Introduction to urology 1

. History

. Physical exam

. Investigations

Key points:

- Medical history and physical examination are the cornerstone of patient evaluation and management.
- The evaluation of a patient must always begin with a thorough and appropriate history and physical examination.
- Obtaining a thorough history and performing a proper physical examination can help detect urologic issues that are not detectable by other means (laboratory or radiology).
- The urologist should perform a history and physical examination in a systematic approach, such that pertinent information can be obtained in a reliable fashion to help ascertain diagnosis or at least direct subsequent laboratory and/or radiographic evaluations.

Key points:

- Several disease states and medications have urologic side effects and can have implications for subsequent urologic surgery.

- A proper history and physical examination also allow for the development of rapport and trust between physician and patient, which can prove invaluable in counseling patients on subsequent diagnostic and treatment decisions.

A complete history includes:

- Chief complaint.
- History of present illness (HPI).
- Review of systems.
- Past medical and surgical history.
- Medications.
- History of allergic reactions.
- Family history.
- Social history.

PAIN

Pain can be due to:

1. Obstruction: Obstructive pain results in distention of a hollow organ (or hollow portion) of the organ resulting from some obstruction (e.g., ureteral stone for renal pelvis or ureter). In the kidney, for example, this can result in colicky-type pain for which the patient is always moving to seek a position of comfort.
2. Inflammation, infection, bleeding within the parenchyma of a genitourinary organ (parenchymal pain): Caused by distention within the parenchyma of the GU organ (such as pyelonephritis which is typified by constant pain). This pain is typified by a patient who lays still, seeking not to exacerbate the pain with motion.

RENAL PAIN

- In the ipsilateral costovertebral angle just lateral to the vertebral spine and inferior to the 12th rib.
- It can be due to obstruction of the ipsilateral collecting system (causing colicky-type pain) or inflammation or infection of the renal parenchyma (causing constant flank pain and costovertebral angle tenderness).
- The pain may radiate anteriorly across the flank and toward the abdominal midline or down toward the ipsilateral scrotum or labium.

URETERAL PAIN

- Typically is due to ureteral obstruction.
- Is acute in onset.
- Acute distention of the ureter.
- Hyperperistalsis.
- Ureteral spasm (prostaglandins).
- Increased lactic acid production, which in turn irritates type A and C nerve fibers in the ureteral wall.

VESICAL PAIN

- Inflammation (as in cystitis): caused by infection or interstitial cystitis. It is worse when the bladder is distended, so patients may report improvement with voiding. Patients also may describe strangury (a sharp and stabbing pain at the end of urination; presumably resulting from final contraction of the inflamed detrusor).

- Distension because of obstruction (as in acute urinary retention).

PROSTATIC PAIN

- Inflammation of the prostate, prostatitis, can result in pain that is located deep within the pelvis.

- Sometimes, It can be difficult to localize and is confused with rectal pain.

PENILE PAIN

- Flaccid penis: The differential includes paraphimosis, ulcerative penile lesions (e.g., cancer or herpes), or referred pain from cystitis/prostatitis.

- Rigid penis: Peyronie disease or priapism.

SCROTAL PAIN

- Acute testicular pain should be considered an emergency and testicular torsion should be ruled out.
- Pain within the kidney or ureter may be referred to the ipsilateral scrotum.
- Testicular pathologies may present with lower abdominal pain.

HEMATURIA

- The presence of blood (RBCs) in the urine (more than 3 RBC per HPF).
- Gross(macroscopic) and microscopic.
- A concerning urologic sign in adults and must be evaluated because it may indicate the presence of a urologic cancer in up to 25% of patients with this complaint.
- In fact, the most common cause of gross hematuria in a patient older than 50 years of age is bladder cancer.
- Hematuria must be differentiated from pseudohematuria, whereby the urine may appear red because of dehydration or certain medicines or foods.
- No abnormality is found in approximately 50% of subjects with macroscopic haematuria and 70% with microscopic haematuria, despite full conventional urological investigation.

LOWER URINARY TRACT SYMTOMS (LUTS)

- LUTS are symptoms associated with the urinary bladder and its outlet.
- Such symptoms can be due to any combination of obstructive or irritative causes.
- Causes of lower urinary tract obstruction include benign prostatic hyperplasia (BPH), obstructive prostate cancer, urethral stricture disease, dysfunctional voiding, detrusorexternal sphincter dyssynergia, severe phimosis, and severe meatal stenosis.
- Causes of irritative voiding symptoms include chronic bladder outlet obstruction, overactive bladder, cystitis, prostatitis, bladder stones, or bladder cancer.

OBSTRUCTIVE (LUTS) emptying or voiding symptoms

- Hesitancy: delay and defficulty in initiating urination.
- Straining to void: requiring Valsalva maneuver to aid in voiding.
- Weak poor stream.
- Intermittency.
- Postvoid dribbling. Refers to the loss of a few drops of urine at the end of urination.
- Feeling of incomplete emptying.
- Urinary retention.

IRRITATIVE (LUTS) storage symptoms

- Frequency. (consider polyuria)
- Nocturia. (consider nocturnal poluria)
- Urgency: sudden and strong desire to urinate.
- Urg-incontinance: Involuntary urine leakage preceeded by urgency.
- dysuria.

URINARY INCONTINENCE

- The involuntary leak of urine.
- In general when the pressure within the bladder is greater than the resistance provided by the urethra, or when it is bypassed, urinary incontinence may occur.
- Stress Incontinence: refers to the involuntary leakage of urine with any activity that increases intra-abdominal pressure.
- Urge Incontinence: This occurs when a patient experiences involuntary leakage of urine coincident with sensation of urinary urgency.
- Mixed Urinary Incontinence.

URINARY INCONTINENCE

- Continuous Incontinence: A typical presentation of processes that bypass the bladder outlet; mainly urinary fistulas and ectopic ureter.
- Overflow Incontinence (paradoxic incontinence): occurs when the urinary volume within the bladder approaches and exceeds bladder capacity, resulting in an increase in intravesicle pressure greater than urethral outlet resistance.
- Functional Incontinence: seen in Patients with limited mobility or limited access to a toilet or urinal.
- Pseudoincontinence: seen in patients with chronic vaginal discharge may complain of continuous perineal wetness, which may be confused with continuous urinary incontinence.
- Enuresis: Urinary incontinence during sleep.

HEMATOSPERMIA

- Presence of blood in the ejaculate.
- Usually, it is due to nonspecific inflammation of the prostate or seminal vesicles and usually resolves spontaneously.
- It can be associated with ejaculation after a long duration of sexual abstinence.
- If blood is persistent beyond several weeks, the urologist should consider an evaluation to exclude genitourinary tuberculosis or cancer.

PNEUMATURIA

- Passage of gas within the urine. It can sometimes be an alarming finding for the patient because this may interrupt the urinary flow and sound like flatus from the urethra.
- Most commonly due to a fistula between the gastrointestinal system and the bladder.
- Rarely, pneumaturia may be due to gas-forming bacteria within the urinary tract.

URETHRAL DISCHARGE

- This is the most common symptom of sexually transmitted infection.
- Patients should be screened for high-risk sexual behavior.
- Bloody discharge may be concerning for urethral carcinoma.

SEXUAL DYSFUNCTION

- Erectile Dysfunction.
- Loss of Libido.
- Premature Ejaculation.
- Failure to Ejaculate (anejaculation).
- Anorgasmia.

ERECTILE DYSFUNCTION IMPOTENCE

- the inability to attain and/or maintain penile erection sufficient for satisfactory intercourse.
- Vasculogenic, neurogenic, psychogenic, endocrinologic, or medication side effect.
- ED can be a harbinger of occult coronary artery disease and should merit consultation to a cardiologist.
- Priapism: Painful, persistent, prolonged erection of the penis not related to sexual stimulation.

LOSS OF LIBIDO

- Hypogonadism can be primary or secondary.

- Depression, several medications, or severe medical illnesses (e.g., cancer) can result in loss of libido.

PREMATURE EJACULATION

- premature ejaculation is either less than 1 minute (if lifelong) or 3 minutes (if acquired) and must be associated with inability to delay ejaculation and with negative personal consequence.
- Many patients presenting with the complaint of premature ejaculation often have unrealistic expectations for intravaginal ejaculatory latency time (IEJT).
- IEJT of 1 to 2 minutes is too short but 3 to 7 minutes is adequate and 7 to 12 minutes is desirable.

FAILURE TO EJACULATE

- Androgen deficiency, sympathetic denervation, use of pharmacologic agents.
- Retrograde ejaculation should be considered with history of bladder neck/prostate surgery or use of alpha blockers.
- Patients with advanced diabetes also may experience anejaculation.

ANORGASMIA

- Absence of orgasm can be due to psychogenic causes, medications used to treat psychiatric disorders, advanced diabetes.

INFERTILITY

- defined as the failure to conceive within one year of regular unprotected intercourse without the use of contraception.
- Approximately 15% of couples will experience infertility, and of these, 20% will have a male factor that is solely responsible; male factors will contribute in an additional 30% of cases.
- The causes of male infertility are widely varied and are best evaluated by a urologist.
- Some causes of male infertility can be identified and reversed or improved with specific surgery or medication, while other causes can be identified but not reversed.

FEVER AND CHILLS CONSTITUTIONAL SYMPTOMS

- A patient with fevers and chills may signal a systemic response to an infectious process or sepsis and merit further evaluation or even possibly hospitalization.
- Usually due to : Pyelonephritis, Prostatitis, Epididymitis.
- Fevers and chills in the elderly or immuno-compromised should be especially concerning.
- Night sweats, anorexia, weight loss, fatigue, or lethargy.
- Such symptoms can signal the presence of advanced inflammatory, infectious, or malignant processes such as GU tuberculosis or advanced bladder cancer.

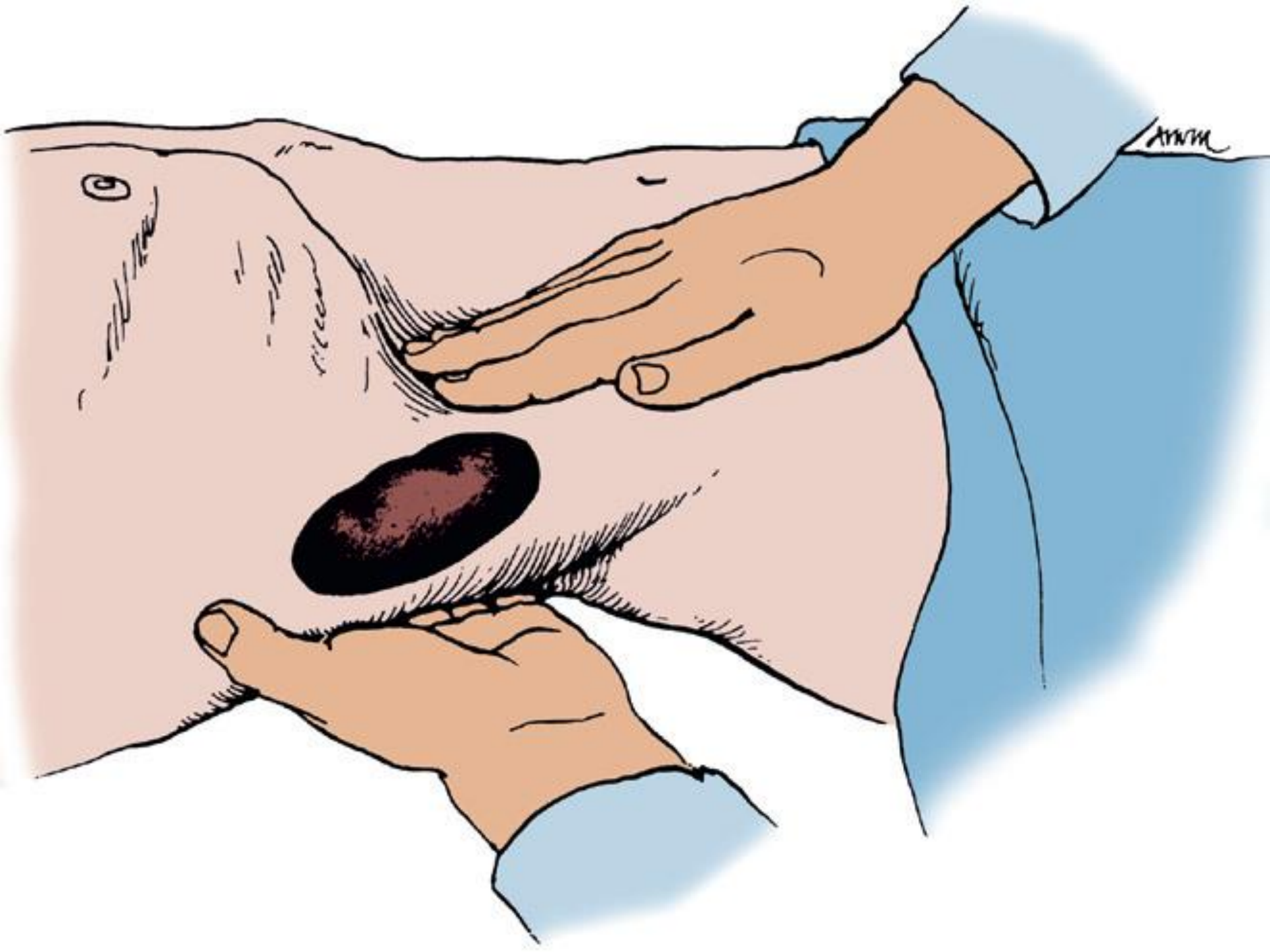
PHYSICAL EXAMINATION

- A complete and thorough physical examination is essential for any patient.
- Vital Signs.
- General Appearance.
- Kidneys:

  # Bimanual examination, or renal ballottement.

  #Costo-vertebral angle tenderness.

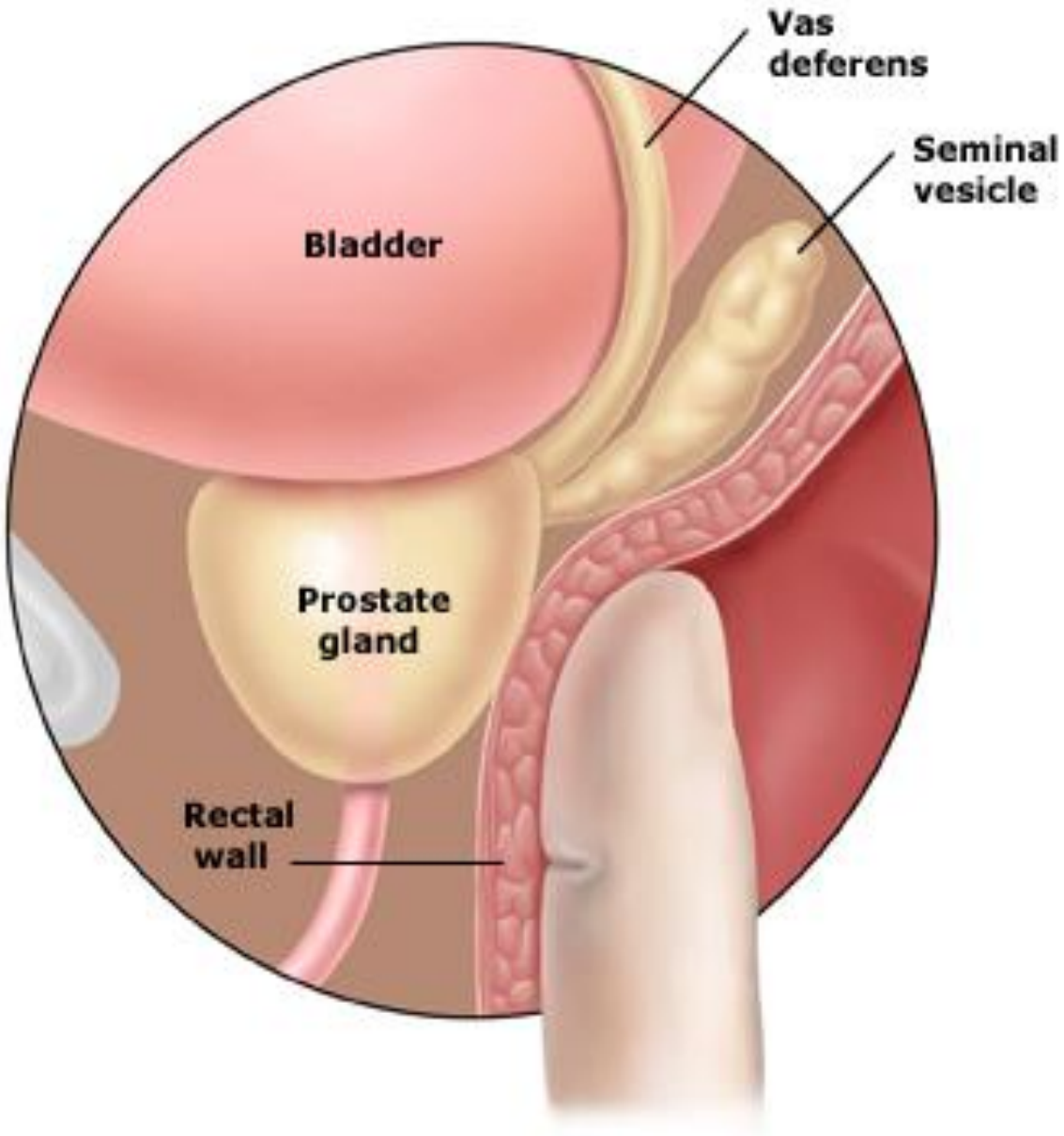
  #Auscultation (bruit) for renal artery stenosis or renal arteriovenous fistula.

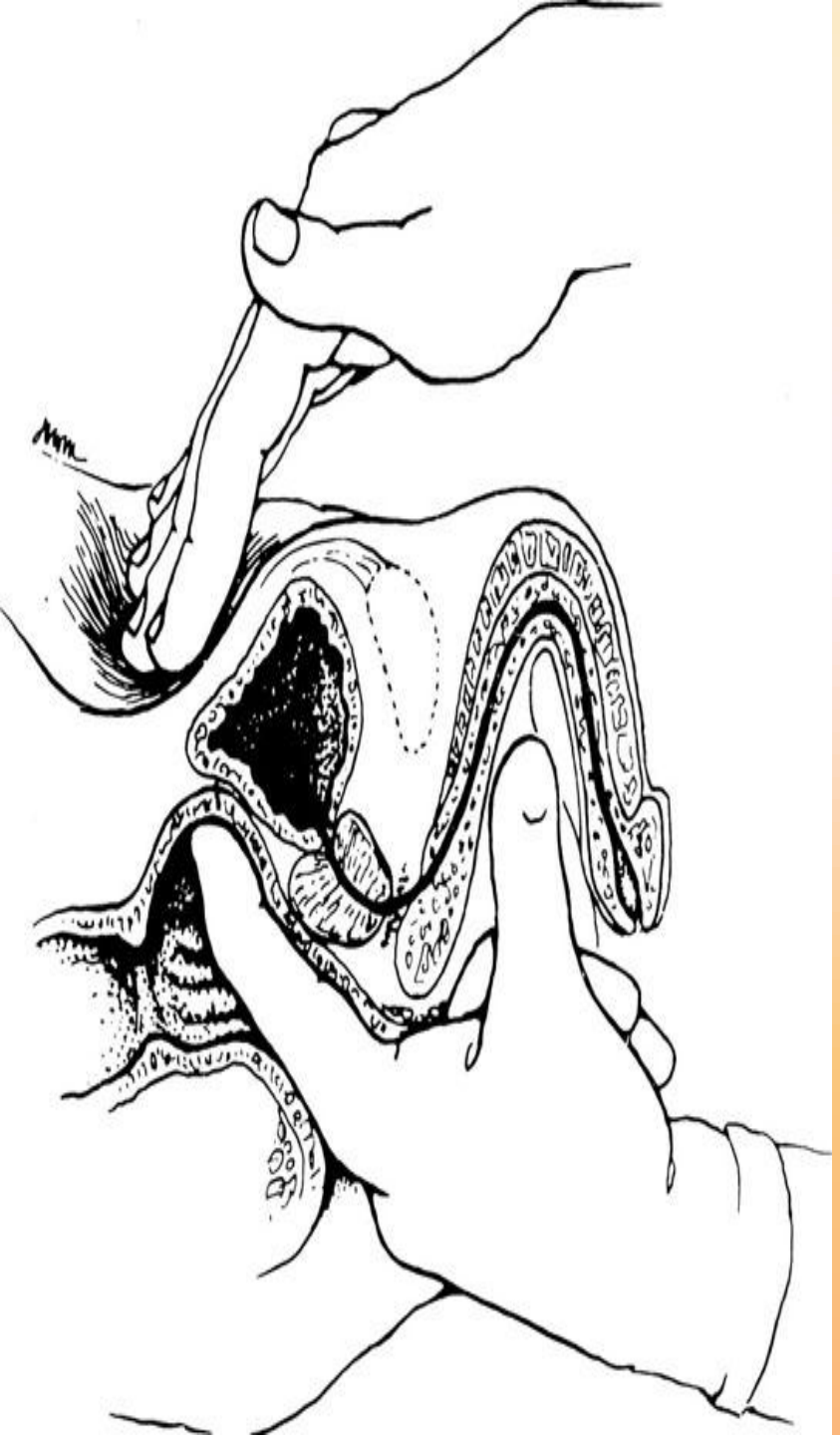


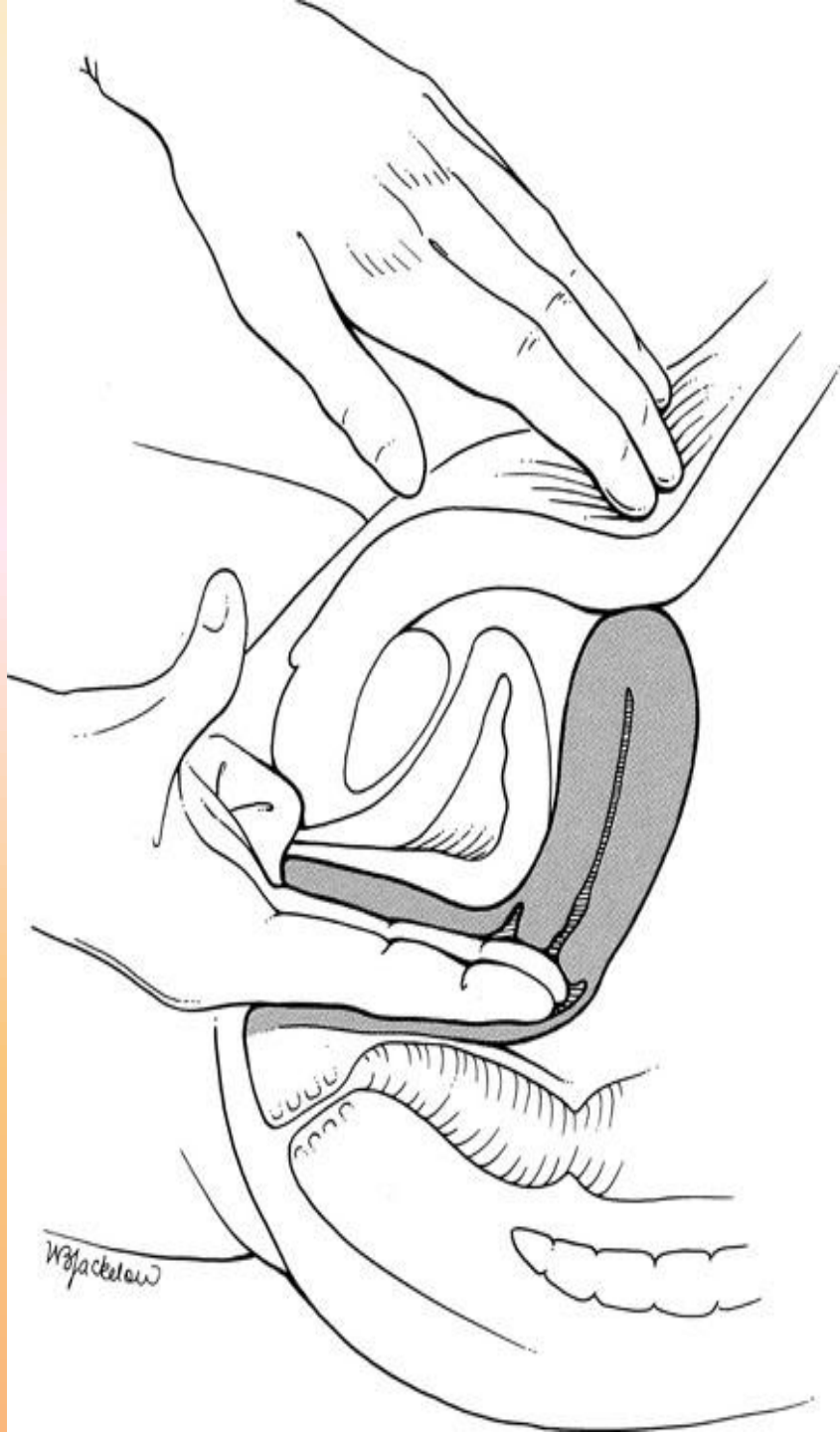
PHYSICAL EXAMINATION

- Bladder: Palpation.

  Percussion.
- Bimanual pelvic exam: to assess the mobility of the bladder and pelvic tumors.
- Penis, scrotum and contents.
- Digital rectal examination.
- Neurologic examination.


Vas deferens
Seminal vesicle
Bladder
Prostate gland
Rectal wall

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INVESTIGATIONS

- Should be ordered based on the history and physical findings.

- Urine
- Serum
- Radiological studies.
- Nuclear Scintigraphy.

URINE

- Urinalysis
- Urine cytology
- Urinary Markers

SERUM

- Serum Laboratory Studies: KFT…
- Prostate-Specific Antigen (PSA).
- Tumor markers.

RADIOLOGIC STUDIES

- Ultrasonography.
- Computed Tomography (CT scans).
- Magnetic Resonance Imaging (MRI): mpMRI
- Intravenous Pyelogram and Plain Radiographs (KUB).
- Retrograde pyelograms.
- Cystograms and urethrograms.

Nuclear Scintigraphy.

- DTPA scan.
- DMSA scan.
- MAG-3 scan.
- Bone scan.
- PET scan: PET/CT, PET/MRI.

THANK YOU