



A Case Report of Salmonella Paratyphi Spondylitis

Dr. Anusheela A. Howladar

Assistant professor, Department of microbiology, Aarupadi veedu medical college and hospital, Pondicherry.

Dr. Pranay Gandhi

Assistant professor in community medicine. Address : Dr. Pranay Gandhi, s/o dr. shailendra Gandhi, near CDCC Bank, civil lines, andrapur. 442401

ABSTRACT

This is a case report of acute L3/4 vertebral osteomyelitis due to Salmonella paratyphi A confirmed by culture from vertebral needle biopsy. The rarity of Salmonella paratyphi spondylitis and the options for treatment are discussed.

KEYWORDS : spondylitis, salmonella paratyphi.

Introduction

Paratyphoid spondylitis which has been confirmed by bacteriological culture has not been described before in the English literature. By contrast, infection with *Salmonella typhi* is well established, particularly in immunocompromised individuals and those with Sickle cell disease [3, 7].

In this report, we present a case of an otherwise healthy young man in whom *Salmonella paratyphi* spondylitis of the lumbar spine was confirmed and adequately treated.

Case report

Mr. R. M., a 32-year-old previously fit Indian male, was admitted in our hospital with a week's history of fever and night sweats accompanied by low back pain for 3 days and also abdominal pain, although without vomiting or diarrhoea.

Examination revealed pyrexia (39°C), mid lumbar spine tenderness and gross restriction of lumbar movements combined with paraspinal muscular spasm but without signs of meningism. Neurological findings in the lower limb were normal. The abdomen was soft without hepatosplenomegaly.

Initial blood tests showed Haemoglobin: 11.2 g/dl, WBC: 11,900, ESR: 50 mm/h and CRP: 51 mg/dl. The blood films demonstrated gram negative rods. The Widal test taken as positive for *Salmonella typhi* H (titer 1:320) and *Salmonella paratyphi* AH (titer 1:320). No sickle cells or malarial parasites were seen in the blood films, and the Mantoux test for Tuberculosis was negative.

Chest X-ray was normal, and the abdominal ultrasound revealed only mild splenic enlargement. X-ray of the lumbosacral spine revealed erosive changes of the anterosuperior border of L4 vertebra with some new bone formation. MRI of the lumbosacral spine demonstrated endplate change between L3 and L4 vertebral bodies involving the intervening disc (Fig. 1). This was combined with paravertebral, intraspinal and anterior epidural soft tissue enhancement, all consistent with infection, but not consistently pyogenic. CT scans added little information beyond osteoporosis of L3 and L4. Isotope scan confirmed the lesion at L3 and L4 vertebral bodies and excluded bone infection elsewhere. (figure 1 comes here)

Needle aspiration of L3–L4 disc space was performed under general anesthesia and biplanar image intensifier control. Microscopic examination of the aspirate showed WBC: 30,000 (Poly: 60%, Lymph: 40%). Culture grew *Salmonella paratyphi* A. Identification and susceptibility testing was done in the following steps by the microbiologist. Step 1: Gram Stain done and Gram Negative Bacilli identified. Step2: Organism was subcultured on blood agar to check purity and to obtain fresh 12–14 h growth. Step3: Identification and susceptibility using

Vitek Automated System. Gram negative identification card was used with a sensitivity of 99% and a specificity of 97%. Step4: Confirmation by Serotyping. Pure colonies were checked for Specific O (1, 2, and 12) and H antisera (A) (Murex). The organism was sensitive to Ciprofloxacin, Ampicillin, Gentamycin and most of the Cephalosporins.

After the X-ray and MRI diagnosis the patient was commenced on intravenous Maxipime (cefepime hydrochloride) 2 gm 8 hourly. Once culture sensitivities were known this was altered to Ciprofloxacin 400 mg IV and Ceftriaxone 2G IV, both given 12 hourly. His fever settled after 2 days, but his back symptoms and signs persisted. Bilateral straight leg raising remained limited but there was no neurological deficit. After 2 weeks the patient's ESR reduced to 85 mm/h and CRP to 9 mg/l and Ciprofloxacin 500 mg BD for 4 weeks and IV Ceftriaxone 1G OD for 10 days was given. His back pain steadily improved, and he was ambulated with a spinal brace for 3 months and subsequently discharged.

Discussion

This is the first case report of paratyphoid spondylitis with microbiological confirmation in the English literature. Review of the literature for the past 55 years accessed a limited number of case reports suggestive of paratyphoid spondylitis but none have been corroborated by bacteriological culture [5, 6, 9,13, 14].

Salmonella osteomyelitis itself represents 1–4% of all bone infections mainly as *S. Typhi* but occasionally paratyphoid osteomyelitis has been suspected but unconfirmed [1, 2, 4, 8, 11, 12]. A review of 28 patients with vertebral osteomyelitis reported that only two of them had *Salmonella typhi* infection and none had *Salmonella paratyphi* [11]. Most *Salmonella typhi* infection are in the lower lumbar spine reflecting lymphatic and venous drainage of the lower intestine.

In this current report, plain X-rays and MRI images showed erosion of the adjacent L3–L4 margins. CT scan and isotope studies did not provide any further useful information. The success rate of obtaining a positive spine biopsy using CT guided needle biopsy has been reported as only 57% [10]. Nevertheless, it is important to make every effort to identify the organism and its antibiotic sensitivity as in this report.

Figure 1:



MRI of the lumbosacral spine showed altered signals in L3 and L4 vertebral bodies

References

1. Bourrel P, Boissan RH. Un cas Saudanais de spondylite typhique. Med Trop. 1961;21:134–140.
2. Carvell JE, Maclarnon JC. Chronic osteomyelitis of the thoracic spine due to *Salmonella typhi*: a case report. Spine. 1981;6(5):527–530.
3. Dolan SA, Everett ED, Harper MC. *Salmonella* vertebral osteomyelitis treated with cefotaxime. Arch Intern Med. 1987;147:1667–1668.
4. Doppelt E, La Rocque F, Morriet Y, Reinert P. Osteomyelitis in patient with sickle cell disease. Arch Fr Pediatr. 1990;47:715–720.
5. Filippov EA, Sidorov AI. Paratyphoid spondylitis. Ortop Travmatol Protez. 1982;6:61–62.
6. Ganndin J. A new case of successful chloromycetin therapy of paratyphoid vertebral osteitis. Mars Chir. 1957;9(5):674–676.
7. Gardner RV. *Salmonella* vertebral osteomyelitis and epidural abscess in a child with sickle cell anemia. Pediatr Emerg Care. 1985;1:87–89.
8. Hoffer FA, Strand RA, Gebhardt MC. Percutaneous biopsy of pyogenic infection of the spine in children. J Pediatr Orthop. 1988;8:442–444.
9. Kostrzewski JM. Spinal lesions in the course of paratyphoid C infection. Przegl Epidemiol. 1977;31(1):133–135.
10. Rieneck K, Hansen SE, Karle A. Microbiologically verified diagnosis of infectious spondylitis using CT-guided fine needle biopsy. APMIS. 1996;104(10):755–762.
11. Soub HAL, Uwaydah AK, Hussain AH. Vertebral osteomyelitis in Qatar. Br J Clin Pract. 1994;48:130–132.
12. Stenstrom R. Spondylitis caused by *Salmonella typhimurium*. Acta Radiol. 1958;49:355–360.
13. Sung HW, Tseng HC. Paratyphoid spondylitis with paravertebral and epidural abscess; report of a case. Chin Med J. 1951;69(5–6):210–217.
14. Ziegler H, Moritz E. A case of spondylitis paratyphosa. Klin Med Osterr Z Wiss Prakt Med. 1960;15:377–382.