Review Article

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Cauda equina Syndrome in Pregnancy Due to Herniated Lumber Disc: A Case Report and Review

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Abstract

The presentation of cauda equina syndrome as a result of herniated lumber disc is a very rare phenomenon during pregnancy. Only a handful of such cases have been reported in the literature. Cauda equina syndrome is a surgical emergency which requires urgent surgical decompression regardless of the stage of pregnancy. Therefore high suspicion should be kept by primary care physician for its diagnosis in symptomatic patient presenting low back pain with lower limbs weakness, saddle anesthesia or sphincter disturbance. Early diagnosis of cauda equina syndrome, through thorough physical examination and imaging studies, is of paramount importance to prevent irreversible sphincter damage. A case of 32 year old female at POG 25 weeks with cauda equina syndrome is presented here which was operated late and resulting in poor recovery.

Keywords: Cauda equina Syndrome; Herniated Lumber Disc; Low Backache; Sphincter Disturbance; Pregnancy.

Introduction

Low backache is a very common problem during pregnancy and it affects about 54.8 to 76% of pregnant women [1]. Major contributory factors for low backache in pregnancy are weight gain, increased lumber lordosis, sagittal imbalance and hormonal changes [2]. The incidence of severe low backache due to herniated lumber disc is rare which is estimated to be about one in 10000 pregnant women [3]. The herniated lumber disc rarely presents as cauda equina syndrome in pregnancy and only a handful of such cases have been reported in the literature. We could only find one such published report from india [4]. Cauda equina syndrome is a surgical emergency which requires urgent surgical decompression regardless of the stage of pregnancy [5]. Early diagnosis of cauda equina syndrome, through thorough physical examination and imaging studies, is of paramount importance to prevent irreversible sphincter damage. If patient being operated within 48 hours of the onset of cauda equina syndrome chances of recovery are there. Whereas the delayed cases have limited chances of recovery as in our reported case below.

Patient Description

A 32 year G_5P_{3+1} female at POG 25^{+2} weeks without any chronic illness, presented with sudden onset of low backache radiating to left lower limb with numbness and paraesthesia left lower calf and adjoining heel region. Next day patient also developed pain in right lower limb, numbness and paraesthesia perianal and periuretheral region, inability to void and weakness in bilateral lower limbs below knee region. Patient was immediately rushed to the local practitioner, where without proper clinical examination and imaging studies, patient sent back to home with some pain medications. When patient didn't get symptomatic relief in four days, she was brought to Obstetric & Gynae department of our institution, where after clinical examination of the

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patient, urgent magnetic resonance imaging study of lumbosacral spine was done and the patient immediately referred to neurosurgery department.

On clinical examination, there was muscular weakness bilateral lower limbs with right tibialis anterior 3/5, left tibialis anterior 2/5, bilateral extensor hallusis longus 3/5, left gastrocnemius 2/5 and right gastrocnemius 1/5. Bilateral ankle jerks were reduced. There was decreased tactile sensations lateral and dorsum aspect of left lower limb. There was saddle anesthesia and decreased anal tone. The urinary bladder was palpable and on catheterization 750 ml of residual urine evacuated.

The MRI findings revealed concentric disc bulge with posterocentral disc extrusion at L_5-S_1 level and sequestered disc at S_1 & S_2 vertebral level causing severe thecal stenosis with bilateral root compression at L_5S_1 and S_1-S_2 levels. USG obstetric scan was suggestive of single live fetus of 25^{+3} week gestation with EDD 21/03/17 and EFBW 784±114 grams. After proper anesthetic and obstetric evaluation, urgent partial L_5-S_1 laminectomy and discectomydone on fifth day after the onset of symptoms. Surgery was done in prone position. Post-operative period was uneventful. Patient gradually recovered from sensory loss. There was no improvement in weakness of lower limbs. Urinary and bowel incontinence was present till the last follow up. Currently she is under regular follow up of obstetric department for the management of pregnancy.

Discussion and Review of Literature

Cauda equine syndrome consists of bilateral sciatica, asymmetrical lower motor neuron type weakness of bilateral lower limbs especially below knees, saddle sensory loss, sexual dysfunction, bowel and bladder incontinence [6].

The lumber disc herniation and cauda equina syndrome are very rare during pregnancy, mostly occur in third trimester of pregnancy due to increased serum levels of relaxin hormone. Relaxin is a polypeptide hormone which regulate collagen synthesis resulting in softening of ligaments around the pelvis for facilitating parturition, may precipitate lumber disc prolapsed and cauda equina syndrome [7]. Out of the few reported cases, majority of cases presented in the third trimester of pregnancy which is associated with higher serum levels of relaxin.

Magnetic resonance imaging is an important diagnostic tool for lumber disc herniation and cauda equina syndrome in pregnant women. It doesn't only ascertain the diagnosis of disc herniation but also demonstrate the level and extent of disc herniation, thus very important tool for surgical planning also. Although magnetic resonance imaging allows detailed spinal evaluation without harmful effects of ionizing radiation, the safety of the procedure during the pregnancy yet to be established, though there are no available reports regarding adverse effects of magnetic resonance procedures during pregnancy except some animal studies [8].

Cauda equina syndrome may usually manifest within few hours. In the face of neurological deficits, especially sphincter disturbance, it requires emergency surgical decompression to avoid permanent neuronal damage due to compression of nerve roots. Cauda equina syndrome associated with herniated lumber disc may be reversible if timely surgical intervention done [2]. Early diagnosis and prompt surgical decompression are of paramount importance in the management of this condition for avoiding permanent sequelae [9]. More is the length of time span from the onset of caudaequina syndrome to the surgical decompression, poorer are the chances for the reversal of deficits and more intense is the saddle anesthesia [7]. As in our case, primary treating physician misinterpreted the symptoms with normal pregnancy related complications and thorough physical examination of the patient was not done, as a result of which early diagnosis of this grave condition was missed.

According to the literature, pregnancy as such itself is not contraindication for magnetic resonance imaging, epidural or general anesthesia and surgical intervention at any stage [10]. Only additional care required during pregnancy is to avoid excessive pressure on gravid uterus which may cause preterm labour [11]. After thorough review of literature, we could find only few handful case reports of pregnancy in association with cauda equina syndrome which are summarized in Table 1. We could find only one such case report from India [4].

Lumber disc excision may be carried out safely in pregnancy either via standard surgical approach or endoscopic technique [20]. Standard discectomy can be easily carried out in prone position by placing high cushions under the shoulders and iliac crest to avoid uterine compression [21]. Right lateral decubitus position should be avoided during third trimester to avoid aortacaval compression [2]. If the patient presents with cauda equine syndrome near the term and fetus is mature enough to be delievered, it is

Table 1: Summary of previously reported cases

Author	Age	Pregnancy continued or interupted	Operation within 48 hours or later	Post operative improvement		
				Motor Function	Sensory function	Sphincter control
Timothy[12] (1999)	37	Interrupted	later	Yes	Yes	No
Reihani[13] (2003)	26	continued	Within 48 hrs	No	Yes	Yes
Kathirgamanathan[14] (2006)	34	continued	With in 48 hrs	NA	NA	NA
Kim[15] (2007)	30	continued	later	No	No	No
Curtin[16] (2007)	37	continued	Within 48 hrs	Yes	Yes	Yes
Mohapatra[4] (2008)	30	continued	later	No	No	No
Gupta[2] (2008)	37	Interrupted	Within 48 hrs	Yes	Yes	Yes
Hakan[17] (2012)	34	continued	Within 48 hrs	NA	No	Yes
Jones[18] (2015)	29	interrupted	Within 48 hrs	Yes	Yes	Yes
Geftler[19] (2015)	33	interrupted	Within 48 hrs	Yes	Yes	Yes

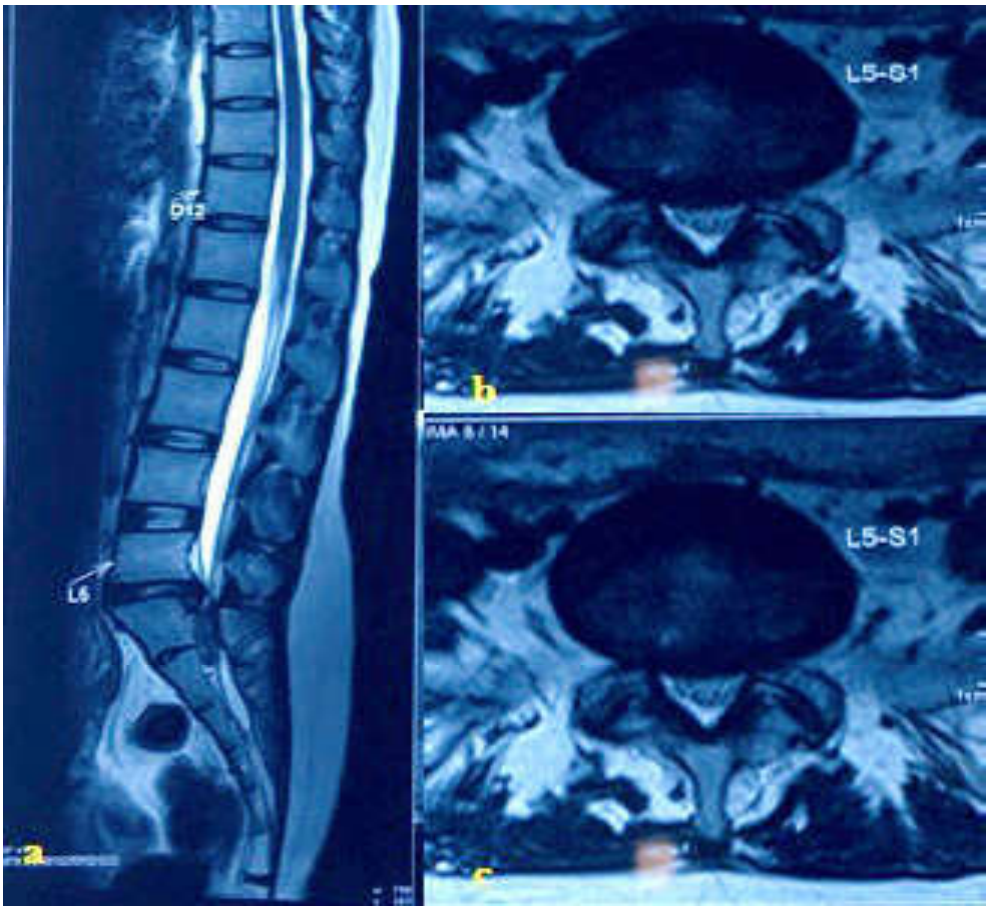

Fig. 1(a): MRI of dorsolumber region showing concentric disc bulge with posterocentral disc extrusion at L_5-S_1 and sequestered disc at S_1 & S_2 level Fig.1(b,c) showing w bilateral root compression at L_5S_1 level.

preferable to do cesarean section first to deliver the baby followed by discectomy in prone position which is difficult to achieve with gravid uterus in late third trimester [2].

Conclusion

Although cauda equina syndrome is very rare condition associated with pregnancy, high suspicion should be kept by primary care physician for its diagnosis in symptomatic patient presenting low back pain with lower limbs weakness, saddle anesthesia or sphincter disturbance. These patients should be screened with magnetic resonance imaging as early as possible to ascertain or rule out the diagnosis of cauda equina syndrome because delayed diagnosis will delay the surgical decompression and leave these patients with permanent deficits for rest of their life.

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