



PYREXIA OF UNKNOWN ORIGIN

DEPT. MICROBIOLOGY



PUO

- *Pyrexia of unknown is defined as any febrile illness (temp. > 38°C) lasting 3 weeks or longer, without any obvious cause & failure to reach a diagnosis despite one week of inpatient investigation.*
- *The most cases of PUO are often a relatively common disorder with an atypical presentation*



CAUSES OF PUO

➤ *Infections*

Constitutes about 35% of cases

1. Bacterial infections

- *Enteric fever*
- *Urinary tract infections*
- *Lung abscess & other deep abscesses*
- *Septicemia associated with pneumonia, infective endocarditis ect.*
- *Tuberculosis*



- *Brucellosis*
- *Rheumatic fever*
- *Relapsing fever*
- *Leptospirosis*
- *Typhus fever*
- *Q fever*



➤ ***PARASITIC INFECTIONS***

- ***Malaria***
- ***Hepatic amoebiasis or liver abscess***
- ***Visceral leishmaniasis(kalazar)***
- ***Filariasis***
- ***Toxoplasmosis***
- ***Trypanosomiasis***



➤ ***VIRAL INFECTIONS***

- ***Infectious mononucleosis***
- ***Cytomegalovirus infections***
- ***Hepatitis A infections***
- ***Hepatitis B infections***
- ***Rubella & other infectious fevers without typical rash***
- ***HIV infection***



➤ ***FUNGAL INFECTIONS***

- *Histoplasmosis*
- *Coccidioidomycosis*

➤ ***Neoplasms***

- *Hodgkin's lymphoma*
- *Non- Hodgkin's lymphoma*
- *Leukemia*
- *Hypernephroma*
- *Hematoma*
- *Disseminated malignancy*



➤ *Connective Tissue Disorders*

- *Systemic lupus erythematosus*
- *Polyarteritis nodosa*

➤ *Granulomatous diseases*

- *Sarcoidosis*
- *Crohn's disease*

➤ *Drug Reactions*

- *Drug induced fevers*



LABORATORY DIAGNOSIS OF PUO

- ***History : Ask about clinical sign/symptoms that may clue.***
- ***BACTERIAL INFECTIONS***
 - ❖ ***Specimens***
 - ***Blood : for blood culture, peripheral blood smear, hematology, serology & other tests***
 - ***Urine : for UTI***
 - ***Sputum : in cases of lung infections***
 - ***Pus : in localised abscesses***



➤ **COLLECTION**

- *Specimens collected before start of antimicrobial therapy.*
- *Collected in sterile containers under aseptic conditions*
- *For blood culture :blood collected in blood culture bottle*
- *For serology : blood collected in plain bulb*
- *For urine : midstream urine collected in sterile universal container*



➤ **CULTURE**

- ❑ *Performed for isolating the causative organism*
- ❑ *Blood culture bottle containing various liquid media & resin like material*
- ❑ *Brain heart infusion broth*
- ❑ *Hartley's broth*
- ❑ *Glucose phosphate broth*
- ❑ *Brucella broth*
- ❑ *Thioglycollate broth for anaerobic organism*
- ❑ *EMJH media for leptospirosis*
- ❑ *Bile broth for enteric fever*



❖ *Blood Culture*

- *Blood culture bottle : 5-10 ml of blood collected in 50ml glucose broth for adults & 2.5ml of blood collected in 25 ml glucose broth for children*
- *These broth incubated at 37°C for 24hrs & look for any changes like gas formation, hemolysis, turbidity, frothing ect. S/b done on blood agar & mac Conkey agar plates & then incubated at 37°C for 24hrs*
- *In brucellosis & leptospirosis minimum 7 days incubation required*

✓ *BIPHASIC BLOOD CULTURE BOTTLE*

- *To avoid s/c on solid medium every few days so, reducing the risk of contamination*
- *To prevent hazards to laboratory personnels.*



❖ *Rapid techniques*

- *BACTEC method*

*detects the gaseous changes
produced by growth of organisms*

- *Bac T Alert*

- *Septi chek*

- *Vital chek*

❖ *LEPTOSPIROSIS*

- *BLOOD CULTURE : EMJH medium*

- *Urine culture : 2nd -3rd wks of infections*

- *Serology screening : rapid method for Ab detection,
ELISA*



❖ **PARASITIC INFECTIONS**

- *Malaria* → *thin & thick peripheral blood smear*
- *Filariasis* → *wet blood film PREPARATION*
- *Toxoplasmosis*
- *Leishmaniasis*

❖ **VIRAL INFECTIONS**

- *Infectious mononucleosis* → *peripheral blood smear*
- *Ebstein barr virus Infection* → *Paul bunnel test*
- *Tissue culture*
- *serology*



❖ ***FUNGAL INFECTIONS***

○ ***Specimen Seen on KOH preparation cultured on SDA medium***

❖ ***Other test for diagnosis***

1. ***Skin test : histoplasmosis
sarcoidosis***

2. ***Hematology : TLC
DWC***

non specific test

3. ***Immunological tests : LE cell phenomenon
ANA test in SLE***

4. ***Biopsy : lymphnode or other tissues***

