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Case report: The operation for the lumbar disk herniation just after cesarean delivery in the third trimester of pregnancy



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ABSTRACT

INTRODUCTION: Low back pain is common during pregnancy. However, the incidence of symptomatic lumbar disc herniation during pregnancy is very rare. We report a case of lumbar disc herniation underwent discectomy just after cesarean delivery in the third trimester of pregnancy.

PRESENTATION OF CASE: A 33-year-old woman presented at 32 weeks gestation. She had a low back pain and the left-sided leg pain below the knee. At 34 weeks gestation, she had severe weakness of the left extension hallucus longus, left ankle dorsiflexion. MRI showed a large disc herniation at L4/5 expanded to the spinal canal more. The cesarean delivery was performed in the supine position. The patient was then turned to a prone position, and a left L4/5 discectomy was performed. But the day after surgery, she had a severe low back pain and the right leg pain below the knee. MRI showed a disc herniation at L4/5 on the right side of the spinal canal. At 6 days after the first surgery, a right L4/5 discectomy was performed. In the immediate postoperative period, the patient experienced complete relief of the right leg pain.

DISCUSSION: It is necessary to cooperate with a pediatrician, an obstetrician, and an anesthesiologists. For obtaining the best outcome on mother and child, it is important to discuss in advance to be able to respond quickly for changeable situation.

CONCLUSION: It is necessary to conduct the operation under pregnancy in consideration of the great influence on mother and child.

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1. Introduction

Low back pain is common during pregnancy and has been reported in as many as 56% of pregnant woman because of hormonal changes and mechanical strain [1,2]. However, the incidence of symptomatic lumbar disk herniation during pregnancy is very rare, occurring in only 1 in approximately 10,000 pregnancies [3]. Cauda equine syndrome or severe and progressive neurologic deficit caused by lumbar disk herniation is a medical emergency that necessitates prompt surgery needed to avoid permanent prognostic symptom.

We report a case of lumbar disk herniation underwent discectomy just after cesarean delivery in the third trimester of pregnancy.

2. Case report

A 33-year-old woman presented at 32 weeks gestation. The cesarean delivery was planned because of cephalopelvic disproportion. She had a low back pain and the left-sided leg pain below the knee. There was no motor weakness. On physical examination, straight leg raising test was restricted to 20°. MRI showed a large disk herniation at L4/5 on the left paracentral of the spinal canal (Fig. 1). The patient was managed with physical therapy and acetaminophen for the pain. However, at 34 weeks gestation, she had severe weakness of the left extension hallucus longus, left ankle dorsiflexion. She had decreased in the L5 nerve root distribution of left lower extremity. MRI showed a large disk herniation at L4/5 expanded to the spinal canal more (Fig. 2). We performed cesarean delivery in the supine position before a discectomy in the prone position. Although

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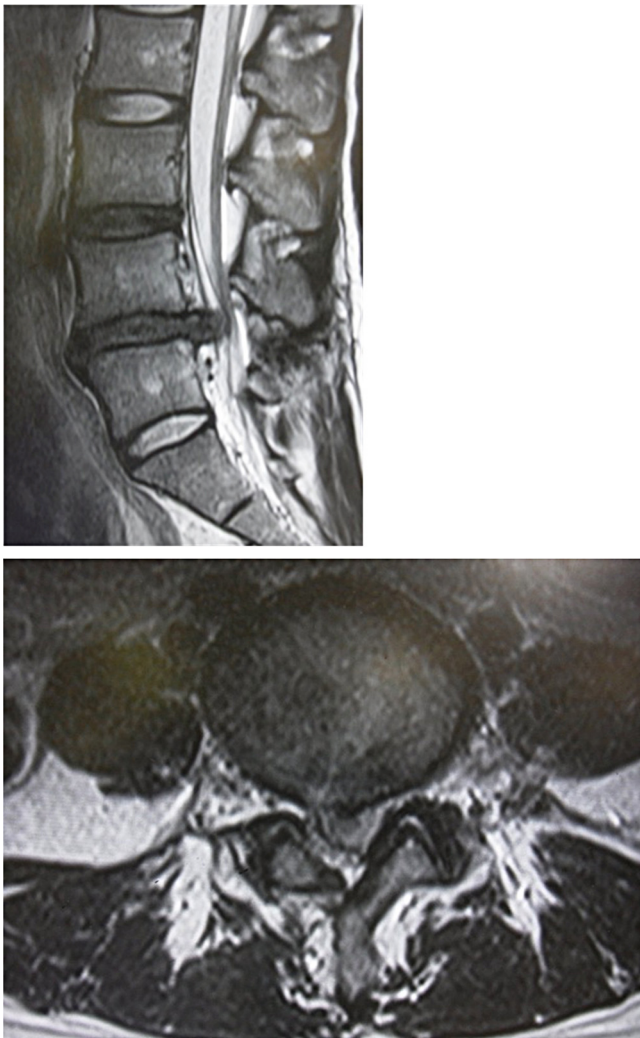


Fig. 1. MRI showed a large disk herniation at L4/5 on the left paracentral of the spinal canal at 32 weeks gestation.

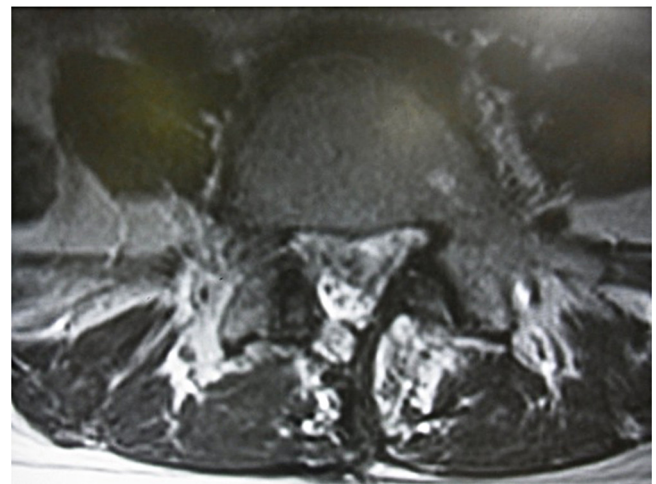


Fig. 2. MRI showed a large disk herniation at L4/5 expanded to the spinal canal more at 34 weeks gestation.

preoperatively we simulated that the patient really tried to be in some various prone positions on operating table, we found the prone position for discectomy was difficult to achieve with a 34-week gravid uterus. And there were few risks of newborn infant complications with the cesarean delivery at a 34-week. The cesarean delivery was performed with the patient under epidural anesthesia, resulting in the delivery of a normal baby. A healthy male (2569 g) was delivered. The patient was then turned to a prone position, and a left L4/5 discectomy was performed.

Neither the patient nor the baby had any complication related to surgery. In the immediate postoperative period, the patient experienced relief of left leg pain. But the day after surgery, she had a severe low back pain and the right leg pain below the knee. MRI showed a disk herniation at L4/5 on the right side of the spinal canal (Fig. 3). We made a diagnosis of L4/5 disk herniation residual. She could not walk because of the right leg pain. At 6 days after the first surgery, a right L4/5 discectomy was performed, and a large disk fragment that had displaced into the spinal canal was removed. In the immediate postoperative period, the patient experienced complete relief of the right leg pain. After all operations, MRI showed herniation was disappeared (Fig. 4). At 18 months follow up after the last operation, she had a numbness and a slightly weakened dorsiflexion on the left extremity. The trouble is not observed in activities of daily life.

3. Discussion

Lumbar disk herniation commonly results in acute symptoms shooting and intractable pain in the low back and lower extremities. Although it is very rare, the lumbar disk herniation occurs in the pregnant woman. It could be speculated that in the third trimester the release of relaxin, a polypeptide hormone that regulates collagen and softens the ligaments of the pelvis in preparation of preparation, may predispose a massive lumbar disk prolapse [4]. Lumbar disk prolapse should be considered in pregnant women presenting with severe back or leg pain. When we suspect lumbar disk herniation, MRI is an useable diagnostic tool in pregnant woman. It permits a detailed spinal examination without the ionizing effects of x-ray to the developing fetus [3,4].

Initial management includes bed rest, physiotherapy, muscle relaxants, and analgesia. An epidural injection of steroids can also be considered for women in their second or third trimester of pregnancy [5]. Surgical management may be required in case of severe intractable back pain and leg pain unresponsive to conservative management, progressive neurological deficits or cauda equina syndrome in the patients [4]. The literature clearly demonstrates

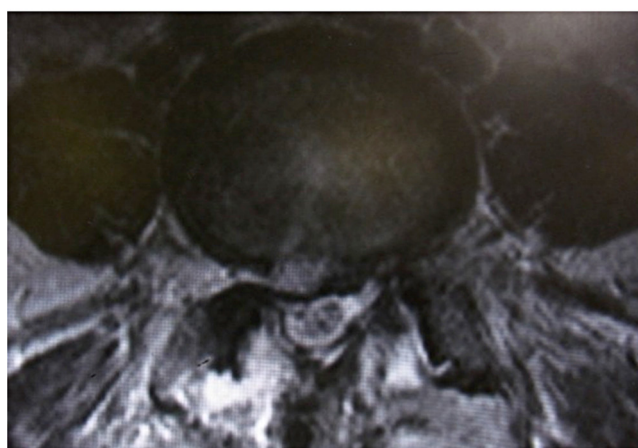
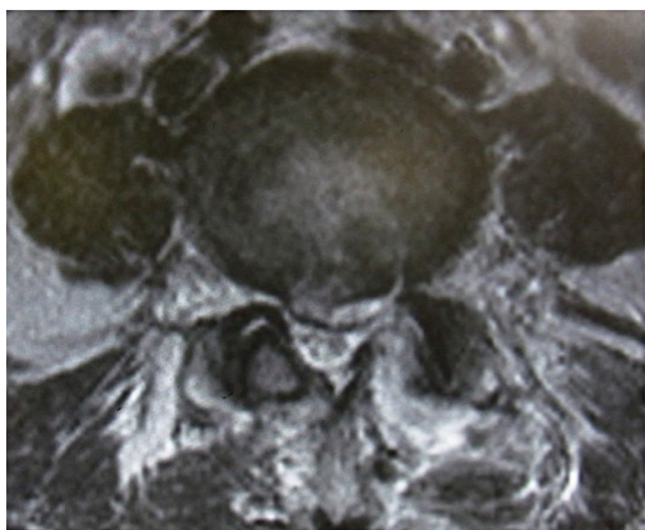


Fig. 3. After first operation, MRI showed a disk herniation at L4/5 on the right side of the spinal canal.

Fig. 4. After second operation, MRI showed herniation was disappeared.

that a pregnancy at any stage is not a contraindication to surgical intervention [4]. But during surgery in a pregnant woman, special attention is necessary to avoid causing fetal injury.

The prone position is most commonly used for lumbar disk surgery as it allows optimal surgical access and minimizes blood loss by reducing the epidural venous pressure. But for the pregnant women, an additional care should be taken for the position during surgery for excessive pressure can cause preterm delivery [5,6]. During the first and early part of the second trimester, discectomy can be performed in the prone position. During third trimester, the prone position is difficult to achieve with a gravid uterus.

Table 1
Summary of previous reported cases.

Author	Age	Pregnancy weeks	Trimester	Pregnancy was continued or interrupted	Surgical position	Complication
LaBan, 1995 [3]	36	20 w	Second	Continued	Unknown	–
Fahy, 1998 [7]	31	29 w	Third	Continued	Prone	–
Fahy, 1998 [7]	32	32 w	Third	Continued	Prone	–
Brown, 2001 [4]	32	16 w	First	Continued	Prone	–
Brown, 2001 [4]	41	20 w	Second	Continued	Prone	–
Brown 2001 [4]	31	20 w	Second	Continued	Prone	–
Iyilikçi, 2004 [8]	31	20 w	Second	Continued	Lateral	–
Brown 2004 [9]	35	34 w	Third	Interrupted	Prone	–
Kathirgamanathan, 2006 [6]	34	33 w	Third	Continued	Lateral	–
Abou-Shameh, 2006 [5]	34	18 w	Second	Continued	Prone	–
Kim, 2007 [10]	30	30 w	Third	Continued	Prone	–
Al-areibi, 2007 [11]	33	35 w	Third	Interrupted	Prone	–
Gupta, 2008 [12]	37	35 w	Third	Interrupted	Prone	–
Hakan, 2012 [2]	34	25 w	Second	Continued	Prone	–

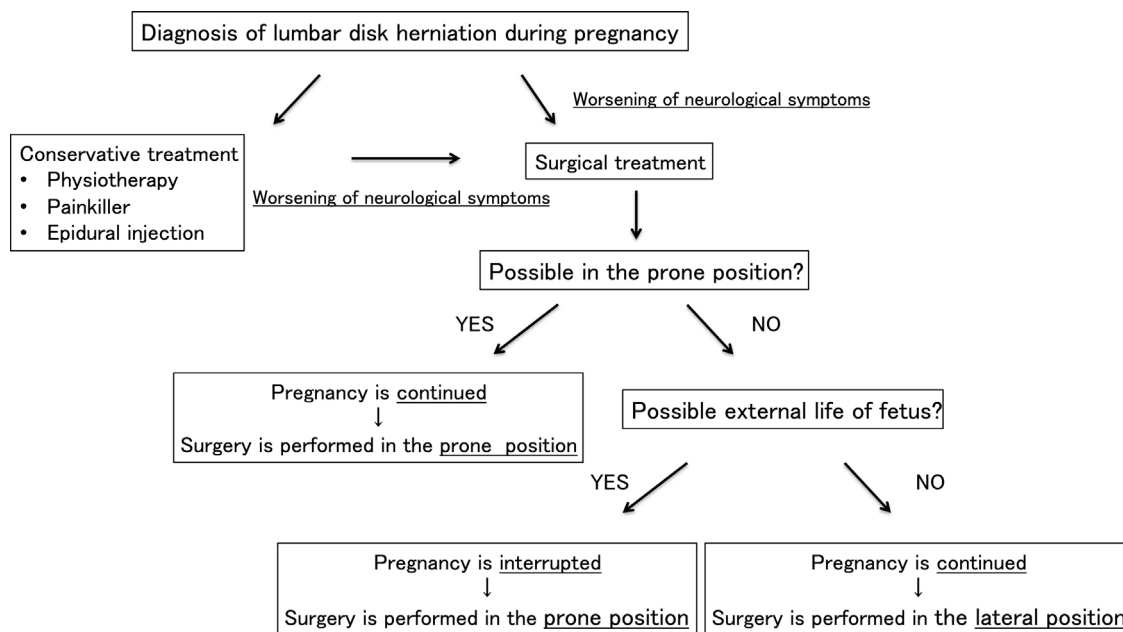


Fig. 5. Protocol of the operation for the lumbar disk herniation during pregnancy.

When we perform the operation in the third trimester of pregnancy, it is necessary to decide whether pregnancy is continued and the discectomy is carried out in the lateral position, or pregnancy is interrupted with cesarean delivery and the discectomy is carried out in the prone position (Table 1).

If the former was chosen, the pregnancy could be continued and the delivery by full term birth is possible. And the frequency of newborn infant complications may be decreased. However, the operation becomes technically difficult, it takes long time for surgery and there is a possibility that the burden to the fetus and mother increase. If the latter was chosen, it is not necessary to consider the effect on the fetus during surgery, and prone position is possible. However, in the case of a premature delivery, there is a risk of the increased complication, such as respiratory-organs complication.

Based on these things, we make protocol of the operation for the lumbar disk herniation during pregnancy (Fig. 5).

The decision whether pregnancy is continued or interrupted should not be made only by an orthopedist. It is necessary to cooperate with a pediatrician, an obstetrician, and an anesthesiologist. For obtaining the best outcome on mother and child, it is important to discuss in advance to be able to respond quickly for changeable situation.

4. Conclusion

We experienced a patient who required an emergent herniated disk excision after the cesarean section in the third trimester. It is necessary to conduct the operation under pregnancy in consideration of the great influence on mother and child.

Conflict of interest

Hironori Ochi, Ryuichi Ohno, Mitsuaki Kubota, Ryo Hanyu, Kensuke Sakai, Yu Sugawara and Fumihiro Mukasa declare that they have no conflict of interest.

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Ethical approval

This case report is written based on institutional ethical committee.

Author contributions

All authors have contributed significantly, and that all authors are in agreement with the content of the manuscript. Hironori Ochi, Ryuichi Ohno and Ryo Hanyu performed operation; Hironori Ochi, Ryuichi Ohno and Ryo Hanyu diagnosed; Hironori Ochi, Ryuichi Ohno, Mitsuaki Kubota, Ryo Hanyu, Kensuke Sakai, Yu Sugawara and Fumihiro Mukasa performed ward management. Hironori Ochi, Ryuichi Ohno, Mitsuaki Kubota and Ryo Hanyu wrote the paper.

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