RESEARCH PAPER

Role of MRI in the Diagnosis and Staging of Pott's Spine – A Systematic Review

Rukamanee[1*], Mohd Faizan[2], Yogita Jhangu[3], Dr. Mahendra Kumar Verma[4]

[1] Assistant Professor, Department of Allied Health Care Sciences, Radiology, Faculty of Allied Health Care Professionals, Vivekananda Global University, Jaipur 302012, INDIA. (Corresponding Author)
Email: rukamanee6@gmail.com, Contact No.: 6394892343

[2] Department of Allied Health Care Sciences, Radiology (PG Scholar), Vivekananda Global University, Jaipur 302012, INDIA.

[3] Department of Allied Health Care Sciences, Radiology, Faculty of Allied Health Care Professionals (Co-Supervisor), Vivekananda Global University, Jaipur 302012, INDIA.

[4] Professor & Principal, Allied Health Care Sciences, Vivekananda Global University, Jaipur, Rajasthan, INDIA.

Received: 20th Feb, 2026 | **Revised:** 4th Mar, 2026 | **Accepted:** 25th Mar, 2026 | **Available Online:** 10th Apr, 2026

ABSTRACT

Background: Spinal tuberculosis (TB), also known as Pott's spine, is the most common form of skeletal tuberculosis and accounts for nearly 50% of all cases of musculoskeletal TB. It remains a major public health concern in developing countries, particularly in India, China, Pakistan etc. where tuberculosis continues to have a high prevalence. The disease primarily affects the thoracic and lumbar vertebrae and may lead to vertebral destruction, spinal deformity and neurological complications if not diagnosed and treated early. Conventional imaging modalities such as plain radiography and computed tomography have limitations in identifying early marrow changes and soft tissue involvement. Magnetic resonance imaging (MRI) has emerged as the most sensitive imaging technique for early diagnosis, disease staging, and detection of epidural abscesses.

Aim: The aim of this study is to evaluate the role of MRI in the diagnosis and staging of Pott's spine through a systematic review of available literature. The objectives included assessing MRI's effectiveness in detecting vertebral involvement, disc changes, paravertebral and epidural abscesses, and spinal cord compression.

Material And Methods: A systematic review was conducted using electronic databases such as PubMed, Google Scholar, and Science Direct. Studies published in English between 2010 and 2025 were included. A total of 65 articles were selected based on predefined inclusion and exclusion criteria. Studies focusing on MRI findings, and staging of spinal tuberculosis were analyzed, while duplicate and irrelevant studies were excluded.

Result: 30 articles were included with a total 1869 patients included in the analysis; males (53.6%) were slightly more affected than females (46.4%). Most patients were in the 21–40-year age group. The most frequently reported clinical symptoms were back pain (54.2%), followed by fever (38.0%) and weight loss (26.1%). Neurological deficits were relatively uncommon and were observed in only 11.4% of patients. MRI findings showed that intervertebral disc involvement (53.5%) and vertebral body destruction (47.3%) were the most common radiological features. Paravertebral abscess was detected in 43.0% of patients, epidural abscess in 41.7%, and spinal cord compression in 38.2% of cases. Additionally, MRI proved to be highly useful in determining the extent of the disease and detecting early neurological involvement.

Conclusion: The findings of this systematic review indicate that MRI is a highly effective imaging modality for the early diagnosis and staging of Pott's spine. MRI provides detailed visualization of both bone and soft-tissue structures, making it essential for evaluating disease severity and guiding clinical management.

Keywords: Spinal Tuberculosis, Pott's spine, MRI, diagnosis and staging of Pott's spine.

How to cite this article: Rukamanee, Faizan M, Jhangu Y, Verma MK. Role of MRI in the Diagnosis and Staging of Pott's Spine – A Systematic Review. Int J Drug Deliv Technol. 2026;16(31s):249-259. DOI: 10.25258/ijddt.16.31s.32

Source of support: Nil.

Conflict of interest: The authors declare no conflict of interest.

INTRODUCTION

Pott's spine, also known as spinal tuberculosis, is a form of tuberculosis caused by Mycobacterium tuberculosis that primarily involves the vertebral column. It commonly spreads hematogenously from a primary focus, usually the lungs, and may lead to severe complications such as vertebral destruction, spinal deformity, and neurological deficits, including Pott's paraplegia.[1] A defining feature is intervertebral disc involvement due to shared vascular supply, contributing to disease progression. Advanced stages are characterized by anterior vertebral body destruction and spinal instability. [15]

Spinal tuberculosis is a chronic granulomatous infection and remains a major global health concern.[1],[19] Although pulmonary tuberculosis is more common, spinal involvement occurs through blood or lymphatic spread, often via Batson's venous plexus.[15]The disease typically begins in the anterior vertebral body and may extend to adjacent discs, especially in children due to richer vascularity.[15] Early diagnosis is challenging because symptoms are often mild and nonspecific, leading to delayed detection until complications such as kyphosis, vertebral collapse, or neurological deficits appear.[4],[5]

It accounts for approximately 1–2% of all tuberculosis cases and nearly 40–50% of musculoskeletal tuberculosis.[3],[5],[18] The lower thoracic and upper lumbar regions are most frequently affected. The disease burden is higher in developing countries and is associated with factors such as malnutrition, overcrowding, and limited healthcare access, as well as comorbidities like HIV, diabetes, and immunosuppression.

Spinal tuberculosis results from hematogenous dissemination of bacilli, which lodge in the vascular cancellous bone near vertebral endplates.[1],[4] The immune response leads to granuloma formation with caseous necrosis, causing progressive vertebral destruction and possible spread to adjacent structures.[4],[15] Pathologically, the disease presents in four patterns: paradiscal, central, anterior, and posterior types, each differing in the site and extent of involvement.[6] Disease progression may result in abscess formation, kyphotic deformity, and spinal cord compression.

Clinically, patients most commonly present with persistent back pain, stiffness, and paraspinal muscle spasm.[11] As the disease advances, cold abscess formation, spinal deformity, and neurological deficits may develop.[6],[15] Constitutional symptoms such as fever, weight loss, and fatigue are present in a subset of patients.[31] The condition often progresses slowly, leading to delayed diagnosis, with many patients presenting only after complications occur.[5]

Imaging plays a crucial role in diagnosis. Plain radiography is often the initial investigation but lacks sensitivity in early stages.[6] Computed tomography (CT) provides better visualization of bony destruction but is limited in evaluating soft tissues and neural involvement.[7] Magnetic Resonance Imaging (MRI) is the most sensitive modality for early detection, allowing visualization of marrow edema, disc involvement, abscesses, and spinal cord compression.[8],[11] MRI also aids in differentiating spinal tuberculosis from other pathologies and in monitoring treatment response.[8]

MRI findings typically show hypointense signals on T1-weighted images and hyperintense signals on T2-weighted and STIR sequences, with rim-enhancing abscesses after contrast administration.[18] It also enables assessment of disease extent, including vertebral involvement, epidural extension, and neural compression.[12]

MRI is highly valuable in staging spinal tuberculosis into pre-destructive, early destructive, advanced destructive, and neurological stages based on disease severity and extent. Accurate staging is essential for treatment planning and preventing complications such as deformity and irreversible neurological damage.

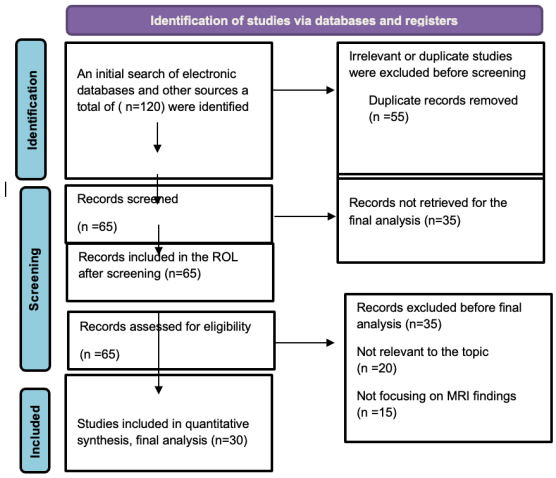
Early diagnosis and precise staging are critical in reducing morbidity associated with spinal tuberculosis. MRI plays a key role in detecting early disease changes before they become apparent on conventional imaging, thereby guiding timely medical or surgical management. Standardized imaging criteria also improve research consistency and clinical outcome assessment.

Despite multiple studies on MRI in spinal tuberculosis, variability exists in reported findings and staging approaches. Therefore, this systematic review aims to consolidate existing evidence on the diagnostic and staging role of MRI in Pott's spine and to highlight its clinical significance in guiding effective management strategies.

METHOD AND ANALYSIS:

This systematic study was conducted as a literature review. The analysis involved searching multiple established databases, including PubMed, Google Scholar, and ScienceDirect. Only original articles published in English were considered for inclusion. After applying predefined inclusion and exclusion criteria and following the PRISMA guidelines, 65

studies were initially screened, and 30 studies were ultimately included in the final analysis.



DATA COLLECTION AND ANALYSIS

- The data obtained from the selected studies were carefully organized into structured tables to make comparison and interpretation easier.
- Important details from each study, such as sample size, age distribution, gender, and key MRI findings, were systematically extracted.
- Special attention was given to major MRI features, including vertebral body destruction, intervertebral disc involvement, paraspinal abscess, epidural extension, and spinal cord compression.
- The occurrence of these findings was calculated and expressed in percentages (%) to identify the most common patterns observed across studies.
- A formal meta-analysis was not performed, and the data were instead analyzed using a descriptive (qualitative) approach.
- The final results were presented using tables and graphical representations to improve clarity and make the findings easier to understand.

RESULT

DEMOGRAPHIC DATA

A comprehensive search of electronic databases identified relevant studies published between 2010 and 2025 globally. After applying the inclusion and exclusion criteria and following the PRISMA guideline, 65 articles were screened, and 30 articles were included in the final analysis

Table 5.1 Study Characteristics

Author	Year	Journal	Country	Sample Size	Age Range	Gender (M/F)
Tabassum S et al.	2016	Pak Journal of medical sciences	Pakistan	140	15-40	57/83
Sinen T et al.	2014	ANS annals of Saudi medical	Saudi	30	30-49	17/13
Rivas-García et al.	2015	EUR Spine Journal	Spain	48	18-53	23/25
Alvi et al.	2014	International Archives of med.	Pakistan	119	18-70	52/67
Kumar S et al.	2025	Int. Journal of Life Sciences	India	50	31-40	30/20
k Maurya et al.	2016	Medical journal of armed forces	India	80	21-40	55/25
Gehlot P S et al.	2012	J. Clin & Diagn Research	India	70	21-50	39/31
Bhatnagar S et al.	2018	Int. Journal of Med. Research	India	28	13-70	15/13
Shashikumar	2015	Int. Journa	India	40	31-40	26/14

MR et al.		l of Med. Sciences				
Khan et al.	2021	ANS annals of Med. & Surgery	Pakistan	305	16-60	168/137
Sharma B et al.	2021	Nepal journal of research	Nepal	70	18-81	44/26
Benzagmout M et al.	2010	Surgical Neurology Int.	Morocco	37	13-15	24/13
Ansari S et al.	2013	U.S Library of Med. Journal	Nepal	30	15-75	13/17
Khaleq uzzaman et al.	2012	Medicine Today	Dhaka	42	14-70	29/13
A.K Jain et al.	2011	Int. Orthopedics Journal	India	49	13-79	20/29
Alamgir et al.	2018	Int. Journal of Ortho. Sciences	India	92	15-60	38/54
Dahlan et al.	2022	Surgical Neurology Int.	Indonesia	5	14-52	2/5
Sivalingam J et al.	2015	J. Clin & Diagn Research	India	59	20-65	37/22
Sharon	20	Neurol	Mal	22	14-	12/

TAI et al.	17	ogy Asia Journal	aysia		36	10
Wahid G et al.	2022	Pakistan Journal of Med & Health	Pakistan	90	20-50	52/38
Barman M et al.	2024	Int. Journal of Rad. Research	India	30	13-69	17/13
Nandish A L et al.	2024	Hell-journal of Radiology	India	36	20-70	20/16
Gul S et al.	2023	Trends Clin Med. Sci.	India	20	32-75	13/7
Reddy BP et al.	2020	Asian journal of med. Radiological Research	India	63	21-30	38/25
Saxena S et al.	2019	Asian journal of med. Radiological Research	India	37	31-50	22/15
Ahmad f et al.	2024	Indian journal of Applied Radiology	India	106	19-60	48/58
Alsawi YA et al.	2022	GSC advanced	Sudan	35	8-80	17/18

		Research and review				
Turamari RU et al.	2018	International journal of contemporary med. Surg. and Radio.	India	30	20-80	17/13
Dwivedi S et al.	2020	Journal of orthopedics and muscular system	India	49	21-60	29/20
Rao DVR et al.	2020	Journal of Evid. Based med. Health .c	India	57	20-80	28/29

A total of 30 studies encompassing 1,869 patients were included in this analysis. Among these participants, 1,002 (approximately 53.6%) were male and 869 (46.4%) were female, indicating a slight male predominance. The included studies spanned a wide age range, with the youngest patient being 8 years old and the oldest 81 years. The studies were conducted across multiple countries, including India, Pakistan, Nepal, Saudi Arabia, Spain, Morocco, Malaysia, Indonesia, Sudan, and Dhaka. The sample sizes of individual studies varied considerably, ranging from 5 to 305 participants. Overall, this pooled data provides a comprehensive overview of demographic characteristics, highlighting the predominance of male patients and the broad spectrum of ages affected.

Figure 1- Gender distribution of patients included in the systematic review, showing slight male predominance.

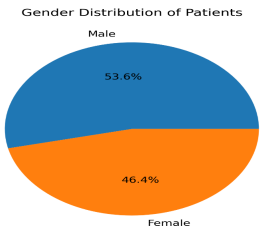


Table 5.2 Patients Demographics of MRI findings

Author	Vertebral Body Destruction	Inter-vertebral Discs Involvement	Para-vertebral Abscess	Epidural Abscess	Spinal Cord Compression
Tabassum S et al.	102	138	29	128	125
Sinen T et al.	22	10	6	3	-
Rivas-García et al.	17	13	13	16	-
Alvi et al.	20	21	14	53	76
Kumar et al.	45	40	35	30	15
Maurya K et al.	80	76	77	50	12
Gehlot P S et al.	19	65	69	58	7
Bhatnagar S et al.	25	23	22	14	11
Shashikumar MR et al.	7	34	23	31	-
Khan et al.	128	13	-	-	201
Sharma B et al.	70	59	66	61	6
Benzagmout M et al.	-	-	-	-	-
Ansari S et al.	18	25	24	-	26
Khaleq uzzaman et al.	37	-	34	-	9
A K Jain et al.	-	-	-	-	-

Alamgir et al.	10	26	60	-	18
Dahlan et al.	3	2	2	-	1
Sivalingam et al.	18	59	27	-	19
Sharon TAI et al.	3	4	5	6	7
Wahid G et al.	42	78	-	53	19
Barman M et al.	15	11	11	16	9
Nandish A L et al.	12	1	30	27	2
Gul S et al.	10	16	13	14	11
Reddy BP et al.	33	63	26	23	18
Saxena S et al.	11	35	31	13	-
Ahmad F et al.	65	65	90	48	87
Alsawi YA et al.	30	21	17	3	-
Turamari RU et al.	11	27	12	21	11
Dwivedi S et al.	9	37	26	34	-
Rao et DVR al.	23	39	42	42	7

Figure 2- Distribution of MRI findings among patients with spinal tuberculosis, showing disc involvement as the most common feature.

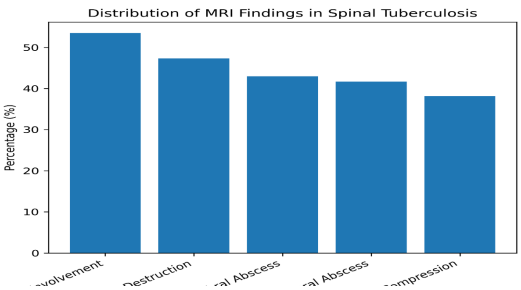


Figure 3- Comparison between MRI-detected spinal cord compression and clinically evident neurological deficits, highlighting MRI's higher sensitivity.

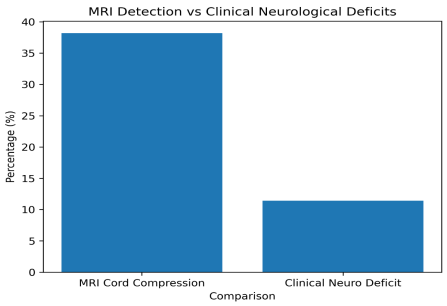
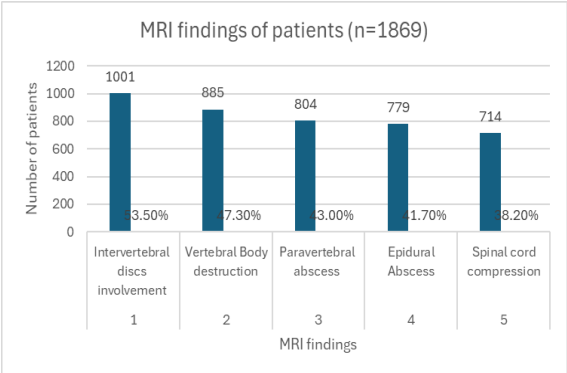


Table 5.3 MRI findings of patients among the articles (n=1869)

S. No.	MRI Findings	Frequency	Percentage %
1	Intervertebral discs involvement	1001	53.50%
2	Vertebral Body destruction	885	47.30%
3	Paravertebral abscess	804	43.00%
4	Epidural Abscess	779	41.70%
5	Spinal cord compression	714	38.20%

Figure 4 Bar graph showing the MRI findings of patients among the included articles.



Pooled analysis of 30 studies demonstrated that intervertebral disc involvement was the most frequently reported MRI finding, observed in 1,001 patients (53.5%). Vertebral body destruction was also common, affecting 885 patients (47.3%). Paravertebral abscesses were identified in 804 patients (43.0%),

while epidural abscesses were noted in 779 patients (41.7%). Spinal cord compression, reflecting neurological compromise, was reported in 714 patients (38.2%). These findings indicate that disc pathology and vertebral destruction are the predominant radiological features of spinal tuberculosis, with abscess formation and cord compression occurring in a substantial proportion of cases, underscoring the risk of severe complications if not promptly managed.

Table 5.4: Patient demographics data of Clinical presentation

Author	Back Pain	Fever	Weight Loss	Neurological Deficits
Tabassum S et al.	57	57	-	-
Sinen et al.	22	19	10	2
Rivas-García et al.	-	-	-	-
Alvi et al.	101	85	-	-
Kumar et al.	40	30	20	15
Maurya K et al.	-	-	-	-
Gehlot P S et al.	-	-	-	-
Bhatnagar S et al.	-	-	-	-
Shashikumar MR et al.	30	25	9	-
Khan et al.	302	176	295	3
Sharma B et al.	-	-	-	-
Benzagmout M et al.	37	37	37	6
Ansari S et al.	19	26	-	26
Khalequzzaman et al.	27	18	-	4
A K Jain et al.	44	-	-	14
Alamgir et al.	64	32	16	14
Dahlan et al.	4	-	-	2
Sivalingam et al.	-	-	-	-
Sharon TAI et al.	6	14	8	-
Wahid G et al.	-	-	-	-
Barman M et al.	14	10	4	5
Nandish A L et al.	21	3	1	6
Sabeeha Gul et al.	-	-	-	-
Reddy BP et al.	58	49	-	28
Saxena S et al.	30	22	-	-
Ahmad f et al.	102	78	83	65
Alsawi YA et al.	-	-	-	-
Turamari RU et al.	4	4	4	4
Dwivedi S et al.	31	25	9	19
Rao DVR et al.	-	-	-	-

Figure 5- Clinical presentation of patients with Pott’s spine, with back pain being the most frequent symptom.

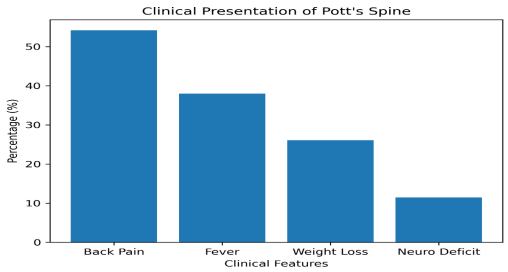
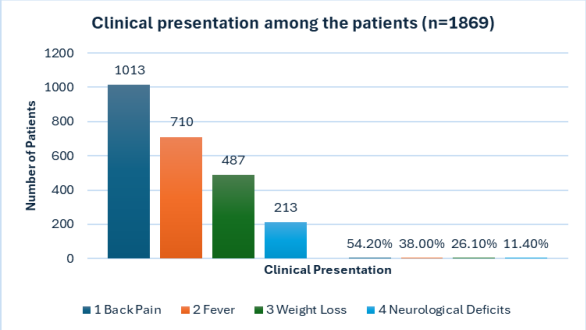


Table 5.5 Clinical Presentation of patients among the studies (n=1869)

S. No.	Clinical Features	Frequency	Percentage
1	Back Pain	1013	54.2%
2	Fever	710	38.0%
3	Weight Loss	487	26.1%
4	Neurological Deficits	213	11.4%

Figure 6: Bar graph showing clinical features of patients among the articles



The clinical features of Pott’s spine among the patients included in the studies. The most common presenting symptoms was back pain which was observed in approximately 1013 patients (54.2%). The second most frequent symptoms was fever, which were documented in 710 patients (38.0%). Another clinical symptom was weight loss which were reported in 487 patients (26.1%) among the studies. In addition, 213 patients (11.4%) were reported neurological deficits. The neurological deficits occurs when the infection leads to spinal cord compression due to vertebral destruction, abscess formation etc.

Determination of Disease Extent

MRI proved to be highly effective in determining the anatomical extent of the infection, often showing multi-segmental involvement that is not apparent on physical examination.

Bony and Disc Extent: The study found a near-equal prevalence of Intervertebral Disc Involvement (53.5%) and Vertebral Body Destruction (47.3%). MRI’s ability to show the "paradiscal" spread (the infection moving under the longitudinal ligaments to involve multiple levels) is a key factor in defining the extent of the disease.

Soft Tissue Extension: MRI successfully identified the spread of infection into the surrounding tissues, with Paravertebral Abscesses detected in (43.0%) of the population. This allows for an accurate measurement of the "cold abscess" volume.

In Clinical Staging

Epidural Staging: MRI detected Epidural Abscesses in (41.7%) of cases. This is the most crucial staging element, as epidural involvement shifts the patient from a "stable" stage to a "high-risk" stage requiring urgent monitoring or surgery.

Neurological Staging (The Lead-Time Advantage): Clinical Presentation: Only (11.4%) a of patients had physical Neurological Deficits.

MRI Detection: (38.2%) of patients were found to have Spinal Cord Compression.

Finding: This demonstrates that MRI is highly useful in "up-staging" patients who appear clinically stable but have significant internal cord compromise, allowing for early medical intervention before permanent paralysis occurs.

DISCUSSION

This systematic review was conducted to assess the role of Magnetic Resonance Imaging (MRI) in diagnosing and staging Pott’s spine by examining studies published between 2010 and 2025. A total of 30 studies, including 1,869 patients, were analyzed. The results highlight MRI as a highly sensitive modality for the early detection and precise staging of spinal tuberculosis.

Most patients in the reviewed studies were young to middle-aged adults, particularly between 21 and 30 years, aligning with prior epidemiological data that spinal TB often affects individuals in their economically productive years. The gender distribution showed a slight male predominance, with 1,002 males (58.6%) compared to 869 females (46.4%), aligning with previous study by Ranjith Kumar et al. [22] and Bhatnagar et al. [27]

Clinically, back pain (54.2%) was identified as the most frequent presenting complaint, highlighting the gradual and non-specific onset of spinal tuberculosis. General systemic symptoms such as fever and weight loss were also commonly reported, indicating the infectious and systemic nature of the disease, these findings are consistent with previous studies including those by Shashikumar MR et al. [12] and Bhatnagar et al. [27]

The MRI findings analyzed in this review revealed that involvement of the intervertebral discs (53.5%) along with destruction of the vertebral bodies (47.3%) were the most commonly observed abnormalities, aligning with the previous study by S Ansari et al.[14] & Sangeeta Saxena et al.[33] These features are typical of the classical paradiscal pattern, in which the infection begins in the vertebral body and gradually spreads to the adjacent disc and nearby vertebrae. This pattern is widely recognized as a key imaging characteristic of spinal tuberculosis and helps distinguish it from other spinal disorders such as degenerative changes or malignancies.

Beyond bone involvement, MRI also demonstrated a strong capability in detecting soft tissue complications. A significant number of patients showed the presence

of paravertebral (43.0%) and epidural abscesses (41.7%) reflecting the tendency of the infection to spread into surrounding soft tissues. Identifying these complications is important for accurate staging of the disease and plays a major role in guiding treatment decisions, as they can significantly affect patient management, consistent with the similar observation by Maurya et al. [33] & T Sinen et al. [21]

An important finding of this review is the difference between imaging findings and clinical presentation in cases of spinal cord involvement (38.2%). MRI was able to detect spinal cord compression in many patients, whereas only a smaller proportion exhibited neurological symptoms. This highlights the high sensitivity of MRI in identifying early or hidden neural involvement before clinical signs become evident consistent with previous study by khan et al. [28] Early recognition of spinal cord compression is crucial, as it enables timely intervention and reduces the risk of permanent neurological damage.

Overall, this review confirms that MRI is indispensable not only for diagnosing Pott's spine but also for assessing disease extent and detecting complications that are critical for guiding treatment and management strategies.

LIMITATION

This systematic review has several limitations. The included studies demonstrated considerable heterogeneity in terms of design, sample size, and methodology, which may have affected the consistency of the results. Most studies were retrospective or observational, increasing the risk of bias. In addition, incomplete reporting of clinical and MRI findings in some studies resulted in missing data for certain variables. The wide variation in sample sizes across studies may also limit the generalizability of the findings. Moreover, the inclusion of studies from different geographical regions with diverse diagnostic protocols and healthcare systems could have influenced the overall outcomes. Finally, as this review is based solely on previously published data, no primary data collection was undertaken.

CONCLUSION

The review findings demonstrate that MRI is a highly sensitive and reliable preferred imaging technique for the early diagnosis of spinal tuberculosis. It is particularly effective in detecting key radiological features, including destruction of vertebral bodies, involvement of intervertebral discs, and the presence of paravertebral and epidural abscesses, and spinal cord compression. Among these, vertebral body destruction and disc involvement were the most frequently reported abnormalities.

MRI also plays a vital role in identifying soft-tissue extension and epidural involvement, which are critical for assessing disease severity and staging. Notably, MRI was able to detect spinal cord compression in many patients before neurological deficits became clinically apparent, underscoring its importance in the early recognition of potential complications and in guiding timely treatment.

Overall, these findings support MRI as the preferred imaging modality for diagnosing spinal tuberculosis and assessing the extent of disease and performing clinical staging of Pott's spine.

REFERENCES

1. Leo Wattana W, Leo Wattana P, Leo Wattana T. Tuberculosis of the spine. World J Orthop. 2023;14(5):275–293. doi:10.5312/wjo.v14.i5.275
2. Dahlan RH, Ompusunggu SE, Gondowardojo YRB, Priambodo R, Anugerah SW. Spinal tuberculosis: A case series and a literature review. Surg Neurol Int. 2022;13:196. doi:10.25259/sni_1201_2021
3. Öztürk AM, Yener C, Taşbakan Işıkgöz M. Current concepts on spinal tuberculosis. J Turk Spinal Surg. 2020;31(1):60–63. doi:10.4274/jtss.galenos.2020.31
4. He QY, Xu JZ, Zhou Q, Luo F, Hou T, Zhang Z. Treatment effect, postoperative complications, and their reasons in juvenile thoracic and lumbar spinal tuberculosis surgery. J Orthop Surg Res. 2015;10:156. doi:10.1186/s13018-015-0300-y
5. Rasouli MR, Mirkoohi M, Vaccaro AR, Yarandi K, Rahimi-Movaghar V. Spinal tuberculosis: Diagnosis and management. Asian Spine J. 2012;6(4):294–308. doi:10.4184/asj.2012.6.4.294
6. Kubihal V, Sharma R, Krishna Kumar RG, Chandrashekhara SH, Garg R. Imaging update in spinal tuberculosis. J Clin Orthop Trauma. 2022;25:101742. doi:10.1016/j.jcot.2021.101742
7. Rivas-Garcia A, Sarria-Estrada S, Torrents-Odin C, Casas-Gomila L, Franqui E. Imaging findings of Pott's disease. Eur Spine J. 2013;22(Suppl 4):567–578. doi:10.1007/s00586-012-2333-9

8. Alvi AA, Raees A, Rehmani MAK, Aslam HM, Saleem S, Ashraf J. Magnetic resonance imaging findings of spinal tuberculosis at first presentation. Int Arch Med. 2014;7:12. doi:10.1186/1755-7682-7-12
9. Fayisa S, Ghozy S, Zarrinttan A, Bilgin C, Kallmes DF. Magnetic resonance imaging in diagnosing spinal cord tuberculoma: A case series and literature review. Radiol Case Rep. 2024;20(2):1182–1188. doi:10.1016/j.radcr.2024.10.156
10. Fuentes Ferrer M, Gutiérrez Torres L, Ayala Ramírez O, Rumayor Zarzuelo M, del Prado González N. Tuberculosis of the spine: A systematic review of case series. Int Orthop. 2012;36(2):221–231. doi:10.1007/s00264-011-1414-4
11. Garg RK, Somvanshi DS. Spinal tuberculosis: A review. J Spinal Cord Med. 2011;34(5):440–454. doi:10.1179/2045772311Y.0000000023
12. Shashikumar MR, Basavaraj SB, Vishwanath VJ, Nanjaraj CP, Rajendrakumar NL. Role of MRI in the evaluation of spinal tuberculosis. Int J Res Med Sci. 2015;3(8):1839–1843. doi:10.18203/2320-6012.ijrms20150282
13. Sharma B, Panta OB, Thapa BR, Thapa P, Khadka T. Retrospective study of magnetic resonance imaging findings in Pott's spine. Nepal J Radiol. 2021;11(2):11–18. doi:10.3126/njr.v11i2.40667
14. Ansari S, Rauniyar RK, Dhungel K, Sah PL, Chaudhary P, Ahmad K, Amanullah MF. MR evaluation of spinal tuberculosis. Al Ameen J Med Sci. 2013;6(3):219–225. Available from: http://ajms.alameenmedical.org/articlepdfs/7%20ajms%20v6.n3.2013%20p%20219-225.pdf
15. Glassman I, Nguyen KH, Giess J, Alcantara C, Booth M, Venketaraman V. Pathogenesis, diagnostic challenges, and risk factors of Pott's disease. Clin Pract. 2023;13(1):155–165. doi:10.3390/clinpract13010014
16. Jain AK, Sreenivasan R, Saini NS, Kumar S, Jain S, Dhammi IK. Magnetic resonance evaluation of tubercular lesion in spine. Int Orthop. 2012;36(2):261–269. doi:10.1007/s00264-011-1380-x
17. Jain AK, Rajasekaran S, Jaggi KR, Myneedu VP. Tuberculosis of the spine: Current concepts review. J Bone Joint Surg Am. 2020;102(7):617–628. doi:10.2106/JBJS.19.00001
18. Garg D, Goyal V. Spinal tuberculosis treatment: An enduring bone of contention. Ann Indian Acad Neurol. 2020;23(4):441–448. doi:10.4103/aian.aian_141_20
19. Avantsa R, Kala P, Bhargavi V. MR imaging features of tuberculosis of the spine. J Med Sci Clin Res. 2017;5(7):24824–24833. doi:10.18535/jmscr/v5i7.87
20. Tabassum S, Haider S. MRI patterns of tuberculous spondylitis. Pak J Med Sci. 2016;32(1):171–175. doi:10.12669/pjms.321.8524
21. Sinan T, Al-Khawari H, Ismail M, Ben-Nakhi A, Sheikh M. Spinal tuberculosis: CT and MRI features. Ann Saudi Med. 2004;24(6):437–441. doi:10.5144/0256-4947.2004.437
22. Kumar SR, Elaprolu P, Raja TS. Role of MRI in diagnosis of Pott's spine. Int J Life Sci Biotechnol Pharma Res. 2025;14(4):1082–1085. doi:10.69605/ijlbpr_14.4.2025.184
23. Maurya VK, Sharma P, Ravikumar R, Debnath J, Sharma V, Srikumar S, et al. Tubercular spondylitis: MRI findings in 80 cases. Med J Armed Forces India. 2018;74(1):11–17. doi:10.1016/j.mjafi.2016.10.011
24. Dwivedi S. Role of MRI to assess the progress of spinal tuberculosis during treatment. J Orthop Musculoskelet Syst. 2020;3(1):1012
25. Gul S, Sidhu JK, Shafi MS, Bhat IM. MRI features in tubercular spine: A cross-sectional study. Trends Clin Med Sci. 2023;(SI):307–314. doi:10.30538/psrp-tmcs2023.si-rdmsr042
26. Gehlot PS, Chaturvedi S, Kashyap R, Singh V. Pott's spine: Retrospective MRI analysis. J Clin Diagn Res. 2012;6(9):1534–1538. doi:10.7860/JCDR/2012/4618.2552
27. Bhatnagar S, Garg A, Kaur A, Kaur N, Mohi J. Spinal tuberculosis: MRI features. Int J Med Res Rev. 2018;6(2):65–70. doi:10.17511/ijmrr.2018.i02.01
28. Khan S, Zahir MZ, Khan J, Mahsud ZS. Spectrum of MRI findings in spinal tuberculosis. Khyber J Med Sci. 2016;9(1):95–101
29. Benzagmout M, Boujraf S, Chakour K, El Faiz Chaoui M. Pott's disease in children.

Surg Neurol Int. 2011;2:1. doi:10.4103/2152-7806.75459
30. Khalequzzaman S, Hoque HW. MRI evaluation of spinal tuberculosis. Med Today. 2013;24(2):59–62. doi:10.3329/medtoday.v24i2.15007
31. Ahmad F, Kataria B, Taneja A. Role of magnetic resonance imaging in evaluation of tubercular spondylitis. Indian J Appl Radiol. 2024;10(1):201
32. Reddy BP, Vedaraju KS. Spectrum of imaging findings of spinal tuberculosis on MRI. Asian J Med Radiol Res. 2022;10(1):1–7. doi:10.47009/ajmrr.2022.10.1.1
33. Saxena S, Lal B, Meena DR, Vardhan H, Gupta A, Godara C. MRI findings in Pott's spine with histopathological correlation. Asian J Med Radiol Res. 2019;7(1):56–60. doi:10.21276/amjrr.2019.7.1.13
34. Barman M, Yadav K, Semwal A, Raturi A, Rohilla R. MRI sequences in Pott's spine diagnosis. Int J Radiol Res. 2024;6(2):51–55
35. Sivalingam J, Kumar A. Spinal tuberculosis mimicking neoplastic lesions on MRI. J Clin Diagn Res. 2015;9(11):TC01–TC03. doi:10.7860/JCDR/2015/14030.6719
36. Wahid G, Akhtar SS, Kamran A, Alavi MZ, Haider N, Musammar M. Retrospective MRI study in Pott's spine. Pak J Med Health Sci. 2022;16(7):890–892. doi:10.53350/pjmhs22167890
37. Alruwaili A, Umerani M, Darwish A, Mostafa G. Neurological recovery after early decompression in Pott's spine. Int J Surg Case Rep. 2020;66:236–239. doi:10.1016/j.ijscr.2019.12.008
38. Turamari RU, Chandandur Nagarajaiah P, Puttaraju CP, Rajendra Kumar NL, Jagadish S, Nagarajegowda PH, Raghavendra A. MRI evaluation of tuberculosis of spine. Int J Contemp Med Surg Radiol. 2018;3(3):C44–C47. doi:10.21276/ijcmsr.2018.3.3.10
39. Alsawi YA, Hagos Y. Spinal tuberculosis: MRI findings in a case series of 35 patients. GSC Adv Res Rev. 2022;13(2):98–102. doi:10.30574/gscarr.2022.13.2.0312
40. Tai MLS, Nor HM, Viswanathan S, Rahmat K, Mohd Zain NR, Pow ZY, et al. Spinal tuberculosis in tuberculous meningitis. Neurol Asia. 2017;22(4):313-323.
41. Rao DVR, Ramachandra V, Shohyle B. Study of MRI morphology of spinal tuberculosis. J Evid Based Med Healthc. 2020;7(12):596–599. doi:10.18410/jebmh/2020/131