



اخواني واخواتي طلاب وطالبات أروع دفعة..

426

م بين أيديكم هو عبارة عن الآتي :

- ١- جميع النقاط التي ذكرها البروف الحديثي ، ولم تذكر في الكتاب .. طبعا أغلب اسئلة البروف تكون من الشرح (أي من النقاط التي ذكرها ولم تكتب أو ركز عليها وهي موجودة في الكتاب).
- ٢- ليس كل م كتب هنا غير موجود في الكتاب ، هناك نقاط كتبت هنا وفي الكتاب ولكن وضعتها هنا لأهميتها ، أو لتكرار البروف لهذه النقاط عدة مرات .
- ٣- توضيح لبعض النقاط التي قد تكون غير مفهومة ، أو غامضة قليلاً.
- ٤- بعض الرسوم التوضيحية .
- ٥- ذكر لبعض الصفحات أو الأشياء الغير المطلوبة ، سواء كان البروف بنفسه هو من ذكرها أو أنه لم يتطرق لها أثناء الشرح..
- ٦- م كتب باللون (الأحمر) فـ هو عبارة عن عنوان رئيسي ..
- ٧- م كتب باللون (البرتقالي) فـ هو عبارة عن عنوان فرعي ..
- ٨- م كتب باللون (الأزرق) فـ هو عبارة عن جزء رئيسي في الحاضرة ، أو جملة توضيحية.
- ٩- م كتب باللون (الأخضر) فـ هو رقم الحاضرة.
- ١٠- م كتب باللون (البنّي) فـ هو عبارة عن الأشياء التي ليست مطلوبة.

هذه الملزمة أبدأ ل تغني عن الكتاب .لأني كما ذكرت عبارة عن النقاط التي
ذكرت ولم تكتب

هذه الملزمة هي عبارة عن جهد شخصي ، لن يخلو من الخطاء ، إن أصبت فمن الله
وإن أخطأت فمن نفسي والشيطان .

عند وجود أي خطأ أو ملاحظة رجاء لا تترددوا في مراسلتي على البريد

Sun052058@hotmail.com

أو عن طريق www.ksums.com لليوزر هم بروهي سي ..
أخوكم خالد الشهراني.

لا تنسونا من الدعاء

Micro team 426

قروب الخوالة

**IN THE BOOK THE 7&8 PAGES WAS NOT
REQUIRED..**

2ND LECTURE

SUPERFICIAL MYCOSES

**-it's painless cuz it attack the dead cells of
superficial skin(epidermis).**

1-(TINEA VERSICOLOR):

- chronic superficial fungal infection.**
- worldwide (seen any where).**
- the lesions are located in chest ,back ,shoulder
abdomen & in the face.**
- its harmless fungi.**
- its part of the normal flora of the body.**
- the (MALASSEZIA FURFUR) is only the fungus which
is lipophilic (required fat to grow).**
- without fat in the culture of the malassezia furfur the
culture usually -ve.**
- its endogenous & not contagious.**

-in the KOH fluid the human cell is digested by this fluid but don't affect fungal cell.

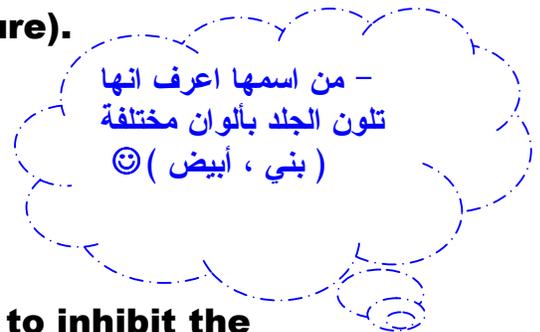
-if you want faster diagnosis you can put it in the warm slide.

- the routine in the diagnosis is to do microscopic diagnosis (more diagnostic than culture).

- the mycobiologic is selective media :

Without oil -----> -ve grow

With oil -----> +ve grow



(the chloramphenicol in this media is to inhibit the bacteria associated , but the cycloheximide is to inhibit the other fungi).

2-(TINEA NIGRA):

-chronic superficial fungal infection.

-seen in the tropic & sub tropic regions.

- natural source ----> plant material in soil (not like the versicolour which located in the skin).

- mold (not yeast).

- slowly grow cells (takes from 10-14 days).

- imperfect molds .

- dark fungus.

C-(PIEDRA):

- cause nodules on hair shaft (can be felt & seen by eyes).

- N.B- the nodule of piedra always composed of fungal elements only and not removed from hair.**
- it divided into (black & white) , which differ in 1-features 2-nodules 3-etiology .
 - when you put KOH you will see the nodule.
 - the white piedra are most common in the ksa.
 - the white piedra (*trichosporon beigelii*) is imperfect yeast unlike the black piedra which is perfect (*piedraia hortae*).

- لتسهيل الحفظ:
 - تذكر إن الإفريقي (black piedra) ، دائما صلب وشديد (firm & hard)
 - بينما السعودي- بما انه اكثر في السعودية- (white piedra) ناعم ومائع (soft & cream less firm) ويااااي *(trichosporon beigelii)*

- the white piedra not grow in antibiotic media.
- the white piedra grow very fast.
- **DON'T GET** the arthrospores which in (white piedra).

-(TTTT OF THE SUPERFICIALS):

- بما أنها غير مؤلمة ، غير مؤذية ، غير معدية ... فالعلاج هو أدوية موضعية

- **NIZORAL** shampoo -----> to avoid shaving of hair (not used more than twice a week or you will get bad consequences).
- sulfur ointments used for (versicolour & nigra).
- **KETOCONAZOLE** -----> tablets may be given for systemic tttt (unuseful) .

DERMATOPHYTOSES

- it's primary chronic contagious cutaneous fungus inf.
- this inf. w'll be associated with attestation ,itching & redness of the skin.
- the major group to cause skin fungal inf. is the dermatophytoses.
- the margin of the lesion usually is red in color or may be grey in lesser extent cases ,but the center of the lesion is white in color.
- the fungus are active in the margin than the center ,so we take specimen usually from the margin.
- the lesion when present in the scalp ,so affect the skin ,hair follicles & the hair shaft itself ,unlike the piedra which affect only hair shaft.
- lesion here may be **ENDOTHRIX** or **ECTOTHRIX**.
- endothrix= inside the hair shaft.
- ectothrix= outside the hair shaft.
- **T.CORPORIS**= fungal inf. of smooth skin(skin without hair).
- the **T.CRURIS** is usually caused as epidemic in the campuses(cuz they use the same bathroom).
- the patient may have combination of infections,

- the **KERION** (pus production) lesion is pustular inflammation of the hair follicles ,it's more sever than tinea capitis.
- favus is more sever than tinea capitis also.
- in the kerion lesion the hair doesn't fall down (cuz the swelling contain pus).
- the favus lesion is painful lesion with more advanced itching with no pus ,also associated with bad odor and is usually caused by **TRICHOPHYTON** fungus.

- (**EPIDEMIOLOGY**):

- **DON'T 4GET** that this inf. are **CONTAGEOUS**.
- the person who using the personal items of infected people w'll get the inf. (more seen in low hygiene).

- (**ETIOLOGY**):

- **DERMATOPHYTES** is the fungus that cause dermatophytoses.
- the **ALKALINE** character is feature for the identification.
- it w'll grow in mycobiologic media (cuz it Resistant to the cycloheximide).
- the natural habitat of this fungus are:
 - 1- anthropophilic= found in human (more chronic inf. & more time for tttt).
 - 2- zoophilic= found in animal (less chronic ,more inflamed &less time for tttt 8-10 weeks).

3- geophilic= in soils (less chronic ,more inflamed &less time for tttt 4-6 weeks).

1-TRICHOPHYTON:

- the TRICHOPHYTON inf. is to all keratinized tissues(nails,skin,hair – 3 things then TRI).

- there are about 20spp ,but 4 spp of TRYCHOPHYTON written in the book are seen common in KSA.

1- T.mentagrophytes is zoophilic.

2- T.violaceum is anthropophilic.

3- T.verrucosum is zoophilic.

4- T.rubrum is anthropophilic.

2- MICROSPORUM:

- the MICROSPORUM inf. can cause only skin & hair inf. ,but not nail.

- there are about 17 spp ,but we have 3 commonest types:

1- M.canis is zoophilic.

2- M.audouinii is anthropophilic.

3- M.gypseum is geophilic.

3-EPIDERMOPHYTON FLOCCOSUM:

- the **EPIDERMOPHYTON FLOCCOSUM** is **anthropophilic** inf. ,that can cause only skin & nail inf. ,**but not hair.**
- more often it cause **tinea cruris.**
- it very painful.
- in the KSA the most common inf. is caused by **M.canis.**

- **DON'T 4GET** that in the DTM test ,the (+VE) test w'll change the color to the **red color** (cuz it change the medium from acidic ---> alkaline PH).
- so , the (+VE) test is due to what?
(is due to the change of the medium PH from acidic to alkaline).
- the DTM test is only used if the fungus don't show macrocondium (should not be used in the clinical cuz it contains antibacterial & antifungal drugs ,so it give -ve).

- (LAB DIAGNOSIS):

- 10-20% w'll show hyaline septate hyphae(colorless).
- they take about 1 week to grow.
- be attention that it's not important the 2 tests most be (+VE) ,but if one of them are (+ve) so the patient have the inf.

- (TTTT):

- the drug of choice here is **Griseofulvin.**
- if the lesions are 1 or 2 scattered in the skin , we use the topical tttt (4-6 weeks).

- if the inf. are multiple lesions we use the systemic tttt ,as well as the topical.
- the common tttt is :
Griseofulvin + Azoles ---> the prognosis is good (the inf. w'll go away).
- the diabetic foot inf. is caused more often by (non-dermatophyte) fungi.

**THE -PERFECT STAGE- IN THE PAGE 20
& THE -IDENTIFICATION TESTS- IN PAGE
22,ARE NOT INCLUDED IN THE LECTURE
BUT THE INFORMATIONS IN PAFE 21 IS
VERY IMP.**

3RD LECTURE

MYCETOMA

- usually it spread locally ,but it doesn't disseminate to internal visceral organs.

- grains = aggregating fungi within tissues & don't get it can be visible by the naked eyes.
- most commonly affected site is the foot.
- the patient must have trauma or injury to get the inf. without it he can't develop this inf.
- MADURA FOOT name reverse to the 1st case was discovered in the India.
- this inf. is not contagious.
- we found it in KSA .
- this inf. is slightly less in child cuz it's chronic inf. & should take years to develop.

- (ETIOLOGY):

1-EUMYCETOMA:

- the difference between EUMYCOTIC MYCETOMA & ACTINOMYCETOMA is agents & color of the grains.
- in the EUMYCETOMA the colonies usually BLACK or WHITE ,while in the actinomycetoma you will see different colors.
- the main difference between MADURELLA mycetomatis & MADURELLA grisea is the colonies color was black & grey respectively.
- the MADURELLA mycetoma cause about 95% from the eumycetoma inf. ,but the other species can very secondary to it.
- the PSEUDALLESCHERIA boydii is perfect fungus and can producing sexually (ascomycete) & asexually or imperfect (scedosporium apiospermum).

2- ACTINOMYCETOMA:

- thus that cause mycetoma here are aerobic actinomycetes.
- about 90% of the inf. here is caused by **STREPTOMYCES somaliensis**.
- the **NOCARDIOSIS** inf. affect the visceral organs.
- **ACTINOMYCES israelii** is anaerobic inf.
- **DON'T GET** that the actinomyces israelii cause actinomycosis & dental caries.

- **DON'T GET** that the :
actinomycetes ----> filamentous higher bacteria.
Eumycetoma -----> mold fungi.

- **(LAB DIAGNOSIS):**

- the specimen obtained are grains.
- if the color of the grains are (red, black or yellow) usually you can see them by naked eyes.
- if the grains color are (white or brown) sometimes you can't see it by the naked eyes (cuz they are admixed with the blood).
- usually the skin pinch specimen is (-ve) result in the lab investigation ,so you should go deep.
- the 1st diagnostic procedure in the mycetoma is **DIRECT MYCROSCOPY**.
- determining of the color help to identify the causative organism & also in the initiate the tttt .
- serology of mycetoma is very good in diagnosis & in the monitoring or follow up the tttt of the patient.
- the problem with mycetoma serology is that the AG is not available commercially.

- (MANAGEMENT):

- if the tttt started before the inf. reach the bone usually the response w'll be alright ,but it takes long time (maybe **2 years**).
- if the inf. not in the extremity not in the feet or hand ,but in the head , shoulder or in the thigh ,in this cases just u debride the tissue along with medical drugs tttt.

RHINOSPORIDIOSIS

- common in southern India & in the stagnant water.
- if the inf. was in the nose it cause **POLYPS**.
- if the inf. was in the conjunctiva it cause **WART-LIKE LESIONS**.

- (ETIOLOGY):

- the culture of the specimen w'll always be (-ve) ,cuz it can't grow in the artificial media.

- (LAB DIAGNOSIS):

- the specimen routinely culture.

- **DON'T 4GET** the characteristics of this fungus under the microscope (spherules with endospores).

- (MANAGEMENT):

- the relapse is common due to the incomplete excision.

LOPOMYCOSIS

- we don't see much of this inf. in KSA.
- this inf. more common in south American countries & in tropical regions.
- the culture of the specimen w'll always be (-ve) ,cuz it can't grow in the artificial media.

PHAEOHYPHOMYCOSIS

- it's chronic inf.
- the lesions is primarily abscess.
- we have 2 types:
1-s.c type 2-cerebral type.

- (ETIOLOGY):

- there are about 45 type of the phaeohyphomycosis.
- it's very slow growing organism.
- they start as yeast and soon it become mold.
- examples of fungi that cause s.c abscess:
 - 1- C.cladospoides. 2- E.jeanselmei 3-W.dermatitidis.
- examples of fungi that cause brain abscess:
 - 1- Ramichloridium mackinziei 2- Cladophialophora bantiana. 3- Bipolaris.
- some of this fungi are **NEUROTROPIC**.
- neurotropic=loving the brain (go from the blood directly to the brain and form abscess).
- the common **NEUROTROPIC** fungi are (Ramichloridium mackinziei & Cladophialophora bantiana).
- it's very slow growing (take about 3 weeks).
- the Ramichloridium mackinziei fungus is endemic in KSA.

(الي اكتشفه هو بروف الحديثي يعني توقعوا عليه سؤال 🇸🇦)

CHROMOBLASTOMYCOSIS

- this inf. is chronic cutaneous & s.c inf.
- the primary lesion are ulceration just like phaeohyphomycosis.

- (MANAGEMENT OF THE PREVIOUS 2 INF.):

- **DON'T 4GET** that the this 2 inf. are similar in that they caused by dematiaceous fungi ,but differentiate

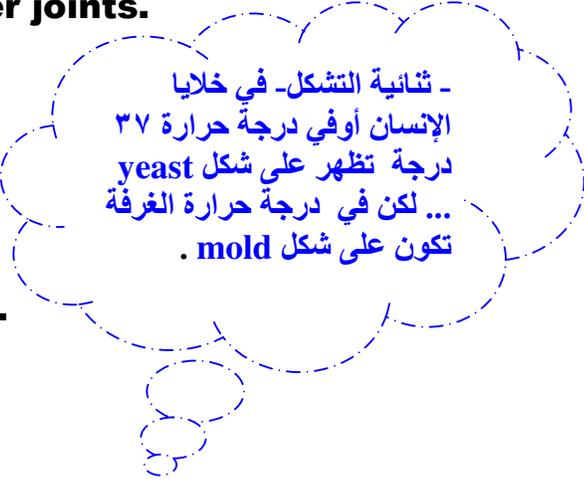
In the **DIRECT MICROSCOPY** (phaeohyphomycosis w'll producing brown septate hyphae ,while the **CHROMOBLASTOMYCOSIS** producing brown muriform cells).

SPOROTRICHOSIS

- usually this inf. affecting the finger joints.

- **(ETIOLOGY):**

- **DON'T 4GET** it's dimorphic fungus.



- ثنائية التشكل- في خلايا
الإنسان أوفي درجة حرارة ٣٧
درجة تظهر على شكل yeast
... لكن في درجة حرارة الغرفة
تكون على شكل mold .

- **(LAB DIAGNOSIS):**

- the smear usually is silver stain.

- under the microscope you w'll find elongated yeast cells.

- sometimes structure like stars we called them asteroid bodies was seen by the direct microscopy.

4TH LECTURE

ZYGOMYCOSIS

N.B any antifungal that act on the cell wall ,that w'll not act in the zygomycetes.

1- SUBCUTANEOUS ZYGOMYCOSIS:

- this inf. usually doesn't disseminate to visceral organs.
- no sinuses here ,not like the cases of mycetoma ,so the skin w'll be intact.
- commonly affected part of the body is the **RHINOFACIAL** area ,this lead to swelling of one side of the face(such maxillary sinus inf.) and covering the eye ,so the patient w'll not be able to see.
- this inf. acquired through nasal inhalation , debris in the soil or insect bite(specially Beetles) cuz this fungi can cause disease to beetles also.

- (ETIOLOGY):

- It's perfect fungi producing zygospores sexually & asexually forming sporangia.

- (LAB DIAGNOSIS):

- we could examine the specimen in the KOH also and we can see the hyphae of the fungi.
- they grow fast within 2-3 days.

- (TTTT):

- the potassium iodine is very old drug ,but still effective in some cases.

2- RHINOCEREBRAL **ZYGOMYCOSIS:**

- it's the bad type ,cuz it frequently seen and frequently diagnosed.
- it's not subcutaneous only ,it involve the lung or the brain also.
- they can't cause disease to the normal persons.
- it's acute unlike the s.c zygomycosis.
- inf. is acquired by nasal inhaling of the organism.
- from the nose it goes ----> maxillary sinus ---> ethmoid sinus ----> sphenoid ----> eye ,then it goes to the cranium and affect the brain and invade the blood vessels to cause bleeding and DEATH ☹ .
- it's very fast progressive disease.

- (ETIOLOGY):

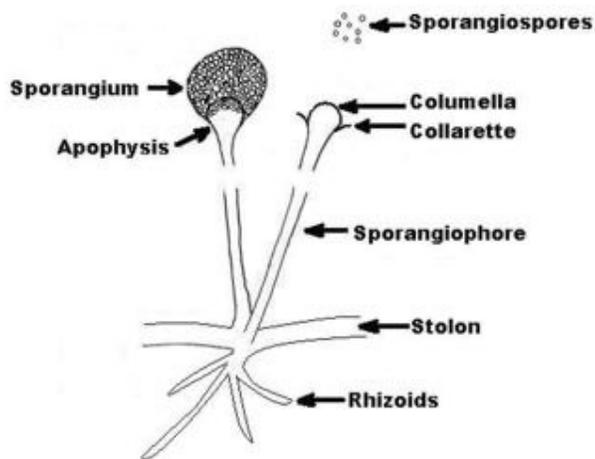
- this inf. usually doesn't responding to the tttt.

- this inf. doesn't cause disease to normal patients only to the I'C patients.

- in page 47:

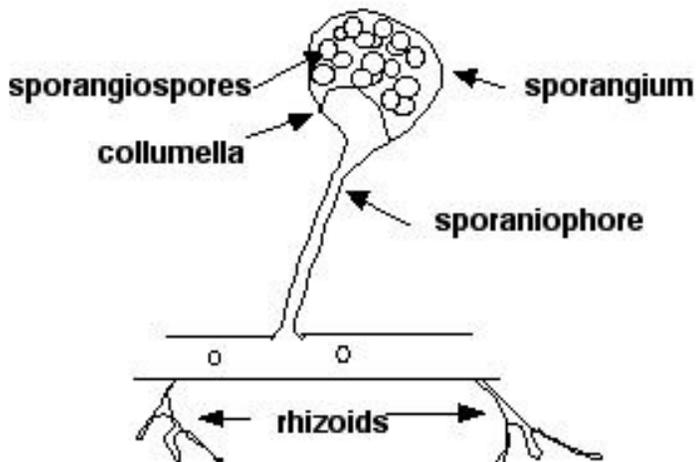
we differentiate this genera by the morphology :

1- in case of *rhizopus* the sporangium is formed against the rhizoid.

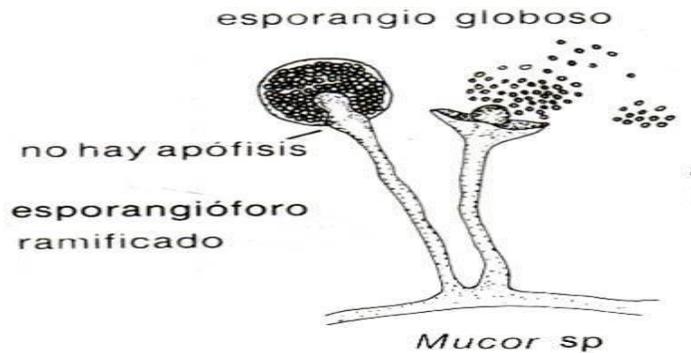


2- if the sporangiospore is located between 2 rhizoid (internodal) it's called *absidia*.

Absidia species



3- if the sporangiospore is formed without rhizoid and then it branching ,this called *mucor*.



4- if the sporangiospore is branched and formed against the rhizoid ,it's called *rhizomucor*.



- (LAB DIAGNOSIS):

- it's fast growing fungi.
- if the diagnosis is delayed ,the disease w'll progressive & the life of the patient w'll loss.
- here the prognosis is bad.

- (TTTT):

- surgical debridement + amphotericin B (broad spectrum antifungal).
- the amphotericin B has side effects like (renal function Sabotage).
- the alternative drugs are (liposomal amphotericin B, voriconazole or caspofungin).

3- GASTROINTESTINAL ZYGOMYCOSIS:

- usually it affects children.
- all patients I have seen in the KKUH is between (6-12) years, I haven't seen it in adults (prof. said that not me 🤖).

- (TTTT):

- the TTTT is medical only, no need for surgical removal of affected site in the liver or bowel.
- the prognosis here is good.

4-PULMONARY ZYGOMYCOSIS:

- is opportunistic disease.

5TH LECTURE

ASPERGILLOSIS

- its opportunistic mycosis , but not always.
- it cause infection in **COMPROMISED** patients.
- the leader opportunistic fungal infection is candidiasis.
- within this category there are a lot of fungal infections , remember the **ZYGOMYCOSIS** is the only subcutaneous type that is non-opportunistic.

1- (ALLERGIC ASP.):

- the **ABPA** is more sever than asthma (because the fungal divided and cause block to the airway) 😊.

2- (COLONIZING ASP.):

- colonizing asp. ----> the spore enter airway & germinate inside the airway to produce hypha balls – or another name aspergillum- (fungi occupy

preexisting cavities like sinuses & don't spread in the tissues).

- the common type of the colonizing asp. Is pulmonary type.

- the CXR (chest x-ray) in the pulmonary colonizing asp. Will show small mass in the lung (the upper portion will be in radiolucent crescent).

3- (INVASIVE ASP.):

- the invasive asp. Is invade the visceral tissue & the major type is pulmonary asp. .

- one that effect skin or subcutaneous is less sever than pulmonary type.

- don't 4get that the LEUKOCYTOSIS is characteristic of invasive asp. .

- often the invasive asp. Attack entire tissue of the lung but sometimes it only localized to parenchyma (because of this if the specimen obtained from sputum-not invasive specimen-it will be -ve).

4- (ASP. SINUSITIS):

- the asp. Sinusitis is very common.

- its affect the young adult.

- its 1ry infection (person doesn't have to be compromised to get the inf.) because of this we see It in normal people.

- clinical presentation usually is sinusitis or orbital cellulites (Sinus---> eye ----> brain) .

- usually the fungus will colonies the maxillary sinus and cause sinusitis.

- the examination done by direct

Microscope.

- it may go to the ethmoid or sphenoid sinuses and infect the eye and go to the brain , in this case it called:
RHINOCEREBRAL ASPERGILLOSIS (fatal - bad consequences -).

- the incidence of the asp. Sinusitis is high (3-4 pt. per week !).
- its chronic , serious & cause rubber like mass.
- asp. Flavus is common in KSA.

5- (EAR ASP.):

- very very painful.

N.B SOME SPECIES OF ASPERGILLUS THEY GROW IN GRAINS AND PRODUCE TOXINS (AFLATOXIN) , IF PEOPLE EAT THIS TOXIN IT WILL CAUSE TOXICOSIS.

6- (DISSEMINATED ASP.):

- affect more than one organ in the body.

N.B THE MOST COMMON TYPES OF ASP. ARE (PULMONARY ASP. & ASP. SINUSITIS).

N.B THE ASP. IS FOUND ANYWHERE IN NATURE (e.g. IF YOU HAVE MEDIUM PLATE & BUT IT IN THE ROOM



AND OPEN IT FOR 10 MINUTES YOU WILL FIND ASP. AFTER INCUBATION !!).

- (ETIOLOGY) :

**N.B THE MOST COMMON TYPES OF ASP. ARE
(PULMONARY ASP. & ASP. SINUSITIS).**

N.B THE ASP. IS FOUND ANYWHERE IN NATURE (e.g. IF YOU HAVE MEDIUM PLATE & BUT IT IN THE ROOM AND OPEN IT FOR 10 MINUTES YOU WILL FIND ASP. AFTER INCUBATION !!).

- its UBIQUITOUS = widely distributed & you found it every where almost in nature.

- it has hyaline septate which is colorless .

- the different species of asp. Is vary with regard to the morphology of the conidioform and the conidia they carry .

Asp. Fumigatus ---> blue colour.

Asp. Flavus -----> yellow colour.

Asp. Niger -----> black colour.

Asp. Terreus -----> soily brown colour.

N.B THERE ARE MORE THAN 150 SPECIES OF ASP.

- (LAB DIAGNOSIS) :

- the type of specimen is depend on the type of infection produced .

Sinusitis , pulmonary type ----> sputum or bronchoscopic specimen.

Skin infection -----> skin scraping.
Eye infection -----> corneal scraping.
Ear infection -----> ear swap.

Any removed mass from the lung by surgery can serve as specimen (aspergilloma).

- the commonly used stains to staining the patient specimens are (giemsa , GMS , P.A.S)

- dichotomous branching= V shaped branching.

- asp. Growinb fast (3- 1 week).

- ELISA is more sensitive than CIE & ID tests.

- LATEX AGGLUTINATION is not specific , but recently some kinds from this test are specific and you could use it.

- in the ID test:

In the case of aspergilloma -----> u w'll find multiband identity lines b/w the serum & the ag.

Invasive pulmonary asp. -----> u w'll find one identity line only (cuz the amount of ab w'll be low & the amount of ag w'll be high).

- (MANAGEMENT) :

- the best way to tttt is surgical removal of infected tissue + antifungal drugs.

- medical (drugs) only if the patient can't tolerant the surgery.

- the AMPHO B drug have side effects , cuz it may affect the kidney function also some people develop some toxic and cause hypokalemia.

- the commercial name for LIOSOMAL AMPHO B is

- amBisome (very expensive drug may be 80.000 S.R for one patient , but still the best and commonly used).
- (ITRACONAZOLE , VORICONAZOLE ,CASPOFUNGIN) are broad spectrum antifungal drugs like amBisome.

PNEUMOCYSTOSIS

- it's ATYPICAL pneumonia.
- almost it's affect every AIDS patient.
- in the media always it's (-ve) , so it don't grow in artificial media.
- primarily the the DIRECT MICROSCOPY is the main diagnosis of it.
- N.B the fungus remain dormant in the lung & don't cause disease until the immunity go down .**

- (LAB DIAGNOSIS):

- the specimen obtained usually w'll be respiratory specimen.
- the major one of thus is BRONCHOSCOPIC specimen(it's better thab voluntary sputum and esp. B.A.L cuz we have pneumonia 😊).
- B.A.L = bronchoalveolar lavage.
- B.A.L stain is silver stain not by giemsa (if stained by giemsa it will be -ve).
- by the tttt the prognosis w'll be good.
- don't 4get that often time in the hospitals the name used for this fungus is PCP.



- **PCP= pneumocystic carinii pneumonia.**

6TH LECTURE

CANDIDIASIS

- **this is the major opportunistic fungal infection.**
- **it's very common nosocomial infection.**
- **usually it's affect the I'C patient , but as we said in the asp. It may affect the normal patient.**
- **in the woman pregnancy may lead to vaginitis , or woman used contraceptive materials like B.C.P or IUCD .**
- **IUCD = plastic or metal coil , spiral , or other shape that is inserted into the cavity of the uterus to prevent conception.**
- **don't 4get that this fungus are normal flora in the body , so the patient acquired this infections endogenously .**

I-(MUCOCUTANEOUS & CUTANEOUS):

- the oral thrush usually don't occur in middle age or young but it occurs in neonates and young child from 2 years or less and in the elderly patient.
- the lesions of oral thrush esp. in the tongue.
- if the patient is normal and come with the oral thrush that means this is sth wrong , it may be AIDS
- can occur in the virgin girl ! (cuz it's endogenous inf. 😊).
- some doctors when found this signs thinking it's gonorrhoea (cuz the same symptoms).
- the vaginitis is very common in KSA.



2(BRONCHOPULMONARY CANDIDIASIS):

- difficult to diagnosis (cuz it's normal flora inside the body).
- the diagnosis is usually by elimination & also by serology.

3- (OTHER INF.):

- UTI is difficult to diagnose , so the clinical signs are important here.
- if the no. of the organisms are high and we have signs of the UTI , so we expect that the patient have UTI due the Candida.

- if the no. are not high so it's not **Candida** but probably the inf. Come from the bacteria.

If the colony no. is 100.000 colony forming unit per ml of mid stream urine-----> significant **Candida** inf.

If the no. is about 10.000---> may or may not mean inf.(with the signs of UTI it means it's **Candida** inf.)

If the no. is about 1000--> normal flora.

- in the septicemia culture you should do more than 1 culture.

- if the blood culture show one (+ve) and other (-ve) it mean it's transient yeast fungemia (**candidemia**).

ممکن تكون كاندیدا مسکینة عابرة سبیل

-(ETIOLOGY):

- any species of **Candida** in general w'll have budding yeast cells pseudohyphae and blastospores.

- the most common cause of candidiasis is albicans and the 2nd one is **c.glabrata**.

- the **GERM TUBE TEST** is the simple & fast test (put it in 37 temp. degree) & if it **Candida albicans** it w'll germinate.

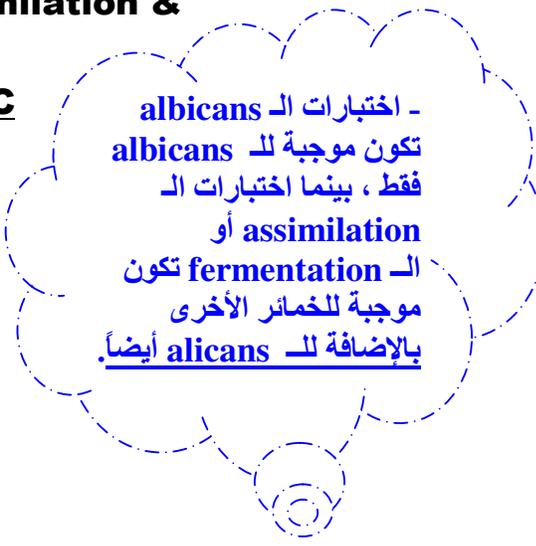
- in **CORN MEAL AGAR** , if it **candida albicans** it w'll produce chlamydospores.

N.B albicans w'll grow in mycobiotic media ,but other yeast w'll not.

- yeast other than albicans w'll show (-ve) tests for the tests of albicans ,so we use assimilation & fermentation.

- the most common kit used is API20C and it take about 2days.

N.B all the yeast in general are fast Growing organisms(they grow in 24-48 hours).



- اختبارات الـ albicans تكون موجبة للـ albicans فقط ، بينما اختبارات الـ assimilation أو الـ fermentation تكون موجبة للخمائر الأخرى بالإضافة للـ albicans أيضاً.

- (LAB DIAGNOSIS):

- in the case of vaginitis the specimen is HVS= high vaginal swab.

- the direct microscopy is not done in in specimen that normally have yeast like urine (urine always have yeast ,so in direct microscopy that doesn't mean anything) also swaps from the HVS (cuz the vagina always have yeast).

- in the culture the Candida w'll grow fast.

- first thing to identify in the patient specimen is GTT = germ tube test.

N.B always for any inf. ,the test for AG is better than test for AB.

- the AG we look for in the candida is MANNAN antigen (polysaccharide antigen in the cell wall of the fungus) ,cuz it better than others.

- (TTTT):

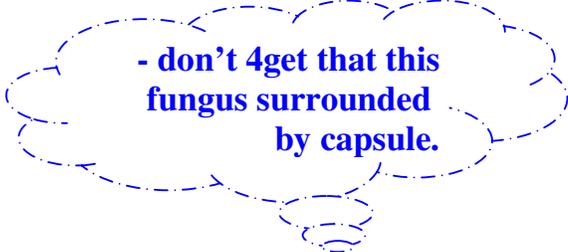
- nystatin have another name (MYCOSTATIN SLOUFIAN).

N.B all yeast inf. are generally treated with amphp B ,so it drug of choice in all yeasts.

☺ **Sth imp. :** the commercial names of drugs are so imp. ,don't listened to what the prof. said about it (it's not imp.) , cuz in the previous year the prof. said that and have Qs about it.

CRYPTOCOCCOSIS

- the usual clinical presentation of cryptococcosis is meningitis.
- it commonly seen in AIDS patient in other countries , but in the KSA we rarely see it in aids patient but we see pneumocystosis more and we see it in the cancer , SLE ..etc patients.



- don't 4get that this fungus surrounded by capsule.

- (ETIOLOGY):

- the c.neofomas are TRUE YEAST.
- true yeast = doesn't form pseudohyphae.
- this fungus produce phenol oxidase enzyme which is the identification test.

- (LAB DIAGNOSIS):

- we use direct microscopy by INDIAN INK (cuz this fungus are encapsulated).
- the Indian ink is very specific ,but the problem here is this ink is not sensitive enough(the no. of organisms must be high to see +ve test).
- in the serology ,the latex test is not specific.

TRICHOSPORONOSIS

- key character for this fungus is they produce arthrospores & blastospores.
- N.B** they w'll I not grow in mycobiologic media cuz it inhibited by cycloheximide.
- we can identify by carbohydrate assimilations test.

GEOTRICHOSIS

SIMILAR TO THE TRICHOSPORONOSIS EXCEPT IN THE ETIOLOGY & IT CAN'T PRPDUCE BLASTOSPORES☺.

7TH LECTURE

PRIMARY SYSTEMIC MYCOSES

- it's **non-opportunistic** fungal inf.
- the patient may have CNS signs.
- the common sign of this inf. is fever (fungal fever).
- the etiologic fungi are found in soils of **restricted habitats**.
- the general statements are applied to the 4 types (such: drug of choice , it start as resp. inf...etc)

1- BLASTOMYCOSIS:

- the pulmonary form is progressive (not self limiting).
- more common in America (esp. in the states around the Mississippi River which is endemic there).
- so ,it's worldwide disease but in **less frequency**.

(LAB DIAGNOSIS):

- the mold is difficult to identify (cuz there is no special conidia produced by the mold phase).
- so ,we identify it by conversion from the yeast to the mold (from one phase to another).

2- HISTOPLASMOSIS:

- it's self limiting disease when it is in the lung disease (not progressive like blastomycosis).
- this inf. is common also in America ,we have not diagnosed any case in KSA except one (he get this inf. by the gulf war 😊).

- (ETIOLOGY):

- there are 2 varieties of the spp , they differ in the **yeast phase**.
- the H.cap var. capsulatum ----> cause the classical histoplasmosis.
- the H.cap. var.duboisii -----> have narrow base budding & cause the African histoplasmosis.
- the mold face of both of them is same (differ in yeast face).
- we can identify the fungus on the basis of the **mold face**.
- this inf. is not zoophilic (cuz it come from the soil).

- (LAB DIAGNOSIS):

- this fungus is slow growing in the 1ry isolation from the patient (give it more time to grow).

3- COCCIDIOMYCOSIS:

- this inf. if not tttt ,it may go to another organs (esp. the CNS & skin).
- usually it's exist around sanoran valley in the America.
- It's very common in that valley and before 12 years the prof. & his family get this inf. when they go to this valley in America !! (🇺🇸).



- (ETIOLOGY):

- in nature & room temp. this fungus is growing as white mold & also producing arthrospores.
- in the human body it's not yeast (it's in the form of spherules).
- so ,the parasitic face is spherules with endospores.
- the natural habitat is in rodent-burrows or around the rodent-burrows.
(في جحور القوارض)
- it loves the hot and dry regions.
- the spherule phase w'll grow bigger in the lung tissue.
- if the specimen is from the lung & u found the spherules , so it mean this inf. is coccidioidomycosis (that how you differentiate it from the rhinosporidiosis – here you found spherules but from nasal specimen- 😊).

- (LAB DIAGNOSIS):

- in case of the coccidioidomycosis the serology is good unlike the other .

4PARACOCCIDIODIODIOD **OMYCOSIS:**

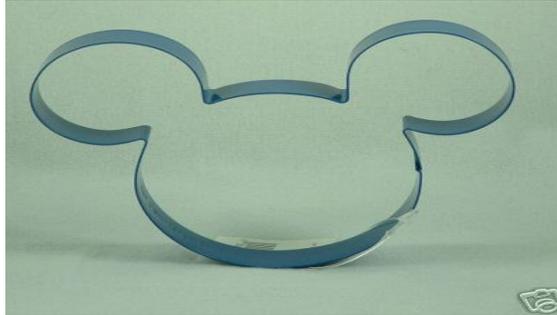
- you should differentiate between (blastomycosis) & (south American blastomycosis) ☺.
- the signs are just like fungi before except additional sign (ulcer in buccal mucosa).

- (ETIOLOGY):

- the mold phase having lateral unicellular conidia (which is not specific in the identification).
- the yeast phase has shape like mariner's wheele.
(مقود السفينة)



- the yeast phase with 2 buds seen like Mickey mouse head.



- (LAB DIAGNOSIS):

- there is across reactivity in the serology test.
- the sulfonamides is additional drug in this fungus not in previous fungi in the 1ry systemic mycoses.

THE LAST PAGE REQUIRED IN THIS SUBJECT IS 74 ,AFTER THAT IS FOR DENTAL STUDENT (NOT REQUIRED AT ALL).