

# Tuberculous Paraplegia in Pregnancy Treated by Surgery

Harwant Singh, Jaspal Singh, Borhan Tan Abdullah, Alex Matthews

## ABSTRACT

**Tuberculous paraplegia in pregnancy is reported to be rare. Paraplegia due to tuberculosis has a good prognosis if surgical decompression and stabilisation are done early together with chemotherapy. 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.**

**Keywords:** spinal decompression, rib graft, Caesarean section, spinal fusion, Pott's disease

*Singapore Med J 2002 Vol 43(5):251-253*

## INTRODUCTION

Tuberculous paraplegia in pregnancy is reported to be rare<sup>(1)</sup>. The reported incidence is dependent on the efforts made to recognise it. However, reactivation of old tuberculosis in pregnant patients without chemotherapy is reported to occur up to 27%<sup>(2)</sup>. Paraplegia due to tuberculosis has a good prognosis if surgical decompression and stabilisation is done early together with chemotherapy<sup>(3)</sup>. While vaginal delivery is not contraindicated in pregnancy complicated by paraplegia, it is associated with problems related to the initiation and progression of labour<sup>(4,5)</sup>. In addition, 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 a four-year follow-up of a case of paraplegia in pregnancy due to tuberculosis, that was successfully treated by Caesarean section at 35 weeks gestation; followed by anterior surgical decompression and bone grafting of the spine during the same anaesthesia.

## CASE REPORT

A 25-year-old woman G4P2A1 presented at 33 weeks gestation with progressive weakness of both lower

limbs for two months associated with a cough. She did not have any regular antenatal follow-up, and did not seek prior treatment for her cough. At admission both lower limbs had grade 1 (MRC) motor power with sensory loss of 50% 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 in-dwelling bladder catheter. She had a painful gibbus at T7 spinal level. She had a hypochromic microcytic anaemia of chronic disease, with an ESR of 93mm/hr. The Mantoux test was 40 mm. Chest radiograph showed an opacity in the right middle zone; and spine radiographs (Fig. 1) showed a collapse of T7 vertebra with paravertebral abscess and localised kyphosis indicating an unstable spine. MRI of the spine confirmed the localised collapse of the T7 vertebra with bony compression of the cord, and a large abscess at the site which was extending into the spinal canal causing significant cord compression.

She was initially managed with antituberculous chemotherapy (rifampicin 600 mg daily, isoniazid 300 mg daily, pyrazinamide 2 g daily and vitamin B6). It became difficult performing spinal nursing on the patient as her gravid uterus became larger during the two weeks of hospitalisation, and she was developing decubitus ulcers and urinary tract infection. After determining that a viable foetus could be secured at 35 weeks, an elective caesarean section with simultaneous decompression of the spine was planned.

A low section Caesarean section was performed. The birth weight of the child was 2.6 kg with APGAR score of 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 right side up for a thoracotomy. A standard right thoracotomy based on the 8th rib was performed with the rib harvested on its vascularised pedicle<sup>(6,7)</sup>. 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 T6 and T8 vertebral bodies<sup>(8)</sup>.

Department of  
Orthopaedics  
Hospital Seremban  
70300 Negeri Sembilan  
Malaysia

Harwant Singh,  
MChOrth,  
FRCSed, PhD  
Consultant Orthopaedic  
Surgeon and Head

Hospital Kuala  
Lumpur  
50586 Kuala Lumpur  
Malaysia

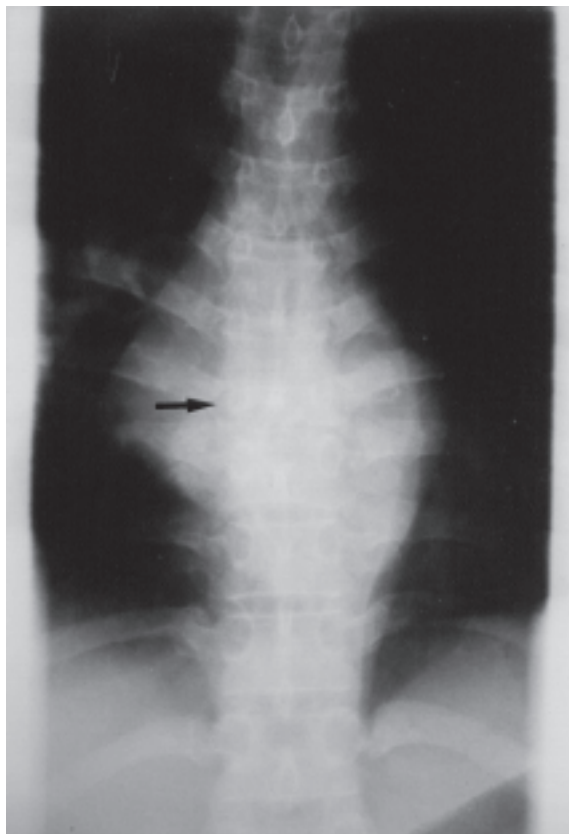
Borhan Tan Abdullah,  
MChOrth, FRCSed  
Senior Consultant and  
Head, Institute of  
Orthopaedics and  
Traumatology

Maternity Hospital  
50586 Kuala Lumpur  
Malaysia

Jaspal Singh, MRCOG  
Consultant Obstetrician  
and Gynaecologist

Alex Matthews,  
FRCOG  
Senior Consultant  
and Head

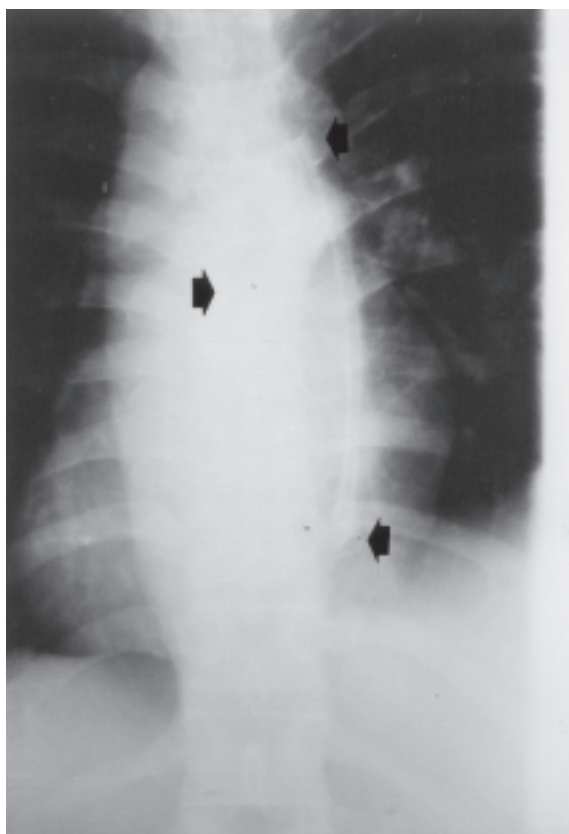
**Correspondence to:**  
Harwant Singh  
Tel: (603) 7877 3171  
Fax: (603) 7877 3171  
Email: harws@  
pd.jaring.my



**Fig. 1** Preoperative antero-posterior radiograph showing the collapse of T 7 vertebral body (arrow).



**Fig. 2** Post operative antero-posterior radiograph of the thoracic spine with the iliac graft in situ between T8 and T10 levels; and vascularised rib graft between T5 and T10 levels. Chest drain is seen.



**Fig. 3** Antero-posterior radiograph of thoracic spine at four years' follow-up. Note the fusion of the thoracic spine with the iliac graft between T6 and T8 levels, and the vascularised rib graft in situ between T5 and T10 levels.

The vascularised rib was strutted between T5 and T10<sup>(6,7)</sup>; the lung expanded, and the wound closed with chest drainage (Fig. 2).

Post operatively, there were no problems in the spinal nursing of the patient. The child was fed with expressed breast milk, and breast feeding was possible after a few days. On the 3<sup>rd</sup> day she had motor power of grade 3 (MRC) in the lower limbs. Spinal nursing was continued for another two weeks until the wounds were healed and an extension body cast was applied. She began mobilising on the third week and was ambulatory with a walking frame and motor power of grade 4 (MRC). Anal and bladder control was normal by this time. At four months spine radiographs showed evidence of fusion, and her cast was removed. She was ambulating independently and her child was well. Anti-tuberculosis chemotherapy was continued for one year. At four years she is normal neurologically, has a slight kyphosis of the thoracic spine, and complaints of some backache; however she can do her daily work without difficulty. Radiographs confirmed fusion of the thoracic spine between T6 and T8, with intact vascularised rib between T5 and T10 (Fig. 3).

#### DISCUSSION

Tuberculosis of the spine with paraplegia in an unstable spine poses a special problem, the most difficult being

performing spinal nursing in the presence of a rapidly enlarging gravid uterus in the third trimester. Govender<sup>(1)</sup> reported managing four such cases by allowing supervised vaginal deliveries, followed by spinal decompressions. The patients walked independently at the end of five months. Nsofor<sup>(2)</sup> 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<sup>(9)</sup>.

The best long term results for treatment of spinal tuberculosis is still the modified Hong Kong operation with chemotherapy<sup>(10)</sup>. Good results have also been shown in the pedicled vascularised rib graft<sup>(6)</sup> (Kalafong procedure). Bradford and Daher<sup>(7)</sup> described the vascularised rib graft for the surgical treatment of kyphotic spinal deformities; whereas Hodgson and Stock<sup>(8)</sup> used their radical operation for treatment of tuberculosis of the spine. We used a combination of

both these procedures. Based on our experience on this case, we recommend the consideration for surgical decompression for spinal tuberculosis with paraplegia in pregnancy, when conservative treatment cannot be carried out.

A Medline search did not reveal any reports of simultaneous Caesarean section and surgical treatment for spinal tuberculosis with paraplegia. We believe this case to be the first.

## REFERENCES

1. Govender S, Moodley SC, Grootboom MJ. Tuberculous paraplegia during pregnancy. *S Afr Med J* 1989; 75:190-2.
2. Nsofor BI, Trivedi ON. Postpartum paraplegia due to spinal tuberculosis. *Trop Doct* 1988; 18:52-3.
3. Adendorff JJ, Boeke EJ, Lazarus D. Potts paraplegia. *S Afr Med J* 1987; 71:427-8.
4. Greenspoon JS, Paul RH. Paraplegia and quadriplegia: Special considerations during pregnancy and labour and delivery. *Am J Obstet Gynecol* 1986; 155:738-41.
5. Tsoutsoplides GC. Pregnancy in paraplegia: A case report. *Int J Gynaecol Obstet* 1982; 20:79-83.
6. Louw JA. Spinal tuberculosis with neurological deficit: treatment with anterior vascularised rib grafts, posterior osteotomies and fusions. *J Bone Joint Surg* 1990; 72B:686-93.
7. Bradford DS, Daher YH. Vascularised rib grafts for stabilisation for kyphosis. *J Bone Joint Surg* 1986; 68B:357-61.
8. Hodgson AR, Stock FS. Anterior spinal fusion: a preliminary communication on the radical treatment of Pott's disease and Pott's paraplegia. *Br J Surg* 1956; 44:266-75.
9. Brost BC, Newman RB. The maternal and fetal effects of tuberculosis therapy. *Obs Gyn Clin North Am* 1997; 24:659-73.
10. MRC. A ten year assessment of a controlled trial comparing debridement and anterior spinal fusion in the management of tuberculosis of the spine in patients on standard chemotherapy in Hong Kong. *J Bone Joint Surg* 1982; 64B:393-8.