

Tuberculosis of Spine with Spastic Paraparesis in Pregnancy: A Case Report and Review of the Literature

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ABSTRACT

Tuberculous paraparesis as a consequence of spinal infiltration in pregnancy is reported to be rare. Analysis of existing literature generates is inconclusive regarding the time and extent of surgical intervention. A potential implication of progression is paraplegia and a significant associated morbidity to the fetus, if delivered premature. A case of spinal tuberculosis in third trimester of pregnancy is reported with description of clinical presentation, neuroradiography findings and successful treatment. Patient was managed by cesarean section followed by immediate spinal decompression. Patient showed complete healing with neurological recovery. Baby suffered no deleterious effect from treatment of the mother. A treatment strategy to successfully treat pregnant women with spinal tuberculosis in the third trimester is recommended. Cesarean section followed by immediate spinal cord decompression is suggested as safe and effective procedure for both mother and child.

Keywords: Tuberculosis of spine, Pregnancy, Third trimester, Cesarean section, Spinal cord decompression.

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INTRODUCTION

India accounts for 30% of the burden of all tuberculosis (TB) cases in the world,¹ an estimated two million cases annually.² More than 80% of the patients are in the economically productive age group of 15 to 54 years.³ Spinal TB is a rare but potentially life-threatening condition associated with a high incidence of morbidity if left untreated.⁴ However, if conducted early, treatment with the use of antituberculous chemotherapy and spinal decompression confers a good prognosis.⁵ Tuberculous paraplegia in pregnancy is rare, with only a few reported cases described in the literature.⁶⁻⁹ We report a case of spinal TB, associated with neurological deficit, in women

in the third trimester of pregnancy. Treated successfully by planned cesarean section, spinal decompression and long-term chemotherapy.

CASE REPORT

A 20-year-old primigravida presented to us with 1 week history of progressive bilateral weakness and altered sensation in the lower limbs. Bowel and bladder function was undisturbed. She was 36 weeks pregnant on presentation. There was no history of night sweats or fever or any contact with any one known to have TB.

On examination, both lower limb had grade 2 to 3 Medical Research Council (MRC) motor power with sensation was reduced from the level of T6 distally. Lower limb reflexes were brisk with upgoing plantar reflexes. Sphincter tone and perianal sensation were preserved. Provisional diagnosis of spinal cord compression was made. Magnetic resonance imaging (MRI) scan revealed epidural collection significantly compressing spinal cord from posteriorly at D5/D6/D7 level with extension into paraspinal muscles (Figs 1A and B). After determining that a viable fetus can be secured at 36 weeks, cesarean section with simultaneous decompression of spine was planned.

A low section cesarean section was performed. A birth weight of the child was 2.5 kg with Apgar score of nine. As soon as the abdominal wound was closed, patient was positioned in prone. On laminectomy of D7, relatively avascular granulation tissue was found in epidural space compressing the thecal sac which was excised totally with decompression of the cord. Facet joints preserved, hence, no stabilization done. Postoperatively, there was no problems in the spinal nursing of the patient. Child was fed with expressed breast milk and breastfeeding was possible after few days. On the 3rd postoperative day, motor power of bilateral lower limbs improved to Gr 4 (MRC). She was ambulated with extension body brace. At 6 months, she is ambulating independently with premorbid level of power in bilateral lower limbs and reported that both she and the baby were doing well. Antitubercular treatment will be continued for 18 months following diagnosis.

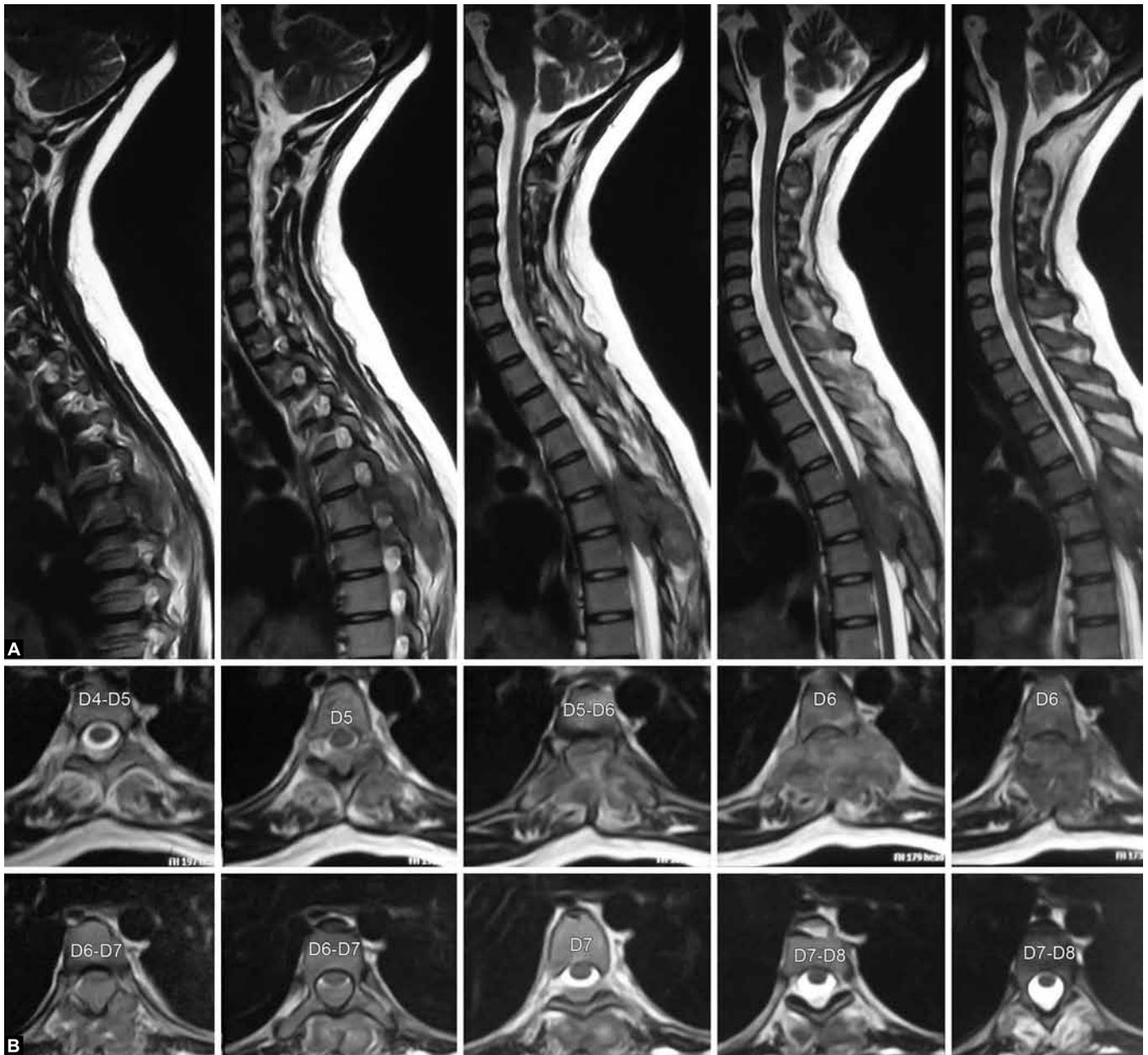
DISCUSSION

Now, TB is believed to get flared up by the stress of pregnancy, especially in association with a poor nutritional status, immunodeficient state, or coexistent diseases.²

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Figs 1A and B: Magnetic resonance imaging

The pulmonary and extrapulmonary forms of TB affect pregnant women in the same way as the non-pregnant ones. The effects of TB on pregnancy depend upon various factors, such as type, site and extent of the disease, stage of pregnancy when management gets instituted, nutritional status of mother, presence of concomitant disease, immune status and coexistence of HIV infection, availability of facilities for early diagnosis and treatment. A fetus can get TB infection either by hematogenous spread through umbilical vein to fetal liver or by ingestion or aspiration of infected amniotic fluid.¹⁰ True congenital TB is believed to be rare. The risk to neonate of getting TB infection shortly after the birth is greater.¹¹ Use of isoniazid, rifampicin, ethambutol, pyrazinamide, streptomycin, kanamycin and cycloserine has been considered safe for breastfeeding, but safety of

PAS is unproven.¹² First line drugs barring streptomycin are safe. A question-mark exists on the safety of second line drugs in the pregnant state. Therefore, expectant mothers with MDR-TB should be advised to terminate the pregnancy.²

Anesthesia considerations: General anesthesia will almost always be indicated. For third trimester gestations, the patient may be suitable for initial cesarean delivery, followed by the neurosurgical procedure, using an appropriately modified anesthetic technique.^{13,14} Postpartum hemorrhage from uterine atony remains a risk during the subsequent neurosurgery. The prone position for spinal surgery in pregnancy may cause difficulties with respect to fetal monitoring, emergent cesarean delivery, and increased epidural venous bleeding. However, in this position, the placental perfusion may increase as

shown in 23 pregnant women.¹⁵ Some anesthesiologists avoid spinal surgery in the prone position in the pregnant patient.¹⁶ Instead, the spinal procedure follows delivery by cesarean delivery.

In a recent review of surgical strategies for spinal disease in pregnant women, Han et al¹¹ reported a single case of tuberculous spondylitis at the level of T3 to T5. In their case, paraparesis mandated surgical fusion at 16 weeks, and the patient underwent a preoperative therapeutic abortion due to the inevitable radiation exposure during fusion surgery. After 12 weeks of gestation, the prone position is not recommended for patients with a gravid uterus, and the left lateral decubitus position is recommended to avoid aortocaval compression.⁷ This has an obvious impact on the technical difficulty of surgery but will also alter the hemodynamic effects of anesthesia. The potential problems of nursing a patient after spinal surgery with a gravid uterus are also avoided using this strategy. Based on our experience on this case, we recommend the following consideration for surgical decompression for spinal TB with paraparesis in pregnancy:

- *First semester of pregnancy:* Abortion followed by spinal decompression is suggested to prevent fetal exposure to X-rays and relative congenital deformities.
- *Second trimester:* Treatment with antitubercular drugs followed by close monitoring. If neurological worsening, then left lateral decubitus position and spinal decompression with no stabilization to minimize fetal exposure to X-ray and prolonged anesthesia effects.
- *Third semester:* Combined cesarean section followed by spinal cord decompression is suggested as safe and effective procedure for both mother and child. The augmentation of maturity of the fetal respiratory system with steroids is also an important issue to bear in mind in these cases.

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