

A Case of Neurobrucellosis

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Abstract- A case of spinal brucellosis caused by *Brucella melitensis* and *Brucella abortus* . A forty-year-old male presented with weakness of both lower limbs with fever of 5 months duration. Neurological examination revealed spastic paraplegia with sensory impairment below T 8 . MRI scan of the spine showed a lesion in spondylodiscitis changes at multiple levels . He was started on Rifampicin and doxycycline along with laminectomy and D9-D10 screw fixation. Neurobrucellosis, should be treated early as it can result in irreversible changes. Hence it is important to consider the possibility of neurobrucellosis in endemic region and treat aggressively.

Index Terms- Neurobrucellosis, Paraplegia , *Brucella Melitensis* ,*Brucella Abortus* , Rifamicin and Doxycycline

I. INTRODUCTION

The presentation of neurobrucellosis is varied. It can be either acute or chronic form. It can involve both central or peripheral nervous system . Acute form may present as meningitis or meningoencephalitis .Chronic form involves spinal roots, epidural granuloma , demyelination of long tracts etc.

Case report—A forty-year-old male patient from Saudi Arabia, shepherd by occupation , presented with history of fever and gradually progressive weakness of both lower limbs of 5 months duration . The fever was on and off , associated with

night sweats and significant weight loss. There was no history of trauma or past and family history of tuberculosis. Urinary bladder was not affected .Physical examination revealed a moderately built and nourished man. . He was febrile with a temperature of 99°F (37.2°C). Vital parameters were normal. He was conscious, alert and orientated. Cranial nerve examination was normal. There was no papilledema and meningeal signs were absent. He had spastic paraparesis with power 4/5 (MRC grade). He had impaired sensations(pain, temperature and vibration) in both lower limbs below the level of T8. .Investigations revealed a total white blood cell (WBC) count of 12,880/cu mm with neutrophil predominance. Erythrocyte sedimentation rate ESR (Westergreen) was 50 mm in 1 hour. Magnetic Resonance Image (MRI) scan (picture 1 & 2) shows multiple level spondylodiscitis D9 - D 10 , L2-L3, and L4-L5 , Tests for tuberculosis were negative. Brucellosis was suspected because of his occupation.. *Brucella* serology was positive for IG M & IG (*Brucella melitensis* and *Brucella abortus*) (ELISA). He was treated with rifampicin and doxycycline , and laminectomy (D 9 –D10) and spinal screw fixation . After surgery patient improved symptomatically . MRI Spine after treatment ,Marrow odema decreased in the vertebral bodies adjacent to the D 9 & D 10 , L2-L3 (picture 2) .

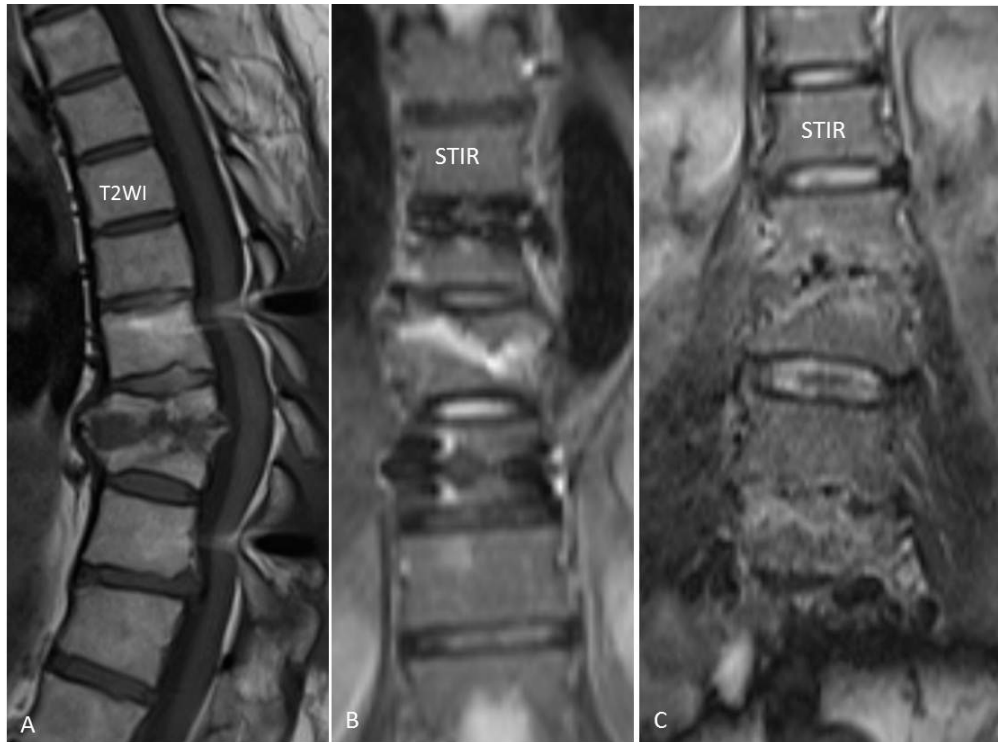
Picture(1)



Brucellosis with multicentric spondylodiscitis. T1W(A), T2W(B),STIR(C) sagittal images reveal marrow edema at D9 and D10 with decreased height of both the vertebral bodies and loss of intervening disc space. Destruction and irregularity of endplates. Increased soft tissue signal in the pre and paravertebral

regions with intraspinal extension causing extradural cord compression and cord edema. Similar changes noted at L2and L3 and at L4 and L5 with Indentation over the thecal sac. There is involvement of pedicles and facets at all these levels.

Picture (2)



Postsurgery follow up of multicentric Spondylodiscitis in brucellosis. T2W Sagittal(A) and STIR coronal(B) images of dorsal spine and STIR coronal(C) image of lumbar spine show significant resolution of marrow edema with involved vertebral bodies becoming nearly isointense with rest of the spine.

II. DISCUSSION

Brucellosis is a zoonotic disease . The true incidence of human brucellosis is unknown. Brucellosis can affect both central nervous system and peripheral nervous system . The exact pathogenesis is not clear. Various mechanisms have been observed. Brucella organisms are capable of prolonged intracellular survival within phagocytes . Decreased host immunity allows the organisms to proliferate. The organism may act directly or indirectly through its endotoxins .

The clinical features of Brucellosis includes nonspecific symptoms and signs such as fever, weight loss, loss of appetite, night sweats. It may be confused with other diseases due to nonspecific nature of signs and symptoms .

Bone and joint involvement are the most common manifestation of this disease which accounts to 10 % to 85% of the cases . The frequencies of spondylitis with musculoskeletal involvement, has been found to be varied, ranging from 10% to 58% . The most common vertebral involvement is the lumbar vertebra, followed by cervical and thoracic involvement respectively. L4-L5 involvement is more common .

Radiologic changes in spinal brucellosis are first seen in superior end plate (rich in venous drainage), followed by involvement of the adjacent discspace and adjacent disc body. The osteophyte formation develops during bone recovery .

Development of sclerosis at the vertebrae and formation of osteophytes are other characteristics observed on x –ray. Narrowing of intervertebral spaces, Erosion, sclerosis , vertebral Collapse, and osteomyelitis leading to abscess formation may occur as the disease progresses. Fusion of vertebrae may develop during late stage .

The duration of treatment varies from 3 months to 2 year depending upon individual cases, surgical or medical line of treatment and response to the treatment. Drugs such as rifampicin, doxycycline and trimethoprim-sulfamethoxazole have been found effective due to their good CNS penetration and synergistic actions . Despite its poor CNS penetration, Tetracycline and streptomycin are used for systemic brucellosis. However, as most of these patients have systemic brucellosis as well, they should be covered with these antibiotics, especially in initial stages. In the present case, rifampicin and doxycycline was advised for 6 months with the surgical correction involving laminectomy and D9 –D10 screw fixation.

III. CONCLUSION

Neuro brucellosis shares its clinical features with a large number of other central and peripheral nervous system disease. Hence neuro brucellosis should be considered as one of the differential diagnosis for fever of unknown origin, meningitis/meningoencephalitis with lymphocytic predominance in CSF, and other neurological manifestations especially when these occur with hepatosplenomegaly or a recent history of weight loss. Neurobrucellosis should be considered in a patient having a history of travel to an endemic country, contact with

cattle or consumption of infected dairy products. It should be treated as early as possible in order to prevent its complications.

REFERENCES

- [1] G. Pappas, P. Papadimitriou, N. Akritidis, L. Christou, and E. V. Tsianos, "The new global map of human brucellosis," *The Lancet Infectious Diseases*, vol. 6, no. 2, pp. 91–99, 2006.
- [2] Desai T, Krishnappa G, Upadhye AS. Incidence of brucellosis in sheep, goats and some human risk groups. *Mysore J Agri Sci* 1995; 29 : 348-51.
- [3] G. Pappas, N. Akritidis, M. Bosilkovski, and E. Tsianos, "Medical progress Brucellosis," *New England Journal of Medicine*, vol. 352, no. 22, pp. 2325–2367, 2005.
- [4] T. Guven, K. Ugurlu, O. Ergonul et al., "Neurobrucellosis: clinical and diagnostic features," *Clinical Infectious Diseases*, vol. 56, no. 10, pp. 1407–1412, 2013.
- [5] Shalmali, A. K. Panda, and R. Chahota, "Sero-prevalence of brucellosis in occupationally exposed human beings of Himachal Pradesh (India)," *Journal of Communicable Diseases*, vol. 44, no. 2, pp. 91–95, 2012.
- [6] N. Ceran, R. Turkoglu, I. Erdem et al., "Neurobrucellosis: clinical, diagnostic, therapeutic features and outcome. Unusual clinical presentations in an endemic region," *Brazilian Journal of Infectious Diseases*, vol. 15, no. 1, pp. 52–59, 2011.
- [7] H. L. Smits and S. M. Kadri, "Brucellosis in India: a deceptive infectious disease," *Indian Journal of Medical Research*, vol. 122, no. 5, pp. 375–384, 2005.
- [8] D. K. Kochlar, B. L. Kumawat, N. Agarwal et al., "Meningoencephalitis in brucellosis," *Neurology India*, vol. 48, no. 2, pp. 170–173, 2000.
- [9] D. K. Kochar, B. K. Gupta, A. Gupta et al., "Hospital based case series of 175 cases of serologically confirmed Brucellosis in Bikaner," *Journal of Association of Physicians of India*, vol. 48, no. 4, pp. 170–173, 2007.
- [10] R. Rajan, D. Khurana, and P. Kesav, "Teaching neuroimages: deep gray matter involvement in neurobrucellosis," *Neurology*, vol. 80, no. 3, pp. E28–E29, 2013.
- [11] N. Ceran, R. Turkoglu, I. Erdem et al., "Neurobrucellosis: clinical, diagnostic, therapeutic features and outcome. Unusual clinical presentations in an endemic region," *Brazilian Journal of Infectious Diseases*, vol. 15, no. 1, pp. 52–59, 2011.

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