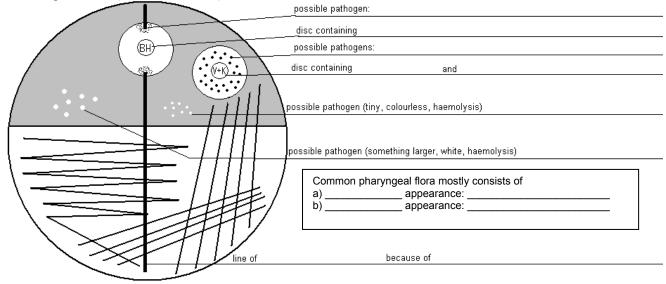
P 14 Clinical microbiology II

To study: Infections of various organs and organ systems (from textbooks, WWW etc.) From spring term: Microscopy, culture, biochemical identification

Task 1: Search for respiratory pathogens in practical microbiology

With help of your teacher and the slideshow, describe following picture. Use the knowledge from this picture in following two tasks (Task 2 and Task 3)



Task 2: Case A

For this casuistic, documented by a the order form, try to examine corresponding sample (sputum), to find a pathogen and to make a conclusion and interpretation. Step by step, fill in the individual fields in the "screen of laboratory information system"

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Pacient Linda Green		Odbornost	
Č. pojištěnce *1932	Accute bronchopneumonia, 38.5 °C, heavy diabetes	Var. symbol	
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Patient: Linda Green *1932 Dg.: Pneumonia									
Specimen: Sputum Ordered by: Dr. Microbe Terrible									
Bacterium A: description	Conclusion:		Interpretation		Microscopy result: Epithelial cells: WBCs:				
Bacterium B: description	Conclusion:		Interpretation		Bacteria (de	scribe):			
Bacterium C: description	rium C: description Cata- 1(lase N		Hy	aluronidase	Conclusion:	Interpretation			
Antibiotic susceptibility test (bacterium	Ċ)		•	Final conc for treatme	lusion and reco nt:	mmendment			

a) Microscopy of sputum

Look at the smear prepared of your specimen. Try to find individual objects (bacteria, host cells). Fill in the field "Microscopy":

+++ = more than 10 in the observation area

++ = less than 10 in the observation area

+ = only rare (one or less per an observation area)

0 = none

b) Description of bacteria

On blood agar, describe size, colour and haemolytical properties of given bacteria. Do not describe other characteristics. Take into account, that there was no growth visible on Endo agar. Bacteria A and B should be bacteria considered to be parts of normal flora. Bacterium C will be a pathogenic bacterium, that will be more tested in parts c) and d)

c) More tests

Fill in the results of catalase test, hyaluronidase test and growth on blood agar with 10 % NaCl for Bacterium C.

d) Antibiotic susceptibility

Fill in the antibiotic susceptibility test for Bacterium C. Write down allways name of antibiotic and "S" or "R" (susceptible or resistant). Reference zones are written on your table.

e) Final conclusion

Try to formulate several words for general practicioner. Especially try to find out (with help of your teacher) what antibiotics among susceptible ones would be the best antibiotic of choice.

Task 3: Case B

Also for this casuistic, documented by a the order form, try to examine corresponding sample (throat swab), to find a pathogen and to make a conclusion and interpretation. Step by step, fill in the individual fields in the "screen of laboratory information system". The way of doing it is like in previous task.

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Specimen:Thre	oat swa	ıb Or	dere	d b	y: Dr. ľ	Microbe	Terrib	le	
Bacterium A: description		Conclusion: Inte			erpretation				
Bacterium B: description		Conclu	ision:	Inte	rpretation				
Bacterium C: description		Cata- Iase	Bile- -aesc.	PYF	R CAMP	Conclusion:	Interpre	ation	
Antibiotic susceptibility test	(bacterium (C)			Final concl for treatmer	usion and rec nt:	commend	ment	
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Task 4: Case C

In case of a wound swab, there is no "common flora". That is the main difference between this task and previous task: it is not nesessary to search for a patogen among normal flora.

On the other hand, we use mostly more culture media to detect all possible pathogens, even if they would be mixed. Usually, we use blood agar with 10 % NaCl, but also blood agar with amikacin in order to search for streptococci and enterococci (but none of these media is used in our task). Fill in the formular aga

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Patient:Lucy Y	′ellow	_ *198	34 Dg.:v	vound of	planta	pedis
Specimen: woun	าd swab* Or	dered b	by: Dr. Mi	icrobe To	errible	<u>}</u>
*note: pyogene woun	ıd on planta	pedis, s	wimming	in a pond		
Growth on blood a. (incl. smell)) Endo agar:	MH agar:	Oxidase:	Conclus	ion: Int	terpretation
Antibiotic susceptibility test			Final conclusi	ion and recor	nmendme	ent
			for treatment:			

Task 5: Case D

In case of cystitis, there is one difference: the urine is examined (semi)quantitativelly.

	problem,										nly spe	cies).	
	Number o							Inte	erpret	ation			
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General Medicine Date ____. 12. 2009 Name_____

Patient: Carolina Red *1952 Dg.: accute cystitis									
Specimen:normal urine Ordered by: Dr. Microbe Terrible									
Growth on Blood agar:	Growth on Endo agar:		Conclusion:	Interpretation					
Quantity:	Enterotest 16 result:								
Antibiotic susceptibility test		Final conc for treatme	lusion and reco ent:	ommendment					

Check-up questions:

1. Why some samples (like sputum) are microscopied and some are not?

2. Why for each type of specimen another set of media is used?

3. Pathogens are usually susceptible to more than one antibiotic. Try to explain at least some factors for decision, what antibiotic should be used.

4. How would be the semiquantitative examination of urine be biased if the urine would not be properly taken and transported?