COMMON INVESTIGATIONS IN REPRODUCTIVE HEALTH PRACTICE

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Learning objectives

- *At the end of the lecture, the student is expected to be able to:-*
  - *Know the scope of the common investigations in RHC*
  - *Acquire insight into the rational & objective request for relevant investigations*
  - *Apply the same or similar investigations in different clinical situations*
  - *Interpret results of investigations for the benefit of patients*

Introduction: Investigations:-

- *Should always be rational/objective*
- *Normal parameters should be known*
- *Can be expensive*
- *Important aspect of patient management*
- *May be invasive*
- *Supplement but not replace clinical acumen*

  "Good, comprehensive medical history & physical examination remain key to patient management"

- ****EARNS U 25% OF MARKS IN YOUR CLINICAL EXAMINATION!***

PURPOSE FOR INVESTIGATIONS

To:

- *Confirm the diagnosis*
- *Make the diagnosis*
- *Estimate severity of disease*
- *Monitor effect of treatment*
- *Monitor recurrence*
- *Screen for disease*

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COMMON

INVESTIGATIONS

IN

OBSTETRICAL PRACTICE

Antenatal care (ANC)

- *[Hb] & HCT*
  - *To screen or confirm anemia*
  - *Forms a basis for supplementation*
- *VDRL*
  - *Screening for syphilis – affects fetal outcome*
  - *Specific treponemal tests before treatment (e.g. TPHA)*
- *Blood group*
  - *Establishes risk of feto-maternal incompartibility & hemolytic disease*
  - *Prepares for transfusion needs*

Antenatal care (ANC)…..

- *Urinalysis - Screening for protein, glycosuria, UTI, etc*
- *HIV - PMTCT; Entry into prevention of transmission; Enables provision of support - psycho-social & medical*
- *Obstetric ultrasound - Appraisal of fetal growth; Fetal abnormality screening; Fetal well-being assessment: BPPS; Doppler studies; PET prediction*

Full blood count (FBC)

Has multiplicity of value
Examples of significance:

- *[Hb] & HCT*
  - *Presence/absence of anemia; Etiology not implied*
- *Cell indices - MCV, MCH, MCHC – may allot anemia to broad categories:*
  - *Microcytic*
  - *Hypochromic*
  - *Megaloblastic*
  - *Mixed*

Full blood count (FBC)……

- *WBC count*
  - *Total count*
    - *Marked elevation - acute infections (bacterial/viral)*
    - *Moderate elevation – chronic infections*
  - *Differential count*
    - *Neutrophilia – acute bacterial infections*
    - *Lymphocytosis –viral or chronic bacterial infections*

Full blood count (FBC)……

- *Peripheral blood film (PBF)*
  - *RBC's*
    - *Normocytic normochromic; hypochromic microcytic*
    - *Polychromasia; reticulocytosis;megaloblasts*
    - *Anisocytosis; poikilocytosis;tear drop cells*
    - *Spherocytes; sickle forms*
  - *WBC,s*
    - *Polymorphs – nuclear segmentation*
    - *Toxic granulation*
    - *Malaria parasites (MP,s)*

Full blood count (FBC)…..

- *Erythrocyte sedimentation rate*
  - *None specific*
  - *May indicate infection*
- *Platelet count*
  - *Absolute count/concentration*

Infections in pregnant state

- ***Urinary tract infections (UTI)***
  - *Urinalysis:- appearance; pH; blood; sugar; proteins; nitrites; urobilinogen; leukocytes; bilirubin; specific gravity; ketones*
  - *Microscopy:- pus cells; epithelial cells;casts; crystals; RBC,s; bacteria; yeast cells; trichomona vaginalis*
  - *Culture*
  - *sensitivity*

Infections in pregnant state

- *Respiratory tract infections*
  - *FBC; chest X-ray; sputum – AAFB's*
- *Chorio-amnionitis*
  - *FBC +ESR; vaginal swab – M/C/S*
- *Malaria*
  - *MP's*

Blood coagulation disorders –thrombo-embolic disease & DIC

- *Coagulation screen*
  - *Bleeding time; clotting time; APTT/KCCT; PTI/INR; platelet count*
- *Thrombus localization*
  - *Doppler studies*
  - *Venography; radioisotope studies; thermography*

Hypertensive disorders in pregnancy

- *Renal function tests (RFT's)*
  - *Urinalysis – protein, blood*
  - *U/E; uric acid; creatinine; creatinine clearance*
  - *Renal ultrasound*
- *Liver function tests (LFT's)*
  - *Bilirubin, liver enzymes*
- *Coagulation screen; platelet count*
- *Obstetric ultrasound –FWB; doppler studies*

Value of ultrasound in obstetrics

- *Diagnosis of pregnancy*
  - *Intra-uterine; extra-uterine*
- *Fetal growth monitoring*
  - *Appropriateness of growth (AGA;SGA; LGA)*
  - *IUGR (asymmetrical; symmetrical)*
  - *Fetal weight, sex, viability*
- *Fetal well-being*
  - *BPPS (fetal tone; fetal movements; respiratory movements; AF volume; placental echogenicity)*
  - *Doppler flow studies*

Value of radiography in obstetrics

- *Pelvimetry*
- *Gestation estimation-timing of specific epiphyseal plates' closure*
- *Diagnosis of twins*
- *Diagnosis of extra-uterine pregnancy*

Diabetes mellitus

- *Urinalysis*
  - *Glycosuria; ketonuria; proteinuria*
- *Blood sugar*
  - *RBS; FBS; OGTT; PPBS; Serial BS*
- *Glycolysated Hb (Hb1c) - [N≤6%]*
- *Obstetric ultrasound – IUGR; Macrosomia; BPPS; Polyhydramnios; etc*

Rhesus isoimmunization

- *Indirect Combs test (ICT)*
- *AF spectrophotometry –absorbance deviation at 450nm*
- *Cord blood at birth*
  - *[Hb] + hct*
  - *Direct Coombs test*
  - *Bilirubin*

Anemia & Antepartum hemorrhage

- *Anemia*
  - *FBC+PBF*
  - *Stool o/c*
  - *MPs*
- *Antepartum hemorrhage (APH)*
  - *Placental localization*
  - *Ultrasound; EUA*
  - *Coagulation screen*
  - *[Hb] = hct*

Septicaemia & endotoxic shock; Establishment of fetal maturity

Septicemia & endotoxic shock

- *RFTs including urine output*
- *Blood cultures*
- *Coagulation screen, especially platelet count*
- *Critical care investigations (spo2, spco2, etc)*

Establishment of fetal maturity

- *Amniocentesis*
  - *Surfactant or 'shake' test*
  - *Lecithin:sphingomyelin (L/S) ratio (N $\geq$ 1:2)*

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COMMON INVESTIGATIONS

IN

GYNAECOLOGICAL PRACTICE

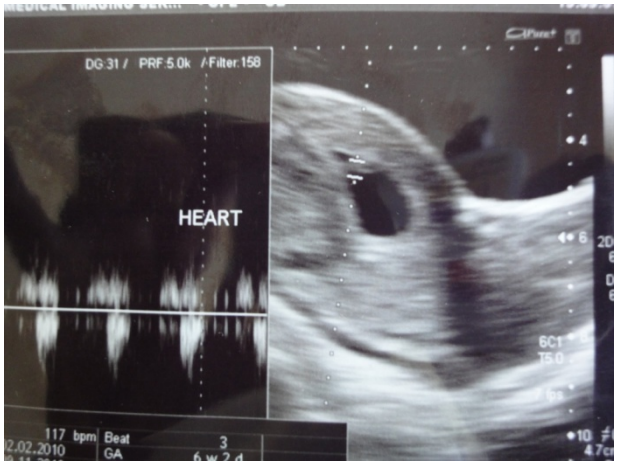
FULL BLOOD COUNT

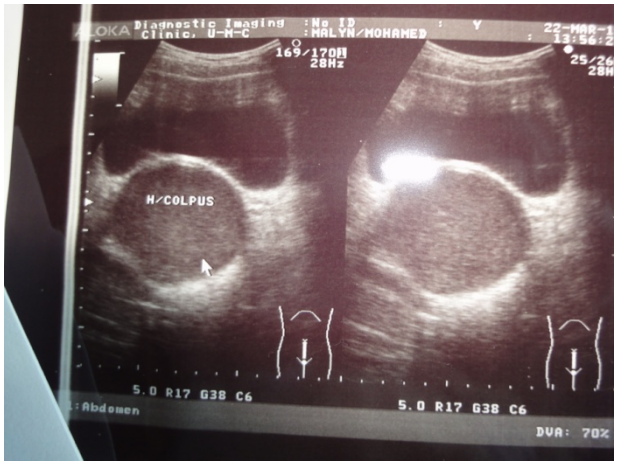
"Important in differentiating infective from none-infective conditions"

Value of ultrasound scan in gynecology

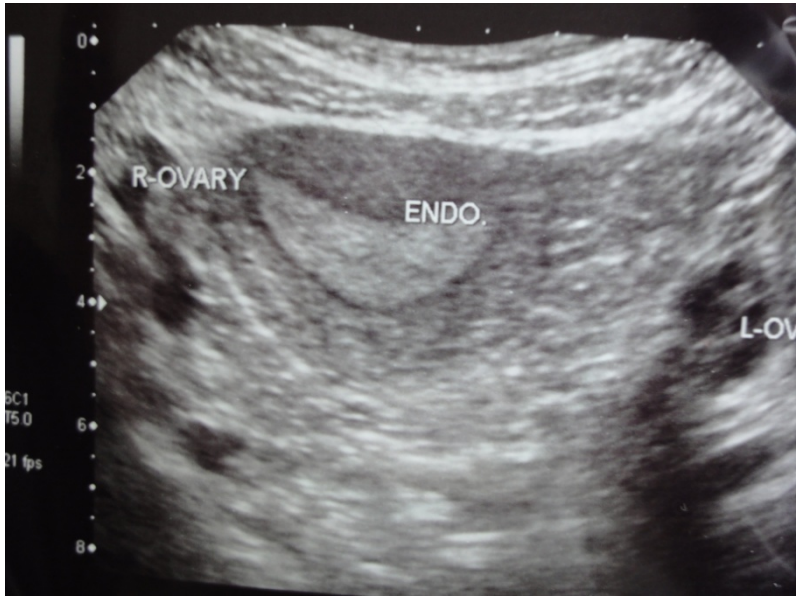
- *Diagnosis of pelvic masses*
  - *Solid → fibroids; ovarian; other*
  - *Cystic → ovarian; TOM; PCOD*
  - *Fluid in the pelvis → PID; pelvic abscess; ectopic pregnancy*
- *Management of infertility*
  - *Follicular growth monitoring; TVS for ovum retrieval*
- *Intrauterine diagnosis*
  - *Endometrial hyperplasia; 'lost' IUCD; hematometra*

Bicornuate uterus, GS in right horn, FP with cardiac activity; imperforate hymen with hematocolpos





RTOM in a 19 yr old. The endometrial echoes were enhanced and the ovaries appear mormal.



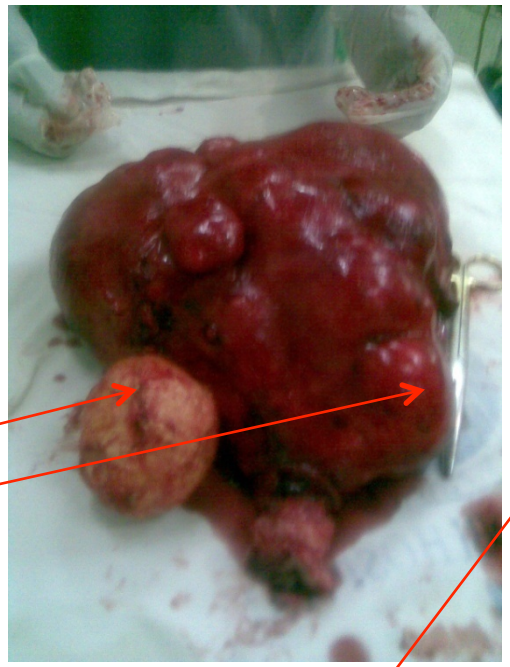
Radiology in gynecology

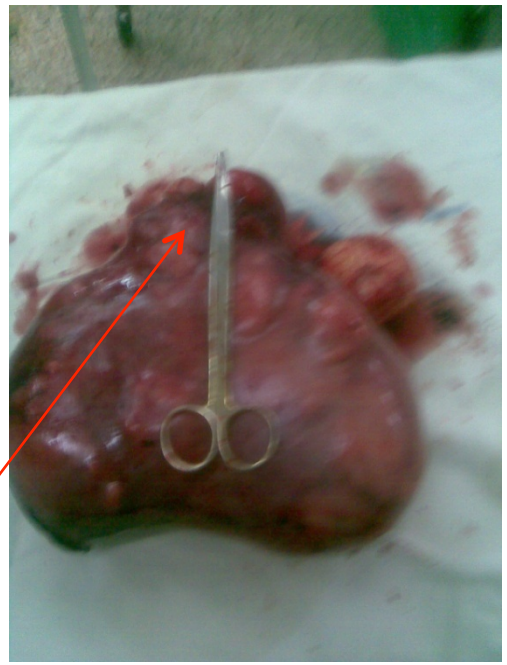
- *Hystero-salpingogram*
  - *Scope – uterine cavity; endosalpinx; spill*
  - *Pathology:*
    - *Sub-mucous/intramural fibroids*
    - *Tubal block (cornual, mid-section (infundibular),terminal)*
    - *Tubal loculations/peri-tubal adhesions*
    - *Fimbrial adhesions*
    - *hydrosalpinges*

Radiology in gynecology

- *X-ray sella turcica – hyper-prolactinaemic galactorrhoea syndrome*
    - *Erosion of clinoid processes & pituitary fossa*
- *Embryonal tumours – cystic teratomas*
- *'Lost' IUCD – tracer IUCD inserted*
- *Extra-uterine pregnancy*
- *IVU*
- *HSG*

IVU: obstructive uropathy with ureteric displacement; calcified fibroids; pelvic incarceration; massive & broad 34→26weeks size fibroids on hysterectomy after 4 doses of goselerin





INCARCERATED CALCIFIED FIBRIOID

Male infertility: semenanalysis

- *Appearance*
- *Volume*
- *pH*
- *Liquefaction*
- *count*
- *Vitality*
- *Morphology*
- *Agglutination*
- *Pus cells*
- *Motility*
  - *Progressive*
  - *Sluggish*
  - *non-progressive*
  - *non-motile*

Male infertility…….

- *Post-coital test*
  - *»Motility; agglutination*
- *Sperm-mucous interaction tests*
  - *»Direct (spouses) or crossed*
- *Hormonal profile*
- *Testicular biopsy*

Female infertility

- *Radiological – HSG; X-ray sella turcica*
- *Pelvic ultrasound scan*
  - *Uterine pathology (fibroids; adenomyosis)*
  - *ovarian pathology (PCOS)*
- *Hormonal profile*
  - *FSH; LH; PRL; testosterone; progesterone; estradiol*

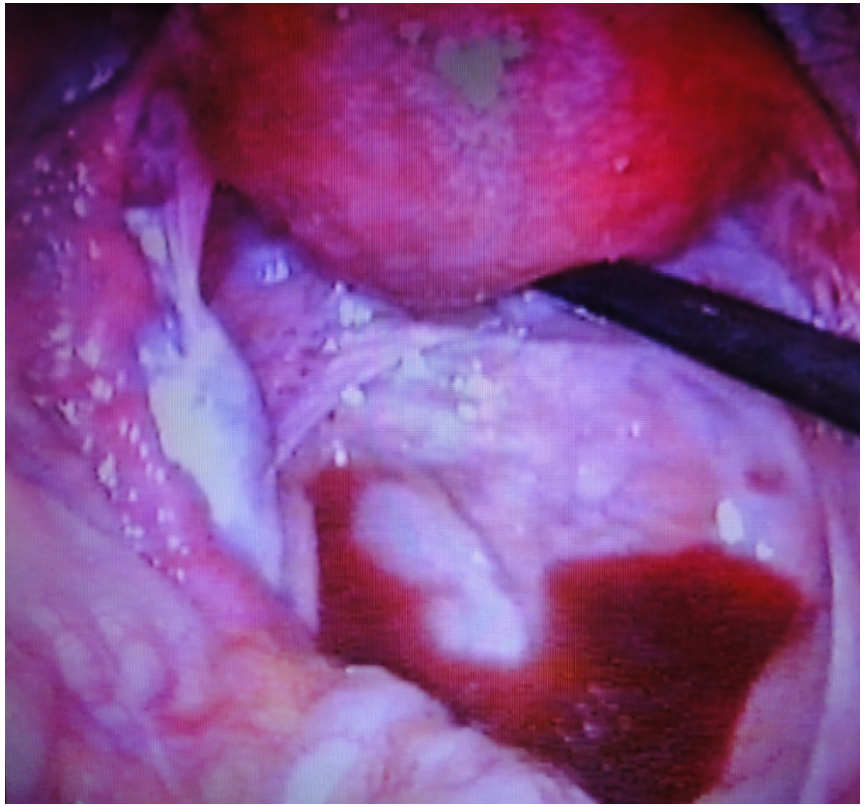
Female infertility

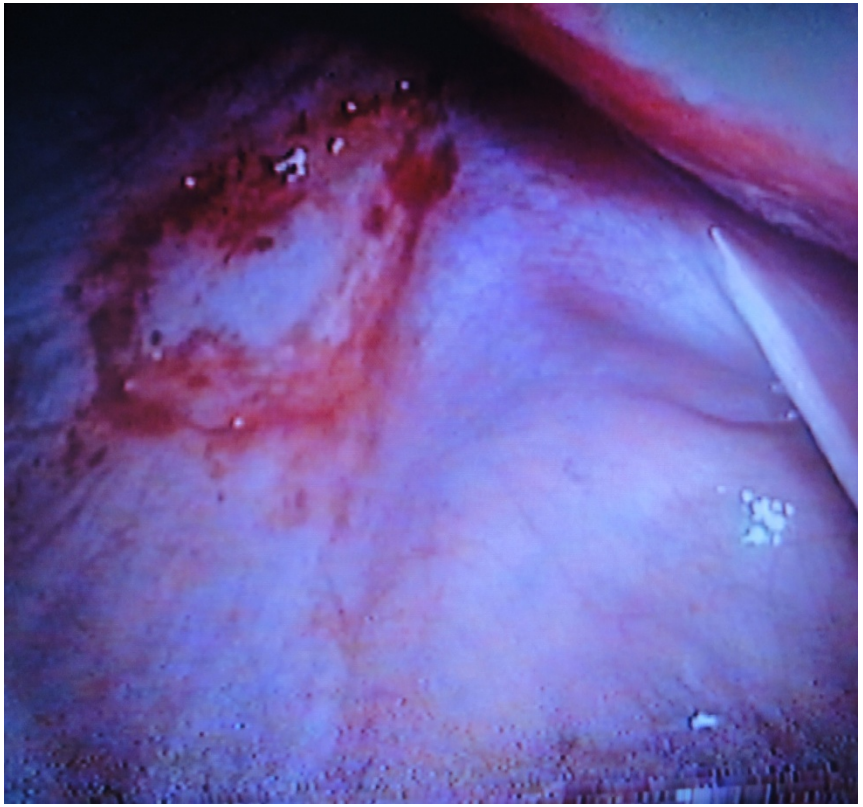
- *Sperm-mucus interaction tests*
- *Visual fields*
- *CT-scan/MRI*
- *PCT*
- *Karyotype*

Diagnostic endoscopy in gynecology

- *Laparoscopy*
    - *Chronic pelvic pain*
    - *Endometriosis*
    - *Infertility*
    - *Ectopic pregnancy*
    - *Pelvic inflammatory disease*
- *hysteroscopy*
    - *Endometrial pathology*
        - *Submucous myomas; Uterine synachie; Endometrial polyps; abnormal uterine bleeding*
- *Culdoscopy*

Diagnostic laparoscopy- endometriosis, CPP





Carcinoma of the cervix

- *Papanicolou (pap) smear*
- *Colposcopy*
- *Cone biopsy*
- *Loop electro-excision procedure (LEEP)*
- *Loop excision of transformation zone (LETZ)*
- *EUA, biopsy and staging*

Abnormal uterine bleeding

- *D&C*
- *Fractional curettage*
- *Hysteroscopy*
- *Hormonal profile*
- *Pelvic ultrasound*

Gestational trophoblastic disease

- *Hydatidiform mole*
  - *PDT/B-hCG*
  - *US scan – 'snow storm appearance'*
- *Choriocarcinoma*
  - *B-hCG*
  - *Metastatic disease*
    - » *CXR (cannon balls):CT-scan/MRI (liver.renal,brain)*
    - » *Lumbar puncture; LFTs; RFTs*

Ectopic pregnancy

- *PDT/b-hCG*
- *Pelvic U/S scan*
- *Laparoscopy*
- *Paracentesis*
- *Culdocentesis*

Sexually transmitted infections (STIs)

- *Vaginal swab – M/C/S*
  - *HVS*
  - *Cervical swab*
- *VDRL*
- *HIV ELISA*

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