CHAPTER 14

Genital Fistulae, Stress Urinary Incontinence

GENITAL FISTULAE

- **Definition** - abnormal epithelialized communication tracts between the genital tracts and urinary or alimentary tracts or both.

- **Classification**
  1. Bladder
     a. Vesico-vaginal (commonest)
     b. Vesico-urethra-vaginal
     c. Vesico-uterine
     d. Vesico-cervical
  2. Urethra-urethra-vaginal
  3. Ureter
     a. Ureter-vaginal
     b. Ureter-uterine
     c. Ureter-cervical

- **Etiology**
  1. Obstetrical Injury
     a. Prolonged obstructed labor
     b. Difficult instrumental or manipulative delivery (e.g. forceps)
     c. Injury to bladder during Caesarean Section
     d. Perforators and speckles of bone during craniotomy operation
     e. Symphysiotomy
     f. Rupture of the uterus
  2. Operation Injury
     a. Pan hysterectomy
     b. Wertheim's radical abdominal operation for cancer cervix
     c. Total abdominal hysterectomy
     d. Vaginal hysterectomy
     e. Internal iliac ligation
     f. Criminal abortion
     g. Pelvic surgery for endometriosis, PID, cervical fibroid
  3. Laparoscopic injuries - direct trocar injuries to the urinary bladder, ureter, bowel, sigmoid colon and rectum
  4. Radiation - bladder cannot tolerate the same dose of irradiation as the cervix
  5. Congenital fistula
  6. Careless catheterisation

- **Clinical Features**
  1. Constant dribbling of urine
  2. Excoriation of the vagina, vulva, perineum and thighs - due to constant wetness
  3. These women are depressed and treated as social outcasts
  4. Speculum examination - exposes the fistula and enables clinical assessment of its size and location
  5. Bimanual examination - reveals information about its fixity and extent of scarring of the surrounding tissue
  6. Positive methylene blue test - confirms the diagnosis

- **Investigations**
  1. Complete blood count
  2. Urinalysis
  3. Renal Function Test
  4. Urine culture - mandatory before surgery; infection should be treated
  5. Sonography of kidney, ureter and bladder
  6. Intravenous Pyelography (IVP)
7. Cystoscopy with indigocarmine excretion test enables visualization of the dye from each ureteric orifice individually.

8. Ureteric catheterization

9. Methylene Blue Test (3 Swab Test)
   a. Procedure
      1) Catheter is introduced into the bladder through the urethra
      2) Vaginal cavity is packed with 3 sterile swabs - one at the vault, one in the middle and one just above the introitus
      3) 50-100 ml of diluted methylene blue dye is injected into the bladder through the catheter
   b. Inference
      1) If there is a VVF, the methylene blue dye stains the uppermost swab
      2) If the leak is from the urethra, the lowermost swab gets stained
      3) If the leak is from the ureter, the swabs do not take up the stain, but get wet with urine

➢ Treatment
   1. Indwelling catheter and prolonged draining of the bladder
   2. Antibiotics
   3. Supportive therapy
   4. Latzko procedure - vaginal repair. Vaginal epithelium is denuded all around the fistulous edge, edge is freshened and the wide raw surfaces are approximated with rows of absorbable sutures
   5. Chassar Moir technique - vagina and bladder are widely separated all around by the flap splitting method. Bladder and vagina are sutured separately in 2 layers
   6. If one attempt fails to heal the fistula, second vaginal repair can be undertaken after a period of 3 months
   7. Urinary diversion (implantation of the ureters into the sigmoid colon, creating an ileal loop bladder into which the ureters are implanted or a rectal bladder) is considered in case of extensive loss of bladder tissue, previous repetitive failures to close the fistula or radiation fistula which fails to heal

8. Post-Operative Management
   a. Continuous bladder drainage for 14 days
   b. Antibiotics to adequately treat urine infection
   c. No vaginal or speculum examination for 3 months
   d. No sexual intercourse for 3 months
   e. Caesarean section is indicated following successful fistula repair

URINARY INCONTINENCE

➢ Definition - objectively demonstrable involuntary loss of urine so as to cause hygienic and/or social inconvenience for day-to-day activity.

➢ Types
   1. Stress Incontinence - involuntary loss is associated with stressful activity like coughing, sneezing, straining or other physical activity
   2. Urge Incontinence - involuntary loss follows a strong desire and need to void
   3. Unconscious Incontinence - no awareness of urinary leak

➢ Clinical Features
   1. History
      a. Stress Incontinence - Patient complains of passage of a single spurt of urine at the height of physical exertion like sneezing or coughing
      b. Urge incontinence - Patients complains of a strong desire to void, which if not complied with immediately, leads to a more prolonged involuntary passage

   2. Physical Examination
      a. Clinical examination, including pelvic and speculum examination and a thorough neurological assessment should be done
      b. Assessment of anatomic defects of pelvic supports and tone of levator muscles
      c. Assessment of vaginal wall prolapse and senile vaginal changes

➢ Investigations
   1. Stress test
      - Patient voids urine, then catheterize and collect sample of residual urine
      - The urine sample is sent for culture
      - 250 ml warm saline is filled into bladder
Patient is made to squat on an absorbent pad placed on the floor and asked to cough.
Pad is weighed, if weight > 2g then its stress incontinence

2. **Cotton swab stick test**
   - A cotton swab stick is placed in the urethra (dipped in xylocaine)
   - Patient is asked to strain and cough
   - Initially it will be parallel to the floor and normally raises by 10-15 degrees above the horizontal
   - Raises more than 20 degree in case of stress incontinence

3. **Marshall test**
   - Vagina in the region of bladder neck is infiltrated with local anesthesia
   - The area is elevated with an open Allis clamp
   - Failure to demonstrate leakage of urine on coughing indicates a positive result

4. **Bonney's test**
   - 2 fingers are placed in the vagina at urethrovesical junction on either side of urethra and bladder neck region is elevated
   - On straining or coughing, absence of leakage indicates a positive test

5. **Urethroscopy**

6. **Urodynamics studies** - MCU, Cystometry, Urethrocystometry, Uroflowmetry, etc.

**Treatment**

1. **Conservative** Treatment - It should be the first line of treatment in younger women. It is also applied to elderly and frail women unfit for surgery and during the 6 months after delivery.
   - Physiotherapy - pelvic floor exercises for 4 months.
   - Drugs - alpha-adrenergic agents, estrogen cream.
   - Intraurethral and Vaginal Devices - ring pessary, Contiform.
   - Electric Stimulation - in case of denervation of the pudendal nerve.
   - Artificial Urinary Sphincter (AUS) - AUS 800 model is used.

2. **Surgical Repair**
   - Vaginal Operations
     1) Anterior colporrhaphy
     2) Kelly's repair
     3) Pacey's repair
   - Abdominal Operations
     1) Marshall-Marchetti-Krantz operation
     2) Burch colposuspension
   - Combined Operations
     1) Pereyra operation
     2) Razz and Stamey modifications

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