MICROBIOLOGY <mark>jCrO</mark> biology **TEAM 432** Lecture (5) CEREBRAL TB AND OTHER CHRONIC CEREBRAL INFECTIONS • Very important Color Additional information guide: Male doctor's notes • Female doctor's notes

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Lecture (5)

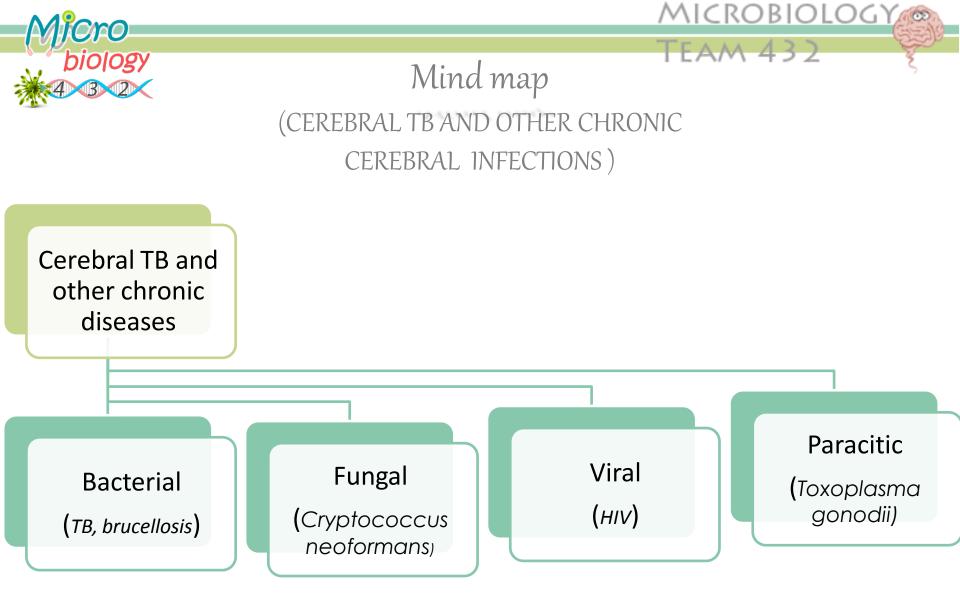
CEREBRAL TB AND OTHER CHRONIC CEREBRAL INFECTIONS

Objectives:

Not given !!!

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General signs and symptoms for chronic cerebral infections:

SYMPTOMS

- Chronic head ache
- Neck or back pain
- Change in personality
- Facial weakness
- Double vision ,visual loss
- Arm and leg weakness
- clumsiness

SIGNS

- ✤ +/-Papilloedema
- Brud Zinc or Kerning 'positive sign sof meningeal irritation

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- ✤ Altered mental status, <u>memory loss, etc</u>
- Seventh nerve palsy
- ✤ 3,4,6 th,Nerve palsy
- Ataxia
- Hydrocephalus

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Microbiological Causes Of Chronic Cerebral Infection And Meningitis:

	Bacterial, Most important	Fungal Causes		Parasitic		Viruses
Α.	Tuberculosis "most common in	a- Cryptococcus neoforman	•	Toxoplasma	Som	ne virus can some
В.	Brucellosis Saudi Arabia"	(with indian ink of CSF		gonodii(most	tim	e present as
C.	Partially treated acute meningitis	gives capsultesd ike rbc)		common)	chro	onic meningitis
D.	Syphilis-caused by Treponema Pallidium	In AIDS pt	In A	IDS pt	these include:	
Ε.	Liptospirosis- caused by L.Icter	b-Candida species in Saudi	***	Trypanosoiasis:	*	a- Mumps
	haemorraghia	Arabia mainly Candida		caused by	*	b-Herpes
F.	Lyme disease-caused by Borrelia	albicans in	-	T.gambiense		simplex
	burgdorferi[not common in Saudi	immunocompromised	*	Rare causes	*	c- HIV
	Arabia]	patients		Acanthamoeba		
G.	Nocardiosis-caused by Nocardia	c- Aspergillus species		sp(swimming		
	speciese.g N.Asteroids	d- Histoplasma capsulatum		pools)		
	"immunocompromised pt"					
Н.	Cerebral abscesses can also same					
	present as chronic infection					

The most important causes of chronic bacterial cerebral and meningeal infections in saudi Arabia are <u>: 1- Tuberculosis</u> <u>2- Brucellosis</u>





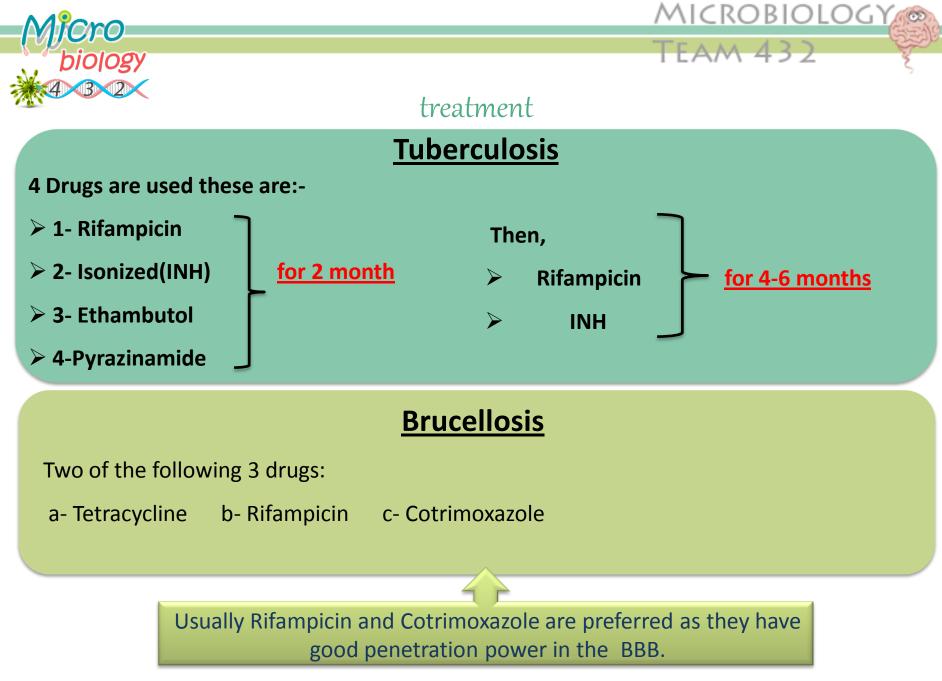
infection	ТВ	Brucellosis			
organism	Mycobacterium tuberculosis	Br.melitensis			
Transmitted by	Inhalation (air saw)	From animala (Zoonotic) consuming raw milk and milk products			
symptoms	Chronic headache, neck pain, Prolonged fever, chest pain, hemoptysis	Chronic headache, neck pain, Pyrexia(fever) < 3weeks, night sweating, malaise			
Imagining	x-ray tuberculoma formation	Don't need to			
Lab investigation	CSF (concentrated *10), AFB, PCR	CSF culture, serology,PCR			
In hospital	Isolate patients	Don't have to isolate patients			
treatment	1-Rifampicin 2- Isonized(INH 3- Ethambutol for 2months 4-Pyrazinamide Then, Rifampicin for 4-6months INH	a- tetracyclin b- Rifampicin c- Cotrimoxazole			



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1- History taking		
2- clinical examination	 For symptoms and signs 	
3- imaging	 X-ray(TB), MRI, ultrasound 	
4-lab investigations	 <u>2-3ml of CSF</u>: Bio chemical for : 1- Total protein(^)2- Glucose level in comparison to the serum glucose level (> 2/ 3) Microscopy: 1- Presence of organism 2- WBC(^)3- Differential count mainly for: a- Polymorphes(acute) b- Lymphocytes(chronic) Serology and VDRL for syphilis, Brucella India ink for Cryptococcus neoforman Culture for Brucella and T.B Wet preparation of CSF for fungal and parasites Z-N Stain can show AFB of T.B while modified Z-N can show Nocardia 	



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Summary (important)

infection	ТВ	Brucellosis			
organism	Mycobacterium tuberculosis	Br.melitensis			
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summary

- Pott's spine "type of CNS tuberculosis" can present with only one symptom which is back pain.
- India ink for Cryptococcus neoforman.
- Chronic infections have a slow insidious onset, and They are usually diagnosed , if the neurological syndrome exists for > 4 weeks.
- TB and brucellosis are always misdiagnosed, so we have to be careful with treatment to avoid side effects and liver toxicity.
- Rifampicin is used for both TB and brucellosis
- Tuberculosis and Brucellosis are very common in Saudi Arabia, and They should be differentiated on the basis of:
- a- Clinical History
- **b- Occupation**
- c- Clinical symptoms
- d- Clinical signs in other organs e.g; chest in TB
- e- Cerebrospinal fluid findings

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Questions

Q1: A drug that is used to treat both Tuberculosis and Brucellosis:

A. Isoniazid

B. Ethambutol

- C. Pyrazinamide
- D. D-Tetracyclin
- E. Rifampicin
- F. Cotrimoxazole

Q2: 65 years old Patient presents with fever, night sweats, weight loss over the last 4-5 months The doctor performed lumber puncture. Findings are: lymphocytosis and AFB smear is positive. Most likely organism is:

A. Mycobacterium tuberculosis

B. HIV

- C. Crypotococcus neoformans
- **D. Brucella Melitensis**

Q3: patient in previous case is treated with drugs for at least:

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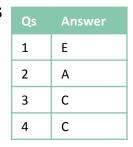
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- A. 3 months
- B. 6 months
- C. 9 months
- D. 12 months

Q4: HIV patient present with headache and neck rigidity. Capsulated organisms are seen in india ink. Most likely organism is:

A. Mycobacterium tuberculosis

- **B. HIV**
- C. Cryptococcus neoformans
- D. Brucella Melitensis







For any problems and suggestions please contact:

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Thank you