Introduction
The reported incidence of Pott’s disease in pregnancy is dependent on the efforts made to recognize it. Reactivation of old tuberculosis in pregnant patients without chemotherapy is reported to occur up to 27%. We report 2 cases of paraplegia and quadriplegia in pregnancy due to tuberculosis that was successfully treated by caesarean section at 34 weeks gestation; followed by anterior surgical decompression and bone grafting of the spine during the same anaesthesia.

Case Report
Case 1
A 32-year-old woman G2P1L1 was referred to our antenatal OPD for second opinion at 32 weeks gestation with progressive weakness of both lower limbs and backache for two months associated with difficulty in walking. She had been complaining of severe backache but her complaints were attributed to pregnancy changes during prior antenatal visits. We got an orthopaedic opinion after admission. Both lower limbs had grade 2 motor power with sensory loss of 25% below the umbilicus. Lower limb reflexes were brisk with up-going plantar reflexes. Anal tone was lax with bowel incontinence. Over the next few days while being investigated she developed urinary incontinence which required an in-dwelling bladder catheter. She had a hypochromic microcytic anaemia of chronic disease, with an ESR of 90 mm/hr. The Mantoux test was 40 mm.

Case 2
A 30-year-old woman G5P4L3D1 presented at 33 weeks gestation with pain in neck since 2-3 month, progressive weakness of both upper and lower limbs for two months associated with difficulty in walking. She had been complaining of severe backache and had been attributed to pregnancy changes during prior antenatal visits. We got an orthopaedic opinion after admission. Both lower limbs had grade 2 motor power with sensory loss of 25% below the umbilicus. Lower limb reflexes were brisk with up-going plantar reflexes. Anal tone was lax with bowel incontinence. Over the next few days while being investigated she developed urinary incontinence which required an in-dwelling bladder catheter. She had a hypochromic microcytic anaemia of chronic disease, with an ESR of 90 mm/hr. The Mantoux test was 40 mm.

Abstract
Tuberculous paraplegia and quadriplegia in pregnancy is reported to be rare. Paraplegia due to tuberculosis has a good prognosis if surgical decompression and stabilization are done early together with chemotherapy. Awareness of signs and suitable investigations may be delayed due to pregnancy, as patient and clinician may attribute these to the gravid state. Vaginal delivery is not contraindicated in pregnancy complicated by paraplegia, but is associated with problems related to the initiation and progression of labour. Performing spinal nursing on an unstable spine with a rapidly enlarging gravid uterus in the third trimester of pregnancy poses a significant challenge. We report successful simultaneous caesarean section and surgical treatment of a paraplegic spine due to tuberculosis.
sensory loss of 25% below the umbilicus. Lower limb reflexes were brisk with up-going plantar reflexes. Anal tone was lax with bowel incontinence and there was urinary incontinence which required an indwelling bladder catheter. She was a hypochromic microcytic anaemia of chronic disease, with an ESR of 60 mm/ hr.

Chest radiograph showed an atelectasis in the left lower zone; and spine radiographs showed a collapse of C3-4 vertebra with Para vertebral abscess. An MRI (Fig. 3) showed localized collapse of C3 with compression of spinal cord, and a large abscess at the site which was extending into the spinal canal causing significant cord compression.

Management

Both patients were initially managed with antituberculous chemotherapy (rifampicin 600 mg daily, isoniazid 300 mg daily, pyrazinamide 2 g daily and vitamin B6). Inj betamethasone 12 mg 2 doses were given for foetal maturity. It became difficult performing spinal nursing on the patient as her gravid uterus became larger during the two weeks of hospitalisation, and were developing decubitus ulcers and urinary tract infection. After determining that a viable foetus could be secured at 32 – 34 weeks and to avoid permanent neurodeficiency decision of elective caesarean section with simultaneous decompression of the spine was planned. A lower segment Caesarean section was performed.

In case 1, the birth weight of the child was 1.6 kg with Apgar score of 7, 8 and 9. As soon as the abdominal wound was closed, iliac bone graft was harvested via a separate incision from the right iliac crest. The patient was then positioned laterally with the left
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side up for a thoracotomy. A standard right thoracotomy based on the 8th rib was performed with the rib harvested on its vascularised pedicle.\textsuperscript{6,7} The abscess was drained and the decompression of the cord performed with clearance of debris and pus from the spinal canal under direct vision. The iliac strut graft was fitted in a trough made between the vascularised rib was strutted between T5 and T10;\textsuperscript{6,7} the lung expanded, and the wound closed with chest drainage.

In the second patient the birth weight of the child was 1.7 kg with Apgar score of 7, 8 and 9. As soon as the abdominal wound was closed, iliac bone graft was harvested via a separate incision from the right iliac crest. Through antero-lateral approach the abscess was drained and the decompression of the cord at level of C2-3 and C3-4 was performed with clearance of debris and pus from the spinal canal under direct vision. The iliac strut graft was fitted in a trough made between the vascularised rib was strutted between C3-4 and the wound closed with chest drainage. Post operatively, there were no problems in the spinal nursing of the patient.

In first case the child expired after 1 week due to prematurity with low birth weight with sepsis. On the 8 day she had motor power of grade 3 in the lower limbs. Spinal nursing was continued for another 4 weeks until the wounds were healed and an extension body cast was applied. She began mobilizing on the 6th week and was ambulatory with a walking frame and motor power of grade 4. Anal and bladder control was normal by this time.

In second case child was fed with expressed breast milk, and breast feeding was possible after a few days. On the 2\textsuperscript{nd} week she had motor power of grade 3 in the lower limbs. Spinal nursing was continued far another 4 weeks until the wounds were healed and an extension body cast was applied. She began mobilizing on the 4\textsuperscript{th} week and was ambulatory with a walking frame and motor power of grade 4. Anal and bladder control was normal by this time.

The best long term results for treatment of spinal tuberculosis is still the modified Hong Kong operation with chemotherapy.\textsuperscript{10} Good results have also been shown in the pedicled vascularised rib graft\textsuperscript{11} (Kalafong procedure). Bradford and Daher\textsuperscript{7} described the vascularised rib graft for the surgical treatment of kyphotic spinal deformities; whereas Hodgson and Stock\textsuperscript{8} used their radical operation for treatment of tuberculosis of the spine. We used a combination of both these procedures.

Discussion

Pregnancy is a physiological state associated with many changes. In the Indian scenario multiparous women often neglect their symptoms until the severity increases. It may happen that physicians too may disregard symptoms and signs that would be investigated more aggressively in the non-pregnant state. This is partly due to a hesitation to expose the foetus to radiological examination. However, these cases illustrate the need to be vigilant and aggressively investigate cases when warning signs are present lest severe sequelae set in. Nsofor\textsuperscript{2} reported a case of postpartum paraplegia due to tuberculosis who was treated with chemotherapy and recovered after seven months. It was our original intention to manage this case with chemotherapy and assisted vaginal delivery initially; however our patient could not tolerate spinal nursing due to her gravid uterus and began to develop decubitus ulcers and urinary tract infection, which caused us to consider early surgical intervention. The chemotherapeutic agents used for this patient seem to have minimal risk of induced congenital anomalies and the maternal morbidity associated with this therapy does not seem increased above rates observed in the non-pregnant population.\textsuperscript{1}

Both the patients walked independently at the end of five months.
Conclusion

Spinal tuberculosis must be considered as a cause for persistent backache in pregnancy, and investigations should not be unduly delayed due to the gravid state. Based on our experience on these cases, we recommend the consideration for surgical decompression for spinal tuberculosis with paraplegia in pregnancy, when conservative treatment cannot be carried out.

References