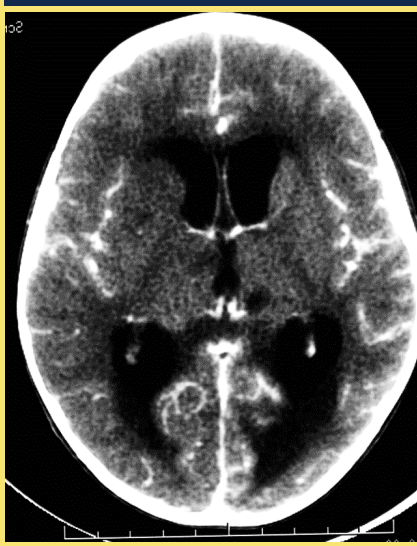
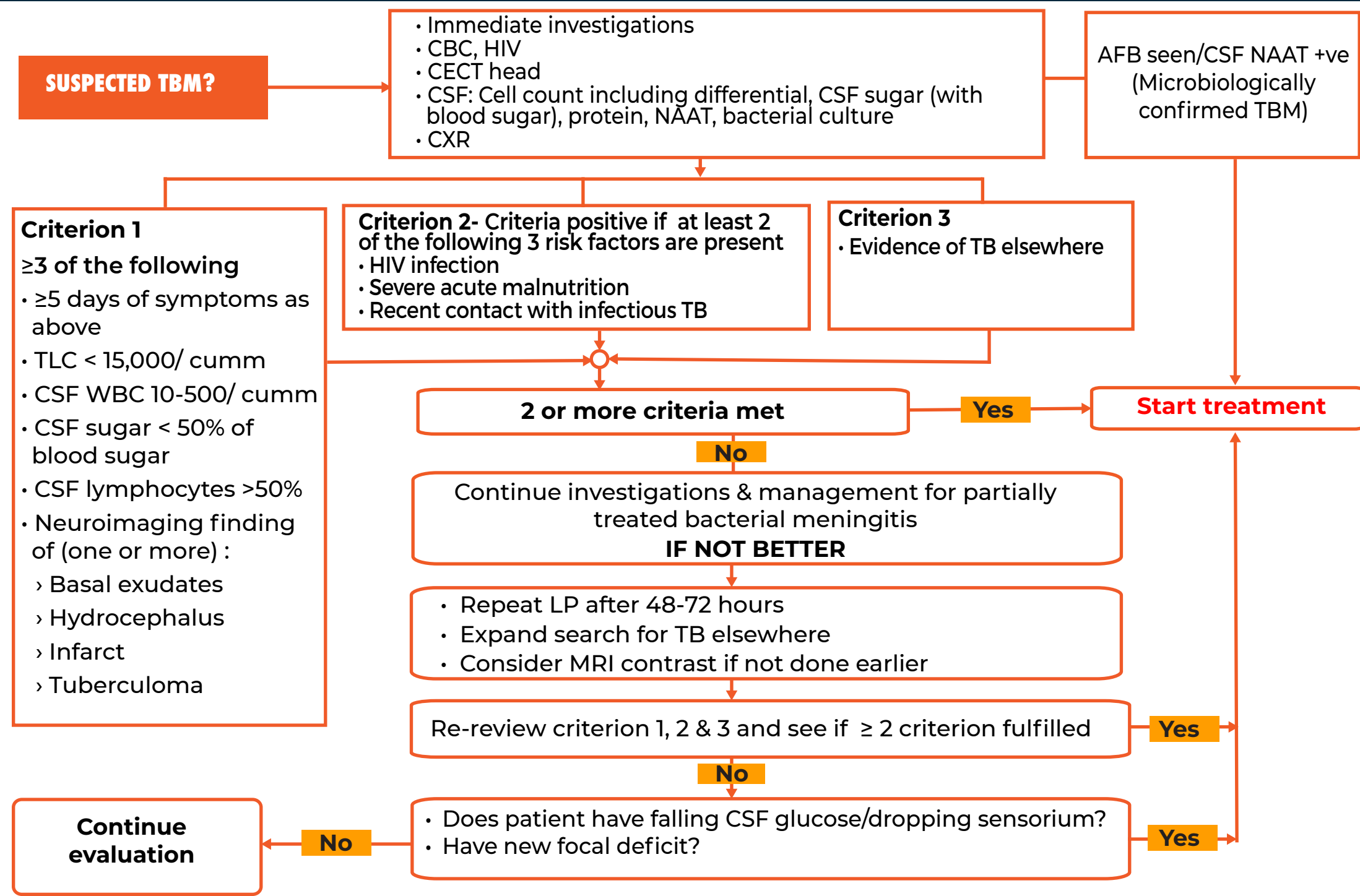


Standard Treatment Workflow (STW) for the Management of PAEDIATRIC TUBERCULAR MENINGITIS ICD-10-A17.0

WHEN TO SUSPECT?	EXAMINATION	INVESTIGATIONS	NEUROIMAGING IN TB
<ul style="list-style-type: none"> Fever with one or more of the following <ul style="list-style-type: none"> Headache Vomiting Seizures Irritability/Lethargy/Drowsiness Loss of function e.g. recent onset deviation of eyes/mouth and/or weakness of arm/leg and/or altered mentation Malaise, Anorexia, Weight loss Symptoms are usually of 5 to 7 days duration with insidious onset, particularly with history of exposure to infectious TB in past 2 years 	<ul style="list-style-type: none"> Assessment of sensorium* Full/bulging anterior fontanelle Meningeal irritation- Neck stiffness, Kernig's sign & Brudzinski's sign Examine eye, if feasible for papilloedema/ choroid tubercles/ optic atrophy Cranial nerves Motor system including power, reflexes plantar responses Peripheral lymph nodes Chest examination for signs of pulmonary involvement <p><i>*Use any standardized scale including Glasgow Coma scale/ AVPU scale</i></p>	<p>Essential</p> <ul style="list-style-type: none"> CBC CSF examination <ul style="list-style-type: none"> Cell count and differential Sugar (with simultaneous blood sugar) Protein NAAT* MGIT culture Bacterial culture HIV Contrast enhanced CT scan of head CXR Gastric lavage/ Induced sputum in patients where CXR is abnormal and CSF NAAT is negative <p><i>*ICMR/NTEP approved NAAT test, use 3-5 ml CSF if possible</i></p> <p>Desirable</p> <ul style="list-style-type: none"> MRI brain with contrast when CECT head is not contributory <p>Optional</p> <ul style="list-style-type: none"> CSF cryptococcal antigen Contrast CT chest/abdomen to look for extracranial sites of infection 	 <p>CECT showing</p> <ul style="list-style-type: none"> Hydrocephalus (ventricular dilatation) Thick basal exudates Tuberculoma

DIAGNOSTIC ALGORITHM



TREATMENT

<ul style="list-style-type: none"> Treatment should be started & follow-up to be done as per NTEP guidelines Anti TB drug regimen <ul style="list-style-type: none"> 2 HRZE and 10 HRE (in appropriate doses) Pyridoxine 10 mg/day Corticosteroids <ul style="list-style-type: none"> Prednisolone 2 mg/kg/day for 4 weeks & then taper over 4 weeks* Slower taper needed in some patients <p><i>*Equivalent dose of another steroid formulation may be used either injectable/oral</i></p>	<ul style="list-style-type: none"> Other supportive therapy <ul style="list-style-type: none"> Care of unconscious child Nasogastric feeding, if indicated Anti edema measures (mannitol/hypertonic saline/glycerol/acetazolamide) Anticonvulsants, if seizures Surgical therapy, if indicated <ul style="list-style-type: none"> External ventricular drain VP shunt 	<ul style="list-style-type: none"> Cases should be managed at least at a district hospital Early referral to Medical College/ higher centre to be considered if <ul style="list-style-type: none"> Unresponsive child/rapid deterioration indicating need for intensive care No diagnosis after initial evaluation Surgical treatment needed MDR TB meningitis No improvement/deterioration after 2-4 weeks of treatment Need for ICU care
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ABBREVIATIONS

AFB: Acid-fast Bacillus	CXR: Chest X-ray	MDR: Multi-drug Resistant	TB: Tuberculosis
CBC: Complete Blood Count	HIV: Human Immunodeficiency Virus	MGIT: Mycobacteria Growth Indicator Tube	TBM: Tubercular Meningitis
CECT: Contrast Enhanced Computed Tomography	HRZE: Isoniazid; Rifampicin; Pyrazinamide; Ethambutol	MRI: Magnetic Resonance Imaging	TLC: Total Leucocyte Count
CSF: Cerebro-spinal Fluid	ICU: Intensive Care Unit	NAAT: Nucleic Acid Amplification Test	VP: Ventriculo-peritoneal
CT: Computed Tomography	LP: Lumbar Puncture	NTEP: National TB Elimination Programme	WBC: White Blood Cells

REFERENCES

- National TB Elimination Programme, Central TB Division. Training Modules for Programme Managers & Medical Officers. Ministry of Health & Family Welfare, Government of India <https://tbcindia.gov.in/index1.php?lang=1&level=1&sublinkid=5465&lid=3540> Last access on 05 March, 2022.
- Guidelines for Programmatic Management of Drug Resistant Tuberculosis in India March 2021. National TB Elimination Programme, Central TB Division, Ministry of Health & Family Welfare, Government of India <https://tbcindia.gov.in/showfile.php?lid=3590> Last access on 05 March, 2022.