
- Clotting disorders.

Procedure

- Bladder to be emptied
- Patient placed in lithotomy position
- Perineal area cleaned and sterile draping done
- Per speculum and bimanual pelvic examination done
- Vaginal speculum inserted, cervix visualized
- Anterior lip of cervix held with vulsellum
- Curettage of endocervix done
- Sounding of uterus
- Dilatation of cervix
- Curettage of anterior, posterior and lateral walls of uterus done
- Tissues send for histopathological examination.

Complications

- Uterine perforation—most common. If perforation by a blunt instrument–vitals monitoring and to watch for signs of peritonitis. If perforation suspected by a sharp instrument—intra-abdominal injury has to be ruled out by laparoscopy. If active bleeding is present—immediate laparotomy
- Bleeding
- Infection—is rare unless cervicitis is present during the procedure.

ENDOMETRIAL BIOPSY[14-17]

Indications

- Abnormal uterine bleeding
- Postmenopausal bleeding
- Endometrial dating
- Cancer screening
- Evaluation for infertility (rule out endometrial tuberculosis)
- Follow-up of patients on hormonal treatment
- Follow-up of previously diagnosed endometrial hyperplasia
- Abnormal Pap smear with atypical cells favouring endometrial origin

Contraindications

- Pregnancy
- Acute pelvic inflammatory disease
- Clotting disorders
- Cervical and vaginal infections.

Premedication

- NSAIDs given 30 minutes prior to the procedure
- No anesthesia required.

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Procedure

- Bladder to be emptied
- Patient placed in lithotomy position
- Perineal area cleaned and sterile draping done
- Per speculum and bimanual pelvic examination done
- Vaginal speculum inserted and cervix visualized
- Anterior lip of the cervix held by vulsellum, downward traction applied
- Uterine sounding done
- Endometrial biopsy catheter (either metallic or plastic) is gently inserted until the fundus or resistance is felt. Karman's cannula no. 4 can be used for endometrial aspiration
- The end of the catheter tip is fixed to a syringe whose piston is pulled out to create a suction pressure. The catheter with the suction maintained in moved with a in and out movement and rotated 360°. Atleast 4–5 excursions are made to obtain adequate tissues
- Once the catheter is filled with tissue, it is withdrawn and sample is collected
- Vulsellum is removed, check for bleeding, speculum removed.

Complications

- Infection
- Cervical injury
- Asherman syndrome
- Uterinc perforation.

Drawback

- Inadequate sampling—site of pathology can be missed
- Endometrial polyp/pedunculated submucous fibroid may escape detection.

OFFICE HYSTEROSCOPY[18,19]

Direct visual inspection of the cervical canal and uterine cavity through a rigid or a flexible hysteroscope.

Indications

- Evaluation of unexplained abnormal uterine bleeding
- Prior to IVF
- Postoperative evaluation
- Recurrent spontaneous abortion
- Suspected intrauterine adhesions
- Preoperative surgical planning
- Suspected intrauterine growth
- Suspected mullerian anomalies.

Contraindications

- Pregnancy
- Pelvic inflammatory disease
- Uterine or cervical malignancy.

Risk

- Bleeding
- Perforation.

Analgesia

- NSAIDs to be given 1 hours prior to the procedure
- Routine use of opiate analgesia should be avoided
- Routine intracervical/paracervical block not indicated. Should be given if cervical dilatation is anticipated or larger size hysteroscope (outer diameter > 5 mm) is used.

Hysteroscope

- Miniature hysteroscope—2.7 mm with 3–3.5 mm sheath to be for diagnostic outpatient hysteroscopy
- Choice of hysteroscope—size and type (flexible/rigid) hysteroscope should be left to the discretion of the operator.

Distension Media

- Carbon dioxide or normal saline can be used
- Normal saline has lesser incidence of vasovagal episodes and gives an improved image quality.

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Procedure

- Patient placed in modified dorsal lithotomy position
- Vaginal speculum inserted gently and cervix visualized
- Anterior lip of cervix held with tenaculum
- Hysteroscope is gently inserted
- Pressure of 45 mm Hg is to be maintained for adequate distension of uterine cavity by the distension media
- Visualization of the cervical canal with the uterine cavity done.

HYSTEROSALPINGOGRAM[20-23]

- Diagnostic radiographic study of the uterine cavity and fallopian tube
- Requires 20–30 mins for the procedure
- Three basic flims taken
  - Scout
  - One flim to document the uterine cavity and tubal patency
  - Postevaluation film to detect any areas of contrast loculation
- Additional oblique films taken if uterus obscure the tube or if uterine cavity appears abnormal
- Timing—day 7 —day 12 of menstrual cycle.

Premedication

- NSAIDs 30 minutes to 60 minutes prior to procedure
- Routine prophylactic antibiotic can be given if hydrosalpinx suspected 2 days prior to hysterosalpingogram (HSG) for 5 days (Tab doxycycline 100 mg BD for 5 days).

Indications

- Tubal patency in cases of infertility
- Previous recurrent spontaneous abortion
- Postoperative evaluation of patients who had tubal ligation/tubal recanalization.

Contraindications

- Pregnancy
- Current or suspected PID
- Allergy to contrast material
- Lower genital tract infection.

Procedure

- Bladder to be emptied
- Patient placed in dorsal lithotomy position
- Perineum cleaned with antiseptic solution and sterile draping done
- Sterile vaginal speculum inserted and cervix visualized
- Anterior lip of cervix held by vulsellum
- Metallic cannula (Leisch Wilkinson's/Rubin's cannula) or a balloon catheter is inserted through the cervix and internal os crossed
- Speculum is removed
- Contrast dye injected under fluoroscopic guidance
- Visualization of uterine cavity, fallopian tube and tubal patency noted.

Complications

- Allergic response to contrast dye
- Vascular intravasation—procedure to be stopped immediately
- Cervical laceration
- Uterine perforation
- Hemorrhage
- Vasovagal reaction.

INTRAUTERINE INSEMINATION

Intrauterine Insemination (IUI), or artificial insemination, is a fertility treatment wherein sperm are placed directly into a woman's uterus to facilitate fertilization. The goal of IUI is to increase the number of sperm that reach the fallopian tubes and subsequently increase the chance of fertilization.

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Indications

- Low sperm count or decreased sperm mobility
- Sexual dysfunction
- Unexplained infertility
- A hostile cervical condition, including cervical mucus problems
- Cervical scar tissue from past procedures which may hinder the sperms' ability to enter the uterus
- Ejaculation dysfunction
- Need of donor sperm insemination.

The success of IUI increases when used in conjunction with controlled ovarian stimulation using fertility drugs. Follicular monitoring is necessary to determine when the eggs are mature. The IUI procedure is performed around the time of ovulation, for which injection hCG for trigger is given and IUI is performed about 24–36 hours later which coincides with the time of ovulation.

Procedure

Essentially, an IUI involves the 3 steps:

1. Collection of a sperm sample by masturbation or into a seminal collection device (a special sperm collection condom)
2. Sperm processing (a sperm wash procedure) and
3. Then placing the "washed" sperm sample through the cervical canal into the uterus with a small catheter.

Universal precautions and aseptic techniques should be followed by the clinician as body fluids are being handled and sample itself may introduce infection in endometrial cavity. Patient is asked to empty the bladder to make the insertion of the speculum easier. The washed sperm specimen is kept ready. It is drawn into a sterilized catheter that has a syringe attached to it. As the physician presses the plunger on the syringe, the sperm specimen that it is holding inside it, readily flows through the catheter straight inside the uterus. After this, the physician withdraws the catheter and removes the speculum. The patient is now allowed to remove her legs from the stirrups. She is asked to relax for about five minutes. This marks the completion of the intrauterine insemination. There are no restrictions for the woman after this procedure and couple is advised to have intercourse as it enhances the chances of pregnancy.

The IUI process takes only minutes and is pain free and does not require sedation or anesthesia, although there may be some temporary cramping during the IUI process and there is a one percent risk of infection following the procedure.

Overall, the IUI procedure is a less invasive and less expensive fertility alternative than its counterparts, including in vitro fertilization (IVF), and is popular because it utilizes the body's natural fertilization process.

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