



Case Report

Pott's Disease in Pregnancy: A Case Report and Review

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Abstract

Spinal tuberculosis (Pott's disease) during pregnancy reported to be rare & can be associated with destruction of the intervertebral disc & adjacent vertebrae that can lead to cord compression & thereby paraplegia or quadriplegia. Delay in diagnosis is common & most cases are diagnosed when paraplegia has already been occurred. This serious complication requires special attention during pregnancy & delivery. Here we reported a case of term pregnancy with Pott's paraplegia. As the patient had complete motor & sensory loss from D7 level, (above the level of umbilicus to the lower limbs) LUCS was done without anesthesia & a healthy female baby was delivered. She did not require any analgesia post operatively.

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Introduction

Pott's disease is a presentation of extra pulmonary tuberculosis (TB) that affects the spine, a kind of tubercular arthritis of the intervertebral joints. It is named after Percivall Pott (1714-1788), a London surgeon¹. Scientifically, it is called tuberculous spondylitis & it is most commonly localized in the lower thoracic & upper lumbar vertebrae & intervertebral discs². Pott's disease results from haematogenous spread of tuberculosis from other sites, usually pulmonary. The infection then spreads from two adjacent vertebrae into intervertebral discs along with surrounding structures leading to paravertebral abscess formation.³ The disease affects males more than females in a ratio of between 1:5 and 2:1. In USA, it affects mostly adults but in countries where it is commonest, it affects mostly children.^{4,5}

Symptoms of the spinal TB are gradually onset together with systemic features of TB. There is usually localized back pain which is made worse on weight bearing, coughing, sneezing, movement etc. There may be kyphosis or paravertebral swelling or a psoas abscess may present as a lump in the groin & resembles a hernia. If there is neural involvement there will be neurological sign like weakness, paraplegia or quadriplegia.⁶

A comparison study of Dr. Cleveland showed that in 'non paralytic group' the most often areas involved was from ninth thoracic to second lumbar vertebrae. In 'paralytic group' the areas frequently involved were 5th to 9th thoracic vertebrae, because the spinal canal is smallest at this level. Therefore, the products of inflammation would cause maximum pressure on the cord at this level.⁷

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The symptoms of Pott's paraplegia become apparent when there is interference with the conductivity of the spinal cord. This may be caused by inflammatory process resulting in edema of the cord, pressure of granulation tissue, tension abscess or tuberculous patchy meningitis. The pressure is directly over the anterolateral columns, so that motion affected earlier than is sensation.⁸ From a prolonged & careful study it is evidenced that Pott's paraplegia can be simply classified as early-onset and late-onset types.

In early onset paraplegia, the signs appear early, usually during the first two years of the disease. The paralysis may appear even before the diagnosis of tuberculosis of spine has been made. The palsy is usually more complete than the late-onset type. The symptoms are caused by inflammation, edema or abscess formation. Therefore, rapid & complete recovery usually follows efficient recumbency treatment. Paraplegia of this type is common & requires no surgery for relief, unless, it progresses while under conservative treatment.

Late onset paraplegia occurs from two to many years after the onset of the spine lesion. The paralysis is often incomplete, selective & progressive. Girdle pains may be the first complaint, although loss of coordination in the lower extremities may be the initial symptom. The tendon reflexes are hyperactive. Loss of sensation & loss of sphincter control appear late in the progress of the disease & may be patchy. The paralysis is evident with the extremities in extension & slightest stimulation will cause the lower extremities to flex vigorously at the knees & hips. Loss of vibratory sense is apparent. The condition of the patient becomes rapidly worse & there is danger of permanent paraplegia. The prognosis is then grave. Surgical intervention should be contemplated before the paraplegia has progressed to this stage^{9,10}

When conservative treatment of three to four months duration fails to give signs of recovery, surgical indications should be sought & route to follow should be determined. Laminectomy is indicated in tuberculosis of vertebral appendages

when there is minimal evidence of a tension abscess or of bone pressure. A tuberculous vertebral appendage, a granuloma, or a caseous abscess within the spinal canal is easily exposed & removed.

Costotransversectomy is indicated when there is evidence of a tension abscess or a sequestrum. The abscess is drained away from, rather than around, the spinal cord. If the spine has not been fused previously, fusion may be done at operation or afterwards before the onset of the paraplegia.

Patient with Pott's paraplegia should not be allowed to remain in a paraplegic state indefinitely. Drainage of psoas, lumbar, or mediastinal abscess by aspiration or incision should be performed to relieve spinal cord pressure.^{11,12}

Case study

A 22 years old lady (G2P0A1) admitted in RMCH, Rajshahi, at 35 weeks of pregnancy with the complaints of unable to walk, loss of sensation of both lower limbs & urinary incontinence for two weeks. She was relatively well up to 22 weeks of pregnancy. Thereafter she noticed mid back pain which was localized & aggravated by movement. She was treated by a local doctor but the pain was not improved. One and half months later she developed weakness & numbness of both lower limbs & finally patient became completely bed ridden. She also developed urinary incontinence which required an in-dwelling catheter. In this period she had low grade fever with marked weight loss but had no cough or haemoptysis. She had no family or personal history of pulmonary TB. The patient did not have any regular antenatal check up but she was immunized against tetanus.

On admission, the patient was anaemic, normotensive & had no lymphadenopathy or organomegally. Higher psychic functions including speech were normal, all cranial nerves were intact & upper limbs revealed no abnormality. A gibbous was present at D7-8 level & tenderness was present at & around the level of D7-8. Motor power was grade '0' with minimum

muscle wasting. All reflexes were brisk with bilateral clonus & up going planter reflexes. There was pan sensory loss up to the level of T9 (above the level of umbilicus). Investigations showed hypochromic anaemia & increased ESR. Chest radiography was normal but MRI of the spine confirmed the localized destruction & collapse of the vertebral body & disc between D7-8. There was also paraspinal soft tissue swelling causing significant cord compression. Treatment was started according to advice of Neurologist consisting of Isoniazid 300mg, Rifampicin 450mg, Ethambutol 800mg, Pyrizinamide 1500mg & Pyridoxin 50 mg daily along with short course of steroid (40mg/kg/day) for 4 weeks & gradually tapered within 2 weeks. Neurosurgeon gave opinion for surgical decompression but patient's attendants refused operation. The pregnancy was monitored constantly. Careful attention was paid to the skin to prevent decubitus ulcer. Urinary tract also monitored for any infection, nutritional & haematological status of the patient was assessed. As the presentation of fetus was breech, a decision was made for elective caesarean section at 37 weeks. As there was complete motor & sensory loss from D7 level (above the level of umbilicus) to the lower limbs, LUCS was done without anesthesia under close supervision anesthesiologist. A healthy female baby was delivered & the patient passed her post operative periods without any analgesia. Primary healing was obtained & the patient was discharged on 10th post operative day with a healthy child. During discharge, the patient was advised to continue anti TB therapy & to come for follow up after 6 weeks.

After 6 weeks, there was no significant sensory improvement; only deep pinprick sensation was present. Muscle power was grade 2 (can move both lower limbs side to side with difficult but can not move against gravity).

Discussion

Lower back pain in pregnant women is not always benign & delayed diagnosis can lead to complications. The sub clinical course spinal TB in early pregnancy can progress to aggravation or worsening of the disease leading to spinal injury in

late pregnancy. The most difficult being performing spinal nursing in presence of gravid uterus in the third trimester.⁸ The subject naturally divides itself into two parts- the effects of Pott's disease on pregnancy & the effects of pregnancy on Pott's disease.

The regions of the spine which are of interest to us for their relation to gravid uterus are, the lower dorsal, the lumbar & the sacral vertebrae. Kyphosis due to disease process leads to diminished vertical diameter of the abdominal cavity. Furthermore abscess formation usually complicates in these portions of the spine & this may further diminish the capacity of either abdominal cavity or pelvic cavity. The great majority of cases of Pott's disease occur in childhood & the younger the patient, the greater is the pelvic changes.⁹ In kyphotic pelvis, only the voluntary forces of labour are much affected. These are impaired directly in proportion to the deformity of the pelvis on simple mechanical principles & the obliquity of the uterine axis prevents the effective application of that strength which remains. Delay usually occurs in second stage of labour.^{10, 11} However; histories of these cases reported a considerable number of labour in paraplegic women, which prove that the assistance of abdominal muscles is not absolutely necessary to the accomplishment of parturition in the absence of deformity of the pelvis or from resistant soft tissue at the outlet.¹² The essential involuntary muscles, luckily, not much affected by the disease of the spine & the uterus may be excited to contraction by the most varied peripheral & the central influences.^{13, 14}

The indication *par excellence* for treatment in Pott's disease is acknowledged by all to be the removal of the weight of the trunk from the bodies of the diseased vertebrae which already softened & totally unable to sustain even the ordinary weight of the body. The danger of rupture of already existing abscess or of precipitating pressure paralysis is greatly increased by the weight alone of the gravid uterus.^{13, 14}

Pregnancy in paraplegic women poses complications like UTI, anemia, pressure sores,

premature labor, & autonomic hyperreflexia- a potential life threatening complication characterized by headache, sweating, severe hypertension leading to unconsciousness & convulsions secondary to hyper stimulation of Splanchnic nerves & loss of central control over sympathetic spinal nerves reflexes when the lesion is above T6.¹⁵ None of the above complications occurred in our patient as her lesion was below 6th thoracic vertebra.

Govender reported managing of four cases of pregnancy with paraplegia by allowing supervised vaginal deliveries, followed by spinal decompression. The patients walked at the end of 5month.¹⁶ Nsofor reported a case of post partum paraplegia due to TB who was treated only with chemotherapy & recovered after seven month¹⁷. We also treated our patient with only chemotherapy & little improvement observed after 6 weeks follow up. However, several studies recommended that, urgent decompression of the spinal canal together with antitubercular chemotherapy for 3 months is the optimal management in non pregnant patient¹⁷ According to the recommendations issued in 2003 by the US Centers for Disease Control and Prevention, the Infectious Disease Society of America and American Thoracic Society, a 4-drug regime should be used empirically to treat Pott's disease. Isoniazide & Rifampicin should be administered during the whole course of therapy & additional two drugs are used during first two months of therapy. Among them, first line drugs include, Pyrizinamide & Ethambutol. The use of second line drugs is indicated in case of drug resistance. The duration of treatment is somewhat controversial. It should be individualized & based on the resolution of active symptoms & the clinical stability of the patient. The antitubercular drugs should be associated with steroid (20-60 mg/day for 6-8 weeks)^{18, 19}. As our patient was pregnant, we used anti-TB drugs safe for the fetus.

The onset & detection of labour poses a problem in paraplegic woman. When the lesion is above the 11th thoracic spinal level, painless labor occurs & premature labour tends to be more common.²⁰ Paraplegia is not a contraindication to vaginal

delivery. Episiotomy in paraplegic woman should be repaired with non-absorbable suture (silk or nylon) or delayed absorbable sutures (vicryl or Dexon). Catgut sutures are poorly absorbed and often cause abscess formation.²¹ In our patient; we did caesarean section without anesthesia & no analgesia used postoperatively. Therefore, in the successful management of a pregnant paraplegic, a team effort involving a physician, a neurologist, an obstetrician, an anesthesiologist, an urologist & rehabilitation personnel is required.

Conclusion

Tuberculosis can cause significant morbidity in the pregnant woman, fetus & members of the community. The first line agents suggested by CDC during pregnancy seem to have minimal risk of induced congenital anomalies. Education of the patient concerning the potential side effects may decrease maternal morbidity. Therapy should be started as soon as diagnosis of TB is confirmed. Worsening of the neurological condition necessitates early surgical intervention & in some cases, termination of pregnancy. Management by a health care team attentive to the special problems that may complicate pregnancy offers the best chance for a successful pregnancy outcome.

References

1. Pott's disease- Wikipedia, the free encyclopedia. Internet. (http://en.wikipedia.org/wiki/pott's_disease)
2. S.Govender, S.C.Moodley, M.J.Grootboom. Tuberculous paraplegia during pregnancy: A report of 4 cases. *S Afr Med J* 1989; 75(4): 190-2
3. Pott's disease (spine). Internet. (<http://www.patient.co.uk/showdoc/40001278>)
4. Adendorff JJ, Boeke EJ, Lazarus D. Pott's paraplegia. *S Afr Med J* 1987; 71: 427-428
5. Tsoutsoplides GC. Pregnancy in paraplegia: a case report. *Int J Gynaecol Obstet* 1982; 2: 79-83
6. Lomaar AE. Observations on menstruation and pregnancy among female spinal cord injury patients. *Paraplegia* 1966; 3: 263-266
7. Goller H, Paeslaer V. Our experiences about pregnancy & delivery of the paraplegic woman. *Paraplegia* 1971; 8: 161-165
8. Robeertson DNS. Pregnancy and delivery in paraplegic. *Paraplegia* 1972; 10: 209-211

9. Vaidya MK, Shah GV, Bharucha KE. Pregnancy and its outcome in quadriplegia due to Pott's spine. *Int J Gynaecol Obstet* 1995 Jun; 49(3): 319-21
10. Brost BC, Newman RB. Maternal and fetal effects of tuberculosis therapy. *Obstet Gynaecol Clin North Am.* 1997 Sep; 24(3): 659-73
11. Green Spoon JS, Paul RH. Paraplegia and quadriplegia: special considerations during pregnancy and labor and delivery. *Am J Obstet Gynecol* 1986 Oct; 145(4): 738-41
12. Jose A Hidalgo, George Alangaden. Pott's Disease.(Tuberculous Spodylitis): Treatment and Medication. Internet. (<http://emedicine.medscape.com/article/226141-treatment>)
13. Suchaya Luewan, Torphong Bumaprasert, Korku Chiengthong, Theera Tongsong. Spinal tuberculosis in pregnancy. *International Federation of Gynecol and Obstetrics* 2008. Internet.
14. Nussbaum ES, Rockswold GL, Bergman TA, Erickson DL, Seljeskog EL. Spinal tuberculosis: a diagnostic and management challenge. *J Neurosurg* 1995; 83(2): 243-7
15. Singh H, Singh J, Abdullah BT, Matthews A. Tuberculous paraplegia in pregnancy treated by surgery. *Singap Med J* 2002; 43(5): 251-3
16. Vaidya MK, Shah GV, Bharucha KE. Pregnancy and its outcome in quadriplegia due to Pott's spine. *Int J Gynecol Obstet* 1995; 49(3): 319-21
17. T. Halsted Myers. POTT'S DISEASE AND PREGNANCY. *J Bone Joint Surg Am.* 1891; S1-4:124-131
18. George J, Garceau and Thomas A. Brady. POTT'S PARAPLEGIA. *J Bone Joint Surg Am.* 1950; 32:87-102

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