What is the relative importance of all the tissue tests like gene expert, histopathological examination, AFB culture in diagnosing spinal tuberculosis?

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Why is this topic Important

- Spine TB remains a significant global health concern, particularly in regions with high TB prevalence.
- Accurate and timely diagnosis is essential to prevent severe complications, including neurological deficits and spinal deformities.
- Traditional methods, such as histopathology and AFB culture, often face limitations due to low bacterial load in spinal samples and prolonged turnaround times.
- In contrast, GeneXpert MTB/RIF has emerged as a rapid molecular diagnostic tool, offering high specificity and rifampicin resistance detection within hours, making it indispensable in early TB detection and multidrug-resistant TB (MDR-TB) screening.

Literature Review/ Process

PubMed

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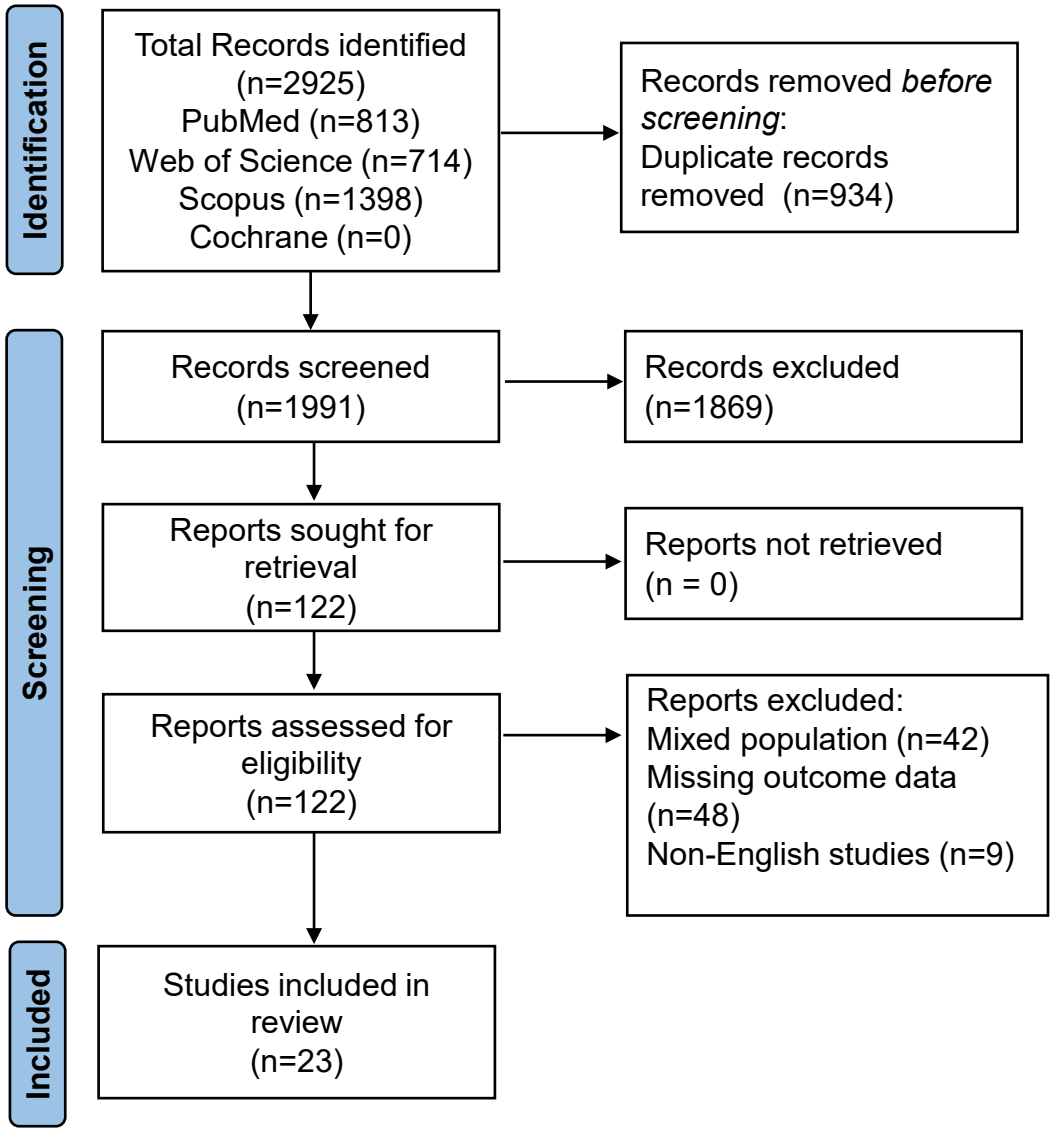

Findings from Literature

- Histopathology remains essential for identifying granulomatous inflammation and caseous necrosis, particularly in culture-negative cases.
- However, its moderate sensitivity limits its role in early diagnosis, and it cannot confirm drug resistance, making it an excellent but incomplete tool for Spine TB detection.
- Meanwhile, mycobacterial culture, despite being the gold standard for definitive confirmation, suffers from low sensitivity and long turnaround time, delaying crucial treatment decisions.
- Sensitivity can vary significantly depending on sample type, biopsy method, and bacillary load, reinforcing its limited effectiveness in paucibacillary Spine TB cases.

Findings from Literature

- GeneXpert MTB/RIF has revolutionized Spine TB detection, offering rapid molecular identification of Mycobacterium tuberculosis and rifampicin resistance within hours.
- Across studies, it consistently demonstrates higher sensitivity than culture and histopathology, making it the preferred tool for early Spine TB diagnosis.
- However, GeneXpert alone does not replace traditional methods, as it cannot detect isoniazid monoresistance or provide full drug susceptibility profiles.
- Furthermore, its sensitivity in bone specimens remains lower than in pulmonary TB, necessitating complementary tests for comprehensive evaluation.

Question:

- What is the relative importance of all the tissue tests like gene expert, histopathological examination, AFB culture in diagnosing spinal tuberculosis?

Response:

- **No single diagnostic test is sufficient for accurate and early STB detection**

❖Vote:

Agree – 86.5%, Disagree – 9.6%, Abstain – 3.8%
(Strong Consensus)