



Case Report

Salmonella Typhi dorsolumbar spondylodiscitis mimicking tuberculosis – An interesting case report

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ABSTRACT

Background: *Salmonella* rarely causes spinal infections in patients other than those who are immunocompromised or have sickle cell anemia. Further, most cases occurring in healthy individuals have preexisting gastrointestinal infections. Here, we present a case of pyogenic spondylodiscitis attributed to *Salmonella* Typhi, in an immunologically normal patient without gastrointestinal pathology.

Case Description: A 58-year-old diabetic female complained of lower back pain and malaise. The workup for spinal tuberculosis was negative, but her MRI revealed findings consistent with pyogenic spondylodiscitis (e.g., destruction and instability) for which she required posterior spinal surgery. The organism proved to be *S. Typhi*; she was treated for 2 months and followed-up for 2 years.

Conclusion: *Salmonella* spondylodiscitis should be considered among the differential diagnoses for patients with features of infective spondylodiscitis. Culture-specific antibiotics are the cornerstone of treatment, along with appropriate and timely surgery.

Keywords: Diagnosis, Immunocompetent, *Salmonella* spondylodiscitis, Treatment

INTRODUCTION

Salmonella Typhi causing pyogenic spondylodiscitis was first described by James Paget in 1876.^[2] *Salmonella* rarely causes spinal infection, except in patients who are either immunocompromised or have sickle cell anemia,^[7] A few cases are seen in healthy individuals without preexisting gastrointestinal infection.^[8]

Here, we present a 58-year-old immunologically normal female without a significant gastrointestinal history with infective pyogenic spondylodiscitis attributed to *S. Typhi*, treated with surgical decompression and appropriate antibiotic therapy.

CASE DESCRIPTION

A 58-year-old diabetic female came presented with low back pain of 2 years duration that had exacerbated over the past 4 weeks to the point where she was unable to stand and walk. Her visual analog score was 8 with Oswestry Disability Index of 76. Notably, she had previously empirically received antituberculosis treatment (ATT). On presentation, she was febrile to 100° and had

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tenderness in the lumbar region with paraspinal spasm. Her neurological examination was intact.

Her total leukocyte count was 12,400/cmm with ESR of 72 mm/h and CRP of 69 mg/L with normal urine report.

X-rays [Figure 1] of thoracic/lumbar spine showed mild loss of definition of the L1, L2, and L3 endplates plus a mild lumbar scoliosis.

The MR [Figures 2-4] revealed a large anterior epidural collection extending from D12 to L3-4; there was peripheral enhancement of the lesion compressing the conus medullaris that also demonstrated intrinsic mild edema. The marrow signal abnormality involving the L1 and L2 vertebra showed homogeneous enhancement. The prevertebral soft-tissue collections at the L2-L3 level were accompanied by disc destruction, and abscess/phlegmon clearly extending into both neural foramina. All findings were suggestive of spinal tuberculosis.

Treatment/surgery

Her anti-tubercular treatment was stopped for a week after which she underwent a D12 to L2 laminectomy, with unilateral D11-D12 facetectomy, debridement/drainage of an anterior epidural abscess with D11-L3 pedicle screw instrumented fusion [Figure 5]. The 45 mL pus collected, was sent for Gram and ZN staining, aerobic, anaerobic, and fungal culture with mycobacterium growth indicator tube culture. GeneXpert and biopsy disc material were sent for histopathological analysis.

The cultures, after 7 days, were positive for *S. Typhi* as were the cultures, Widal titer 2560, and drug susceptibility testing suggestive of sensitivity to fluoroquinolone.

She was started intravenous levofloxacin 500 mg single dose daily for 3 weeks. She was discharged after 10 days later on oral levofloxacin 750 mg that was continued till 2 months postoperatively.

At 3-month follow-up, her MRI [Figures 6 and 7] revealed complete resolution of anterior epidural and paravertebral soft-tissue collections, and her laboratory parameters were within normal limits, as shown in Table 1.

At 2 years, she was asymptomatic. Moreover, plain X-rays confirmed adequate stabilization [Figure 8].

DISCUSSION

Salmonella osteomyelitis is rare,^[3,6] with an incidence of 0.45% of all cases of osteomyelitis.

The MRI of our patient suggested pyogenic spondylitis. Furthermore, MRI allows the diagnosis of a tuberculous lesion, with a sensitivity of 100% and specificity of 88%, and tuberculosis being essentially a medical disease, empirical ATT can be considered in India where it is endemic.^[5]



Figure 1: X-ray of the dorsolumbar spine showing fuzziness in L1-L3 end plates and mild scoliosis.

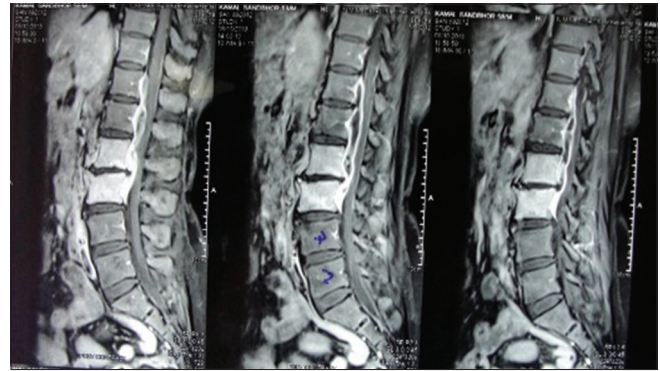


Figure 2: MRI of the spine showing L34 disc destruction with paradiscal homogeneous intensity.

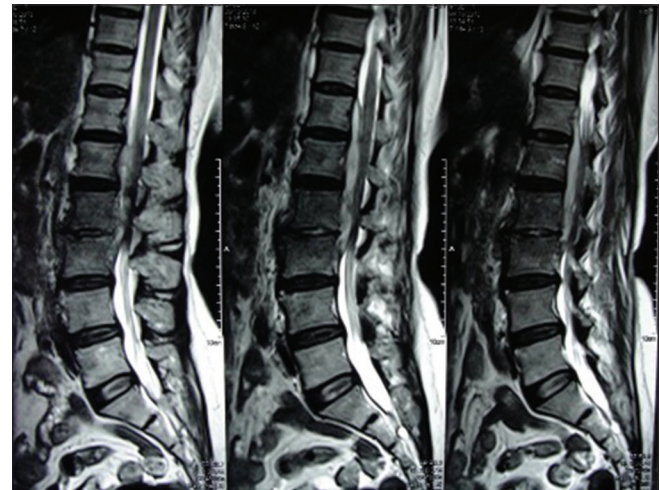


Figure 3: MRI of spine showing large anterior epidural abscess.

Histopathology may not be completely reliable as there have been reports of *Salmonella* osteomyelitis presenting as a granulomatous condition with a similar histopathological

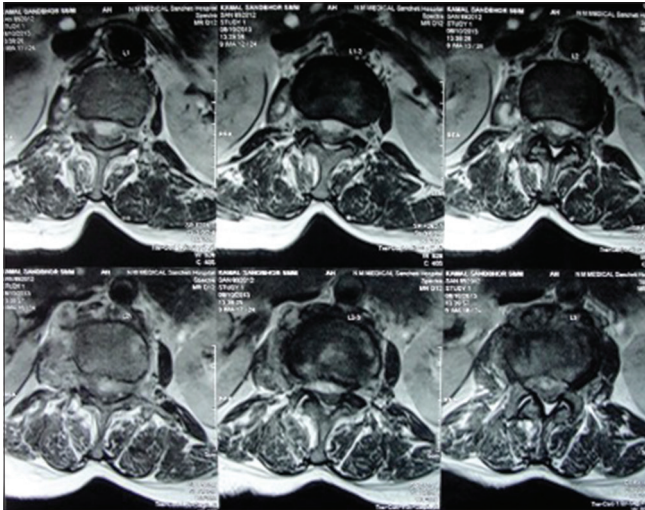


Figure 4: MRI of the spine showing L34 paravertebral collections.



Figure 5: Postoperative X-ray showing D12-L2 laminectomy with D11-L3 posterior stabilization.

Table 1: Sequence of clinical and laboratory parameters.

	VAS	ODI	TLC	ESR	CRP	Widal
On presentation	8	76	12,400	72	69	2560
At 1 month	4	36	8700	14	3.9	1254
At 3 months	1	18	5400	5	1	Negative

picture as in tuberculosis, brucellosis, or fungal osteomyelitis.^[6] However, the key to absolute diagnosis is the recovery of the organism, which can usually come from bone or pus specimens and blood cultures.^[1,6]

Once *Salmonella* infection is identified, it usually responds to treatment with antibiotics such as chloramphenicol, ciprofloxacin, levofloxacin, ceftriaxone, or ampicillin.^[1,6] The duration of antibiotic treatment is varying from 6 weeks, 8 weeks, to 9 weeks.^[6] However, evidence of multidrug-resistant enteric pathogens is rising.^[4]

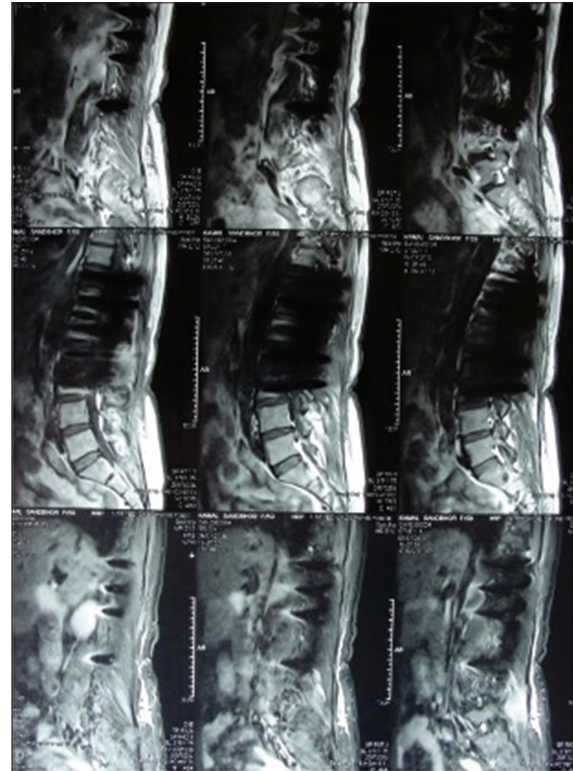


Figure 6: MRI of spine showing resolution of abscess and paravertebral collections.

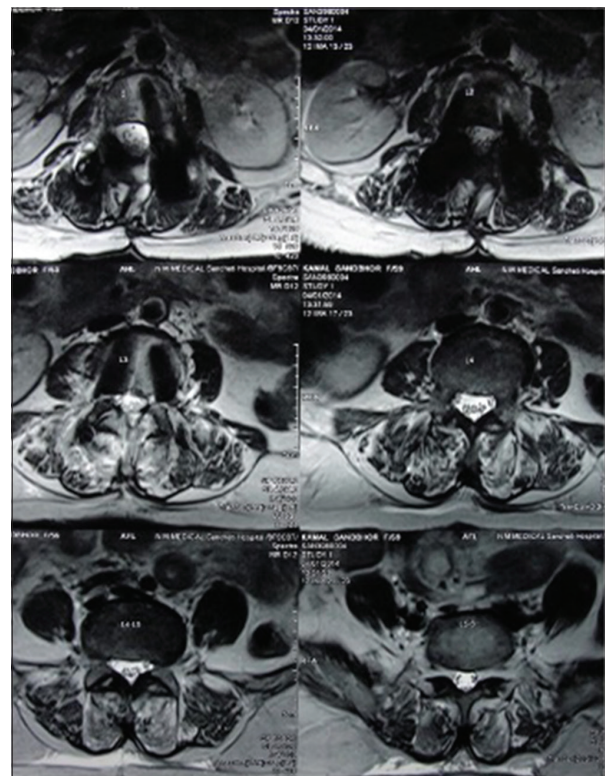


Figure 7: MRI of spine showing resolution of abscess and paravertebral collections.

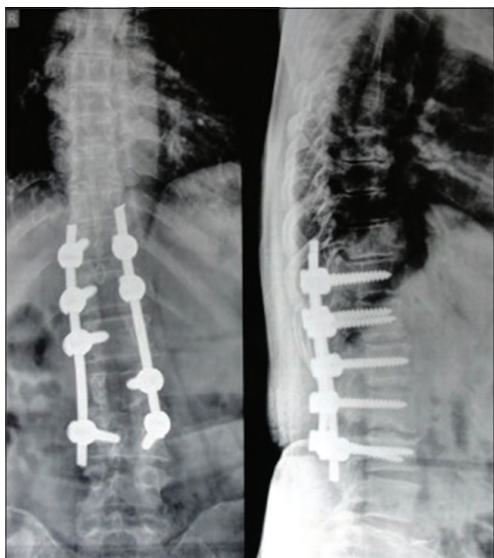


Figure 8: X-ray at 2-year follow-up.

Indications of surgical interventions include osseous instability, neurologic deficit, or to establish the diagnosis in doubtful case.^[3]

CONCLUSION

Salmonella spondylodiscitis should be considered among the differential diagnoses for patients with features of infective spondylodiscitis. Culture-specific antibiotics are the cornerstone of treatment, along with appropriate and timely surgery.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Banerjee B, Madiyal M, Madhava PK, Agarwal M, Mukhopadhyay C. Typhoid spondylodiscitis mimicking tuberculosis in a teenage girl. *J Infect Public Health* 2018;11:136-7.
2. Carvell JE, Maclarnon JC. Chronic osteomyelitis of the thoracic spine due to salmonella typhi: A case report. *Spine (Phila Pa 1976)* 1981;6:527-30.
3. Chang IC. Salmonella spondylodiscitis in patients without sickle cell disease. *Clin Orthop Relat Res* 2005;430:243-7.
4. Chattaway MA, Aboderin AO, Fashae K, Okoro CK, Opintan JA, Okeke IN. Fluoroquinolone-resistant enteric bacteria in Sub-Saharan Africa: Clones, implications and research needs. *Front Microbiol* 2016;7:558.
5. Jain AK. Tuberculosis of the spine: A fresh look at an old disease. *J Bone Joint Surg Br* 2010;92:905-13.
6. Laloum E, Zeller V, Graff W, Aerts J, Chazerain P, Mamoudy P, et al. Salmonella typhi osteitis can mimic tuberculosis. A report of three cases. *Joint Bone Spine* 2005;72:171-4.
7. Rajesh PK, Mythili S, Subramaniam L. Typhoid spine-a case report. *Indian J Med Microbiol* 2004;22:128-9.
8. Tassinari D, Forti S, Torella M, Tani G. A special case of lower back pain in a 3-year-old girl. *BMJ Case Rep* 2013;2013:bcr0920114796.

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