Journal of Cardiovascular Disease Research

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 09, 2023

ORIGINAL RESEARCH

An Interesting Case of Bilateral Compressive Myelopathy In pregnancy

Dr. Renu Kumari Gupta[1], Dr. Rehana Najam[2], Dr. Astha Lalwani[3], Dr. Shubhra Shrivastava[4], Dr. Swati Jain[5]

[1]P.G, 3rd Year, Department of Obstetrics & Gynaecology, Teerthanker Mahaveer Medical College & Research Center, Uttar Pradesh, India.
[2]Consulant at Sunshine Hospital Gandhi Nagar, Moradabad, Uttar Pradesh, India.
[3]Professor, Department of Obstetrics & Gynaecology, Teerthanker Mahaveer Medical College & Research Center, Uttar Pradesh, India.
[4]Assistant Professor, Department of Obstetrics & Gynaecology, Teerthanker Mahaveer Medical College & Research Center, Moradabad, Uttar Pradesh, India.
[5]Assistant Professor, Department of Obstetrics & Gynaecology, Teerthanker Mahaveer Medical College & Research Center, Moradabad, Uttar Pradesh, India.

Corresponding Author: Dr. Renu Kumari Gupta,
Email: ren1995gupta@gmail.com

ABSTRACT

Acute inflammatory myelopathies often known as acute myelitis are uncommon and etiologically diverse. A 26-year-old primigravida at 35+2 weeks gestation presented to casualty with complaints of inability to move lower limbs since 5days.A diagnosis of bilateral compressive myelopathy was made for which neurosurgery opinion was taken and was advised decompressive spinal surgery for which pregnancy had to be terminated. After explaining all high risks and guarded fetomaternal prognosis patient was taken up for planned lower segment caesarean section at 36 weeks.

Keywords: Acute inflammatory myelopathies, Acute myelitis, Primigravida, Neurosurgery Decompressive spinal surgery.

INTRODUCTION

Prevalence of myelopathy during pregnancy ranges from 0.4 to 1.5 per thousand.[2,3] making it a rare event. Acute inflammatory myelopathies, often known as acute myelitis (AM), are a nosological category that is uncommon and etiologically diverse.[4] We differentiate between transverse myelitis and partial myelitis based on the extent of the lesion in the axial plane.[5].
Pregnancy-related cancer is uncommon, accounting for 0.02 to 0.1% of all pregnancies.[6]
The incidence of malignancy during pregnancy is anticipated to continue rising due to rising gestational age, which is now peaking in industrialised nations in the late 30s and early 40s.[7]
For the patient, family, and medical personnel, this incident poses a serious difficulty. Numerous moral and professional concerns arise while attempting to strike a balance between managing a pregnancy, giving birth, and coordinating oncological and surgical therapy procedures. At the same time, striking this equilibrium places a psychological strain on the patient, her caregivers, and all engaged medical staff. These complex problems support the need for an all-encompassing multidisciplinary strategy; nevertheless, the dearth of information in the literature restricts the ability of such a management strategy to deliver evidence-based care.
Any neurologic defect connected to the spinal cord itself is referred to as a myelopathy.[8]

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 09, 2023

The most frequent cause of myelopathy is a degenerative spinal condition. This may be caused by an osteophyte or extruded disc material in the cervical spine or, less frequently, in the thoracic spine compressing the spinal cord.[9]

The next most frequent etiologies after degenerative are spinal cord compression brought on by extradural masses brought on by bone metastasizing disease or physical trauma. Myelopathy can also be caused by primary neoplastic, viral, inflammatory, neurodegenerative, vascular, nutritional, and idiopathic conditions.[9]

Only approximately 15% of tumours in central nervous system malignancies develop intraspinally. 60% of these tumours are extradurally located (ED), roughly 30% are intradural extramedullarily located (ID-EM), and only 10% are real intramedullary spinal cord cancers (IMSCT). The level at which the tumour arises also has a significant impact on the clinical presentation and treatment plan, in addition to its placement in respect to the dura and spinal cord.[10]

Meningiomas, nerve sheath tumours, as well as a wide range of other cancers and tumour imitators, are included in the well-defined category of intradural extramedullary lesions.[11]

In areas where this modality is sufficiently accessible, using magnetic resonance imaging (MRI) to evaluate spinal lesions has become the standard of care.[12]

Case report

A 26 years old female, presented to Casualty- Primigravida at 35+2 weeks came to casuality with chief complaints of inability to move lower limbs since 5days. It started initially with the weakness in the lower limbs since one month which progressively increased ascendingly resulting in total inability to move. Patient also complained of edema in both lower limbs which was gradual and progressive. She also gave history of loss of sensation. Patient was received with bladder catheter in situ due to urine retention and constipation with no passage of stools since 2 days. There was history of fever since 10days not associated with rigors/chils and back pain since 5days.There was no H/O weight loss, cough, trauma, haemoptysis, malaena, upper body weakness or cranial nerves deficit.

Patient also complaint of decrease fetal movements since 5days, with no significant complaints of pain, bleeding or leaking PV. She wasn't under routine ANC care.

On Examination, patient was moderately built and nourished. Vitals were stable, mild pallor was present, pedal edema uptil knees, pitting type was present. Cardiovascular and Respiratory system was normal. Multiple hypo and hyperpigmented patches in reticulate and lacy pattern present on all over the body since birth, sparing the face associated with mild scaling on lower abdomen not associated with itching, pain and burning. Per abdomen, mild gaseous distention was present with uterus about 34 weeks with singleton live pregnancy in cephalic position.

Digital rectal examination: Sentinal tag + at 2 o clock position, no fissure / fistula sinus. Anal tone is normal. No ballooning. Finger soiled with fecal mater.

- On neurological examination, patient was alert and oriented.
- Tenderness present over T8- T9 level.
- No spinal deformity.
- Sensory intact throughout all dermatomes of lower limbs
- Reflexes were exaggerated in LL B/L.
- Ankle clonus present B/L
- Babinski Positive B/L.

Motor	Right	Left
Knee	increased	increased
Ankle	increased	increased
Plantar	Exagerated	Exagerated
Biceps	Increased	Increased
Triceps	Increased	Increased

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 09, 2023

Sensory	Right	Left
Pain	Preserved	Preserved
Dorsal Column	Normal	Normal

Muscle mass/Bulk Normal

Power in B/L lower limb - 1/5

	Left	Right
Hip	1/5	1/5
Knee	1/5	1/5
Ankle	1/5	1/5
Toe	1/5	1/5

Tone normal

Reflexes	Left	Right
Knee	++	++
Ankle	++	++
Plantar	-	-

Special test	Left	Right
SLR	45-50	45-50
Lasegue's	+	+
FABER	+	+

No Neurological deficit at cranial nerves was found.

Investigations

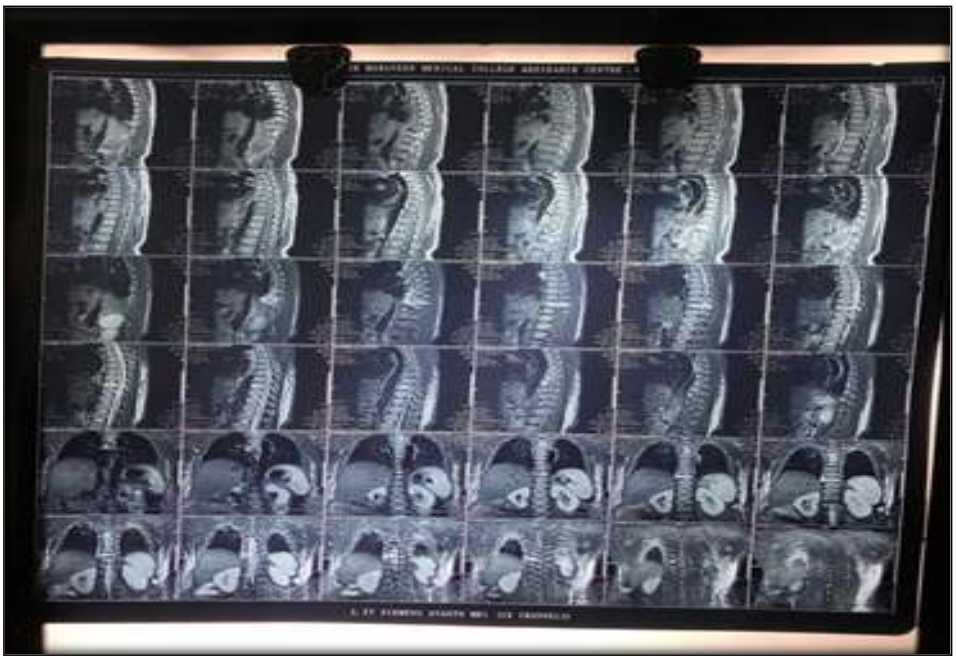
BG	**A positive**
Hb	9.5
TLC	12920
Platelet	3.89
KFT:	
Urea	25
Creatinine	0.56
Uric acid	5.1
LFT:	
Total bilirubin	0.9
Direct bil	0.7
Indirect bil	0.2
SGOT	62
SGPT	23
ALP	397

Urine protein 24 hour	**246mg/dl**
Sr TSH	1.84
Fever profile	Typhi dot positive
	Widal's ratio: 1:3

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 09, 2023

Electrolytes:	
Na	140
K	3.8
Cl	100
PT/APTT/INR	14/28/1

B/L lower limb colour doppler: No abnormality detected



ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 09, 2023

Course of stay

Orthopedic and Neurosurgeon's reference was sought. Upper motor neuron disease with Extramedullary compression myelopathy, Infective (tubercular) / neoplastic etiology was suspected hence Magnetic resonance imaging (MRI) with contrast and limb physiotherapy was advised. Meanwhile Antitubercular therapy was also started.

MRI (Dorsolateral spine): Altered signal intensity at T9 extending to Right Paravertebral space, epidural and spinal cord with associated destruction of costochondral junction and mass effect over spinal canal(right>left)? Infective tubercular osteitis/ osteoid lesion

Neurosurgeon advised decompressive spinal surgery for which pregnancy had to be terminated. After explaining all high risks and guarded fetomaternal prognosis patient was taken up for planned lower segment caesarean section at 36 weeks. Healthy male child weighing 2.66kg was delivered. LMWH was given postoperatively. Patient regained little motor function on post op day 2. Post LSCS patient was hence transferred to neurosurgeon side for the decompressive surgery.

Patient was reluctant for surgical intervention at that time hence was managed conservatively. Patient regained some motor functions after 1month and continued ATT.

DISCUSSION

Between 40 to 80 cases/million are most likely to experience spinal cord injury (SCI), both traumatic and non-traumatic. When the medulla lesion causing paraplegia is bigger than or equivalent to T6, it is thought that a reflex autonomic hyperactivity (HRA) condition may be triggered, which is related to the severity of paraplegia-related pregnancy.[15]

The likelihood of a quadriplegic or paraplegic mother giving birth to a child is estimated to be 1.5 births per thousand.

This syndrome is characterised by an overactive sympathetic nervous system brought on by cutaneous or visceral stimulation below the damage threshold. It may be the cause of thrust hypertension, which may lead to mortality or serious cardiovascular and neurological damage.[16]

Patients with damage levels above T10–T11 do not experience uterine contraction discomfort and are not at risk for developing severe dysautonomia. Patients with injuries that are more severe than T10–T11 do not experience pain associated with uterine contractions and are not at risk for severe dysautonomia.

The danger of disregarding the threat of a preterm birth is potentially greater in this situation.

Acute myelitis is diagnosed using clinical criteria, which may include

be paraneoplastic, inflammatory, or infectious. When an onset occurs within a short period of time, the qualifier "acute" is added. The length of "acute myelopathy "is severe spinal cord injury, without assuming the nature of the harm. Between nine and ten million new cases of tuberculosis are recorded each year, and approximately 1.8 billion individuals are affected, according to WHO estimates. People from emerging and developing nations in particular are affected by this.[19,20,21]

The arterial system is most frequently used to access the spine; as a result, pathogens enter through the terminal arterioles and appear in the vertebral body more anteriorly and typically with early paradisal symptoms.[22]

Spread across the venous plexus is less common, and in this scenario, the infection foci are more in the middle of the vertebra.[23,24,25]

Clinical symptoms, such as those connected to nonspecific pyogenic spondylodiscitis.[26] indicate spinal involvement. Back pain is one of them; it tends to be local but can also be radicular or pseudo radicular.[27,28] Many people describe the pain as being deeply seated and unrelated to load. Muscle tightness and restricted mobility are frequently noted.[29,30]

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 09, 2023

Poverty, overcrowding, illiteracy, malnutrition, alcoholism, drug abuse, diabetes mellitus, and immunosuppressive drugs are risk factors for tuberculosis.

Conventional radiographs provide a decent overall picture, whereas computed tomography (CT) can show disco-vertebral lesions and paravertebral abscesses, and magnetic resonance imaging (MRI) can show whether the disease has spread to soft tissues and how much of the spinal cord is affected..[32]

The World Health Organization (WHO) suggests treating tuberculosis according to a category. The WHO treatment category for spinal TB is category 1. Two phases make up the category-1 antituberculosis treatment plan: an intensive (initial) phase and a continuing phase. Antituberculous therapy for tuberculosis includes a combination of four first-line medications during the two-month intense phase: isoniazid, rifampicin, streptomycin, and pyrazinamide. Two medications (isoniazid and rifampicin) are administered for 4 months during the continuation phase. The WHO advises 9 months of treatment for tuberculosis of the bones or joints due to the significant risk of disability and mortality, as well as the challenges in evaluating treatment response.[33]

Urinary tract infections, which are made more likely by routine self-catheterization, thrombophlebitis risk, and bedsores are the most common pregnancy complications.[34,35]

CONCLUSION

Paraplegia is rare during pregnancy but poses diagnositic, therapeutic and monitoring issues. Any compressive myelopathy due to any cause ought to be decompressed surgically and timely to prevent futhur damage in the surrounding vital structures. In our patient, she improved conservatively by ATT and terminating the pregnancy, but sometimes surgery is the mainstay of treatment. Multidisciplinary care with early diagnosis and timely intervention is the key to treatment in such cases. Tuberculosis should always be kept in differentials especially in developing country like our's.

REFERENCES

1. Castro JS, Lourenço C, Carrilho M (2014) Successful pregnancy in a woman with paraplegia. BMJ Case Reports.
2. Albert T, Ravaud JF (2005) etrafi a group: Rehabilitation of spinal cord injury in France: A nationwide multicentre study of incidence and regional disparities. Spinal Cord 43: 357-365.
3. Baker ER, Cardenas DD (1996) Pregnancy in spinal cord injured women. Arch Phys Med Rehabil 77: 501-507.
4. Borchers AT, Gershwin ME (2012) Transverse myelitis. Autoimmun Rev 11: 231-248.
5. Marignie R (2014) Myélopathies inflammatoires Pratique Neurologique – FMC 5: 112-120.
6. S. Kennedy, P. Yudkin, and M. Greenall, "Cancer in pregnancy," European Journal of Surgical Oncology, vol. 19, no. 5, pp. 405–407, 1993.
7. B. Weisz, E. Schiff, and M. Lishner, "Cancer in pregnancy: maternal and fetal implications," Human Reproduction Update, vol. 7, no. 4, pp. 384–393, 2001.
8. Young WB. The clinical diagnosis of myelopathy. Semin Ultrasound CT MR 1994;15:250-4.
9. Seidenwurm DJ, Wippold FJ 2nd, Cornelius RS, Angevine PD, Angtuaco EJ, Broderick DF, et al. ACR Appropriateness Criteria(®) myelopathy. J Am Coll Radiol . 2012;9(5):315–24.
10. Van Goethem JW, van den Hauwe L, Ozsarlak O, De Schepper AM, Parizel PM (2004) Spinal tumors. Eur J Radiol 50:159–176.
11. Stark D, Bradley W. Magnetic Resonance Imaging. St. Louis, MO: Mosby, 1999.
12. Tomura N. Imaging of tumors of the spine and spinal cord Nippon. Igaku Hoshasen Gakkai Zasshi 2000;60:302-11.
13. Albert T, Ravaud JF (2005) etrafi a group: Rehabilitation of spinal cord injury in France: A nationwide multicentre study of incidence and regional disparities. Spinal Cord 43: 357-365.

ISSN: 0975-3583, 0976-2833 VOL14, ISSUE 09, 2023

14. Baker ER, Cardenas DD (1996) Pregnancy in spinal cord injured women. Arch Phys Med Rehabil 77: 501-507.
15. United Nations Department of Economic and Social airs (2012) Population Division. World population prospects: the 2012 revision, DVD Edition in 2013, Accessed on 29 Aug 2016.
16. Goller H (1972) Pregnancy damage and birth-complications in the children of paraplegic women. Paraplegia 10: 213.
17. Ramorosata A, Golmard J, Keita-Meyer H (2010) Pathologies neu- rologiques et musculaires: prise en charge en anesthésieobstétricale. In: 52eCongrès national de la Société franc¸aised'anesthésie reanimation.
18. Bader A (2006) Neurologic and neuromuscular disease. In: Chest-nut DH, (ed.) Obstetric anaesthesia: principles and practice. Saint Louis, Missouri: Mosby. 872-890.
19. Suárez I, Funger SM, Kroger S et al. The Diagnosis and Treatment of Tuberculosis. Dtsch Arztebl Int 2019; 116: 729–735
20. Trecarichi EM, Di Meco E, Mazzotta V et al. Tuberculous spondylodiscitis: epidemiology, clinical features, treatment, and outcome. Eur Rev Med Pharmacol Sci 2012; 16 (Suppl. 2): S58–S72
21. Ali A, Musbahi O, White VLC et al. Spinal Tuberculosis: A Literature Review. JBJS Rev 2019; 7: e9. doi:10.2106/JBJS.RVW.18.00035
22. Khanna K, Sabharwal S. Spinal tuberculosis: a comprehensive review for the modern spine surgeon. Spine J 2019; 19: 1858–1870
23. Garg RK, Somvanshi DS. Spinal tuberculosis: a review. J Spinal Cord Med 2011; 34: 440–454
24. Leone A, Dell'Atti C, Magarelli N et al. Imaging of spondylodiscitis. Eur Rev Med Pharmacol Sci 2012; 16 (Suppl. 2): S8–S19
25. Murray MR, Schroeder GD, Hsu WK. Granulomatous Vertebral Osteomyelitis: An Update. J Am Acad Orthop Surg 2015; 23: 529–538
26. Heyde C–E. Die bakterielle unspezifische „pyogene" Spondylodiszitis. Osteologie 2017; 26: 211–218
27. Fuentes FM, Gutierrez TL, Ayala RO et al. Tuberculosis of the spine. A systematic review of case series. Int Orthop 2012; 36: 221–231
28. Louw QA, Tawa N, Van Niekerk SM et al. Spinal tuberculosis: A systematic review of case studies and development of an evidence-based clinical guidance tool for early detection. J Eval Clin Pract 2020; 26: 1370–1382. doi:10.1111/jep.13309
29. Kumar K. Spinal tuberculosis, natural history of disease, classifications and principles of management with historical perspective. Eur J Orthop Surg Traumatol 2016; 26: 551–558
30. Skaf GS, Kanafani ZA, Araj GF et al. Non-pyogenic infections of the spine. Int J Antimicrob Agents 2010; 36: 99–105
31. McLain RF, Isada C. Spinal tuberculosis deserves a place on the radar screen. Cleve Clin J Med 2004;71(7):543–9.
32. Lindhal S, Nymann RS, Brismar J. Imaging of tuberculosis. IV. Spinal manifestations in 63 patients. Acta Radiol 1996;37(4): 506–11
33. World Health Organization. Treatment of tuberculosis: guidelines. 4th ed. (WHO/HTM/TB/2009.420) World Health Organization; 2010 [assessed on 2011 Apr 16]
34. Castro JS, Lourenco C, Carrilho M (2014) Successful pregnancy in a woman with paraplegia. BMJ Case Rep 26: 2014.
35. Pereira L (2003) Obstetric management of the patient with spinal cord injury. Obstet Gynecol Surv 58: 678-687.