



SUBSPECIALTIES IN UROLOGY



- UROLOGICAL ONCOLOGY
- PEDIATRIC UROLOGY
- URODYNAMICS (study of obstruction to urinary flow)
- UROLOGICAL RECONSTRUCTIVE SURGERY
- UROLITHIASIS OR STONE DISEASE
- ANDROLOGY AND SEXUAL MEDICINE (ED and infertility)
- UROGYNAECOLOGY
- MINIMALLY INVASIVE SURGERY AND ROBOTICS
- TRANSPLANT UROLOGY (kidney, bladder tissue, ureter, and recently penis)



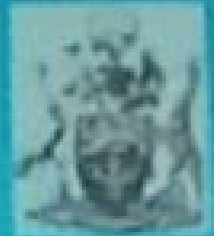
UROLOGIC PAIN (CONT ...)



- PROSTATE PAIN CAN BE : PERINEAL, SUPRAPUBIC, LOW BACK, OR SKELETAL (metastases)
- TESTICULAR PAIN CAN BE DUE TO : TORSION OF TESTIS, INFECTION, HERNIA, OR RADIATING FROM THE KIDNEY
- PENILE PAIN CAN BE DUE TO: PRIAPISM, PHIMOSIS, PARAPHIMOSIS, AND INFECTION
- SCROTAL PAIN (chronic) IS RELATED TO NON INFLAMMATORY CONDITIONS HYDROCELE AND VARICOCELE



IVU-INTRA VENOUS UROGRAM

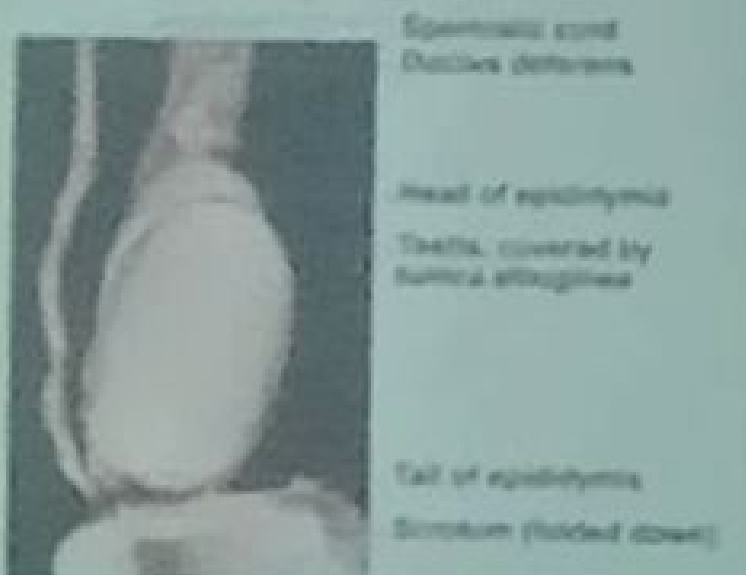
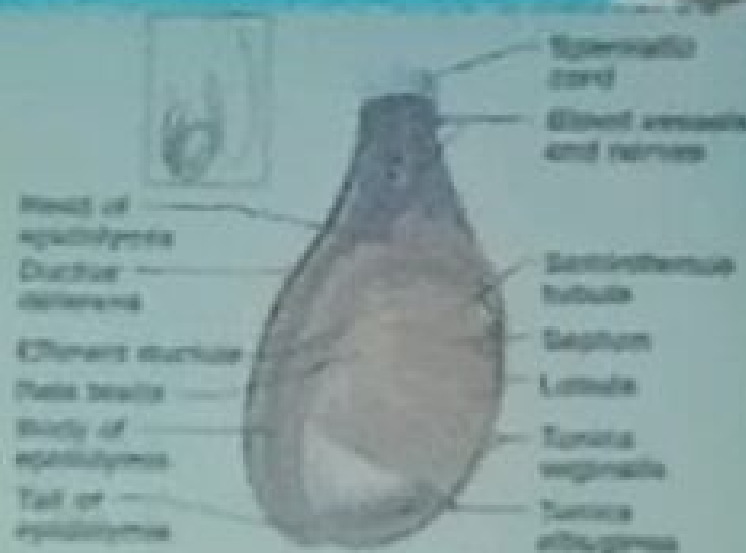


- INVASIVE
- CHECK BUN/CREATININE BEFORE PROCEDURE
- BOWEL PREPARATION MANDATORY BEFORE PROCEDURE
- IV CONTRAST INJECTED INTO BLOOD AND IS CONCENTRATED IN THE RENAL COLLECTING SYSTEM
- MULTIPLE X-RAY PICTURES TAKEN-GOOD ASSESSMENT OF FUNCTION AND OR OBSTRUCTION
- CONTRAST MAY CAUSE ALLERGIC REACTIONS

TESTIS AND ASSOCIATED STRUCTURES

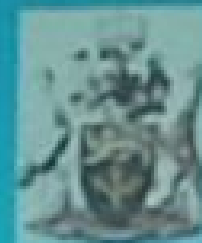


- Oval organ, 4 cm long x 2.5 cm in diameter
- Tunica albuginea: white fibrous capsule
- Tunica vaginalis: derived from the peritoneum
- Testicular veins drain to the inferior vena cava arteries come from abd aorta
- Seminiferous tubules drain into network called rete testis





SOME IMPORTANT PAST MEDICAL HISTORY

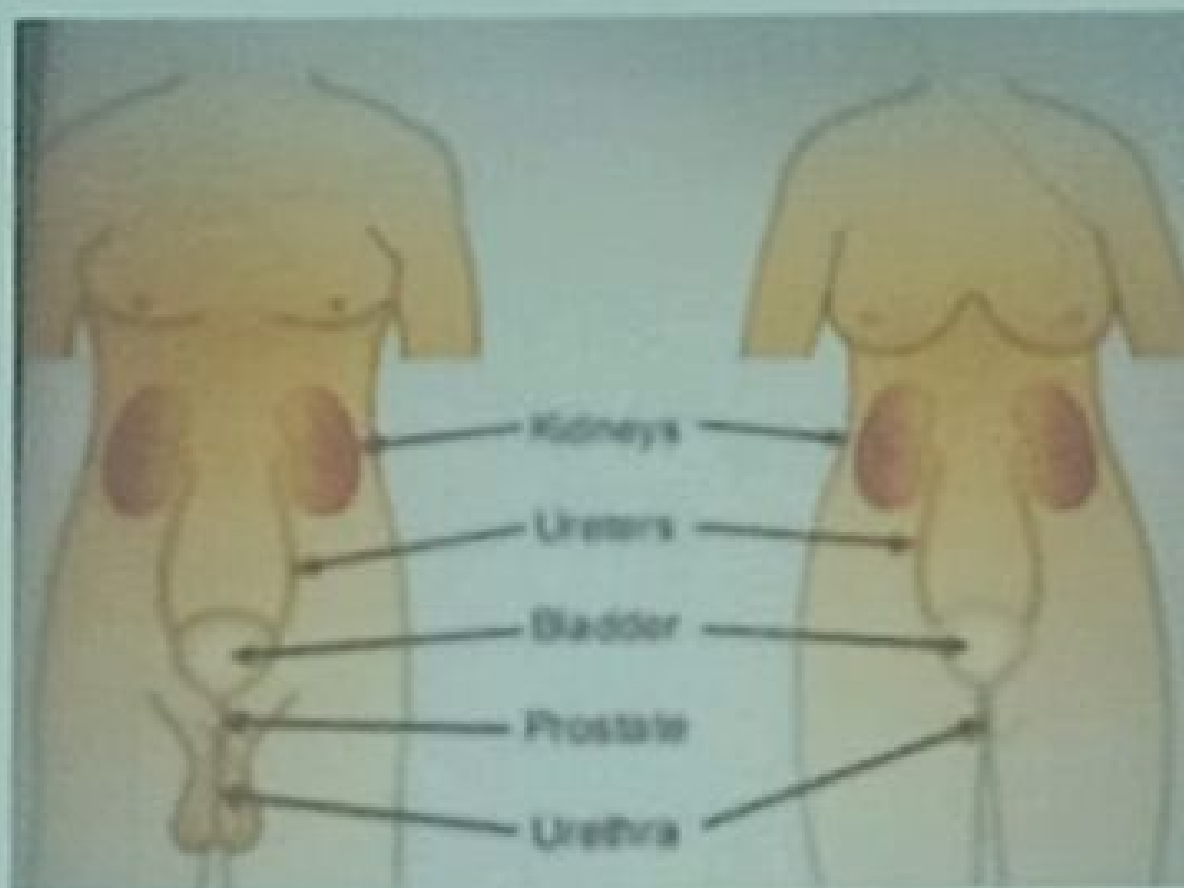


- PAST MEDICAL HISTORY IS EXTREMELY IMPORTANT BECAUSE IT FREQUENTLY PROVIDES CLUES THE PATIENTS CURRENT DIAGNOSIS. SOME ARE BELOW
- HYPERTENSION (risk of erectile dysfunction and kidney damage)
- DIABETES MELLITUS (may lead to impaired urinary and sexual function)
- RECURRENT URINARY TRACT INFECTION (UTI)
- PROSTATE DISEASE (BPH, CA PROSTATE)
- TUBERCULOSIS INCLUDING GENITO-URINARY TUBERCULOSIS



DEFINITION

UROLOGY IS A BRANCH OF MEDICINE THAT STUDIES THE SURGICAL AND MEDICAL DISEASES OF THE URINARY TRACT IN MALES AND FEMALES, AND THE MALE REPRODUCTIVE ORGANS





PELVIC EXAMINATION IN FEMALES

- THERE IS NEED FOR THE PRESENCE OF A FEMALE HEALTH WORKER WHEN A MALE UROLOGIST IS PERFORMING A FEMALE PELVIC EXAMINATION
- RECTAL EXAMINATION
- BIMANUAL EXAMINATION OF THE BLADDER



ANATOMY OF THE URETER



Ureter

Tube between kidney and bladder
Enters bladder at the
ureterovesicular junction

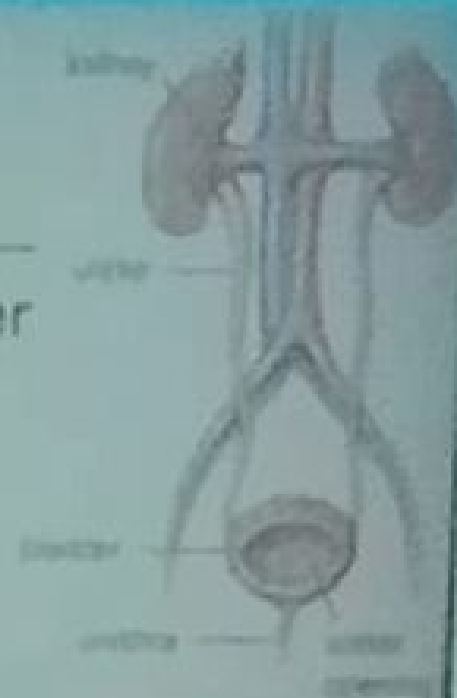
Peristalsis

THREE areas of narrowing

Renal pelvoureterojunction

Passage over iliac vessels and pelvic brim

Ureterovesicular junction – oblique angle





SUMMARY



- DEFINITION
- ANATOMY OF THE UROGENITAL TRACT
- HISTORY AND PRESENTING SYMPTOMS
- PAST MEDICAL HISTORY
- FAMILY HISTORY
- PHYSICAL EXAMINATION
- INVESTIGATIONS IN UROLOGIC PATIENTS



COMMON INVESTIGATIONS (BLOOD)



- FULL BLOOD COUNT
- BUN (BLOOD UREA NITROGEN)
- SERUM CREATININE
- CREATININE CLEARANCE
- SERUM ELECTROLYTES (sodium, potassium, chlorides etc)
- GLUCOSE
- PROSTATE SPECIFIC ANTIGEN (PSA) for prostate cancer
- SERUM CALCIUM AND PHOSPHATES
- ALFA-FETO PROTEIN AND beta-hCG FOR DIAGNOSIS OF TESTICULAR CANCERS
- LIVER FUNCTION TESTS



UROLOGIC PAIN



UROLOGICAL PAIN OCCURS MOST COMMONLY DUE TO OBSTRUCTION, IRRITATION OR INFLAMMATION. CAREFUL HISTORY CAN INDICATE THE LEVEL OF OBSTRUCTION

- SMALL CALCULI CAUSE SEVERE PAIN THROUGH OBSTRUCTION
- LARGE NON OBSTRUCTING CALCULI CAUSE NO PAIN
- RENAL PAIN USUALLY CAUSED BY ACUTE DISTENTION OF RENAL CAPSULE FROM OBSTRUCTION OR INFECTION
- URETERAL PAIN IS USUALLY ACUTE DUE TO OBSTRUCTION
- BLADDER PAIN DUE TO ACUTE URINARY RETENTION DUE TO OBSTRUCTION, AND INFECTION



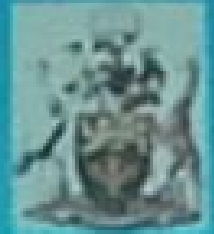
FAMILY HISTORY (GENETIC DISEASE)



- IT IS IMPORTANT TO OBTAIN A DETAILED FAMILY HISTORY AS MANY DISEASES ARE GENETIC AND OR FAMILIAL AS INDICATED BELOW
- ADULT POLYCYSTIC KIDNEY DISEASE
- PROSTATE CANCER (8%_10% are familial)
- TUBEROUS SCLEROSIS
- RENAL TUBULAR ACIDOSIS
- CYSTINURIA



COMMON INVESTIGATIONS (URINE)



- URINALYSIS (color, turbidity, specific gravity, PH, chemical exam and microscopy)
- CULTURE AND SENSITIVITY
- TWENTY FOUR HOUR SPECIMEN FOR creatinine clearance



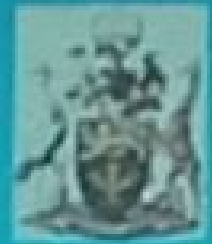
UROLOGICAL SYMPTOMS



- HAEMATURIA (blood in urine)
- DYSURIA (pain when urinating)
- FREQUENCY (frequent need to urinate)
- CHANGES IN URINARY PATTERN
- URINARY RETENTION (inability to urinate)
- WEAK STREAM OF URINE
- HESITANCY
- INCONTINENCE (difficulty to hold urine)
- PAIN IN THE LOWER ABDOMEN (groin and loin)
- PAIN IN THE SCROTUM AND TESTIS
- LUMP IN THE SCROTUM AND TESTIS
- ERECTILE DYSFUNCTION
- MALE INFERTILITY



COMMON INVESTIGATIONS (IMAGING)



PLAIN RADIOGRAPHY ABDOMEN AND PELVIS

- INTRAVENOUS UROGRAPHY (IVU)
- MICTURATING CYSTO-URETHROGRAM
- RETROGRADE URETHRO-CYSTOGRAM
- ULTRASONOGRAPHY (abdomen, pelvis, scrotum, prostate, etc)
- TRANSRECTAL ULTRASONOGRAPHY BEST FOR PROSTATE
- COLOR DOPPLER ULTRASONOGRAPHY (shows blood flow patterns)
- COMPUTER TOMOGRAPHY
- MAGNETIC RESONANCE IMAGING
- WHOLE BODY RADIONUCLIDE SCAN (for bone metastases)
- PET SCAN (POSITRON EMISSION TOMOGRAPHY) is most recent for primary & metastatic cancer
- CYSTOSCOPY

PHYSICAL EXAMINATION OF ESTROGEN-DEPENDENT GENITALIA IN MALES

ENSURE GENERAL EXAMINATION OF THE WHOLE PATIENT IS CARRIED OUT FIRST

SKIN

INGUINAL (masses, hernias, and lymph nodes)

SCROTUM (masses, tenderness, cysts, fluid, epididymis, spermatic cord and testes)

PENIS (circumcision status, size, shape, tenderness, discharge, ulcers, masses, etc)



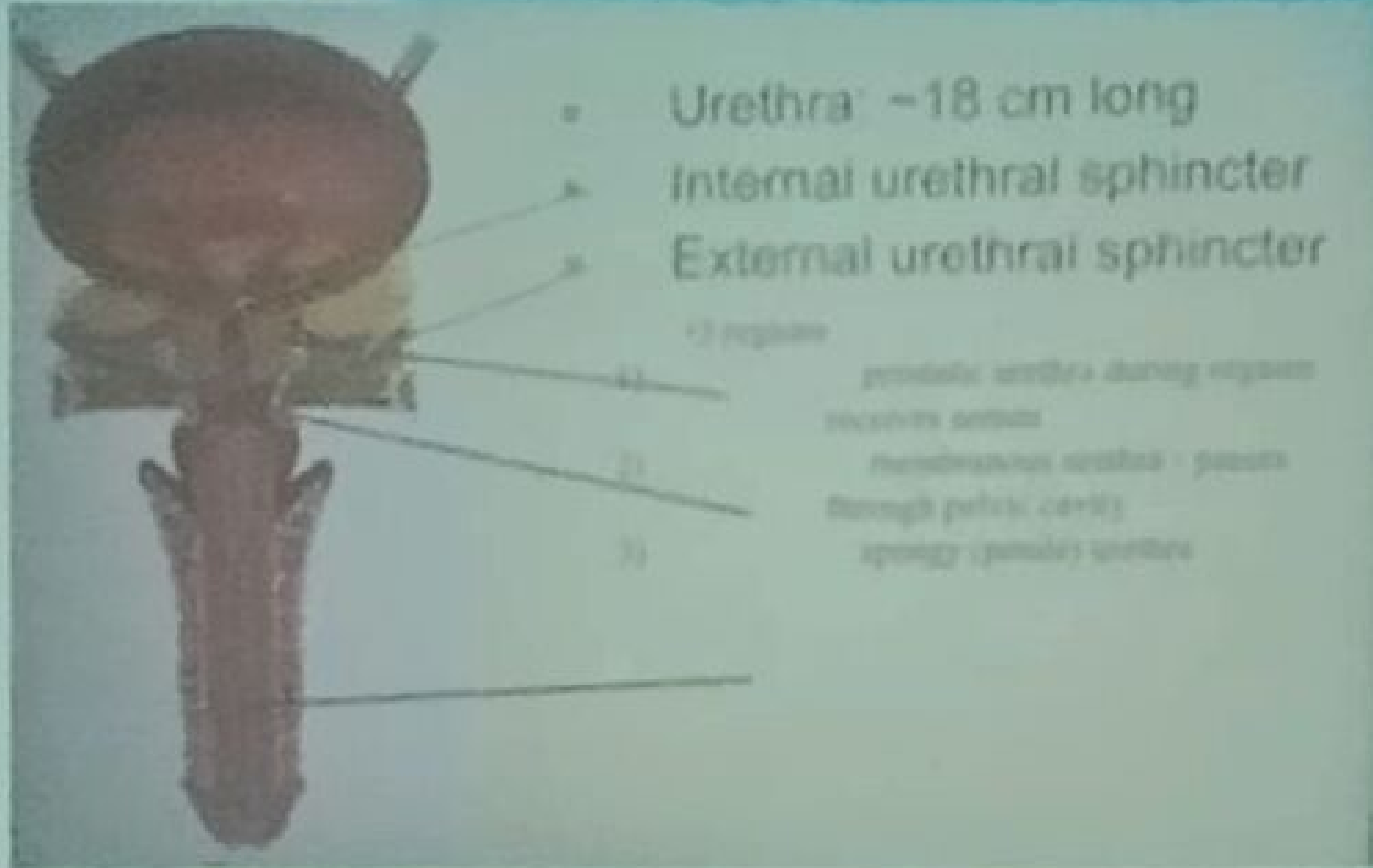
PHYSICAL EXAMINATION OF UROGENITAL TRACT (CONT ...)



- ABDOMINAL EXAMINATION
- INSPECT FOR DISTENSION- BLADDER
- PERCUSS BLADDER FOR DISTENSION
- PALPATE THE ABDOMEN FOR TENDERNESS AND MASSES
- DIGITAL RECTAL EXAMINATION ON ALL ADULT MALES
- RECTUM-FOR TENDERNESS, MASSES AND BLOOD
- PROSTATE-FOR SIZE, TEXTURE, TENDERNESS, NODULARITY AND MEDIAN SULCUS
- SENSORY REFLEXES- SPHINCTERS AND MUSCLE TONE



MALE BLADDER AND URETHRA





URINARY BLADDER



- HOLDS APPROXIMATELY 500mls OF URINE
- LINED INTERNALLY WITH TRANSITIONAL CELLS
- BLADDER NECK INCLUDES THE INTERNAL SPHINCTER
- SYMPATHETIC INNERVATION TO BODY L2
- PARASYMPATHETICS TO BODY AND NECK S2 AND S3