

Microsurgical sequestectomy at 36 weeks of pregnancy: A case report

J. Kummer^{a,*}, J. Maier^a, D. Moskopp^b, L. Hellmeyer^a

^a Department of Gynecology and Obstetrics, Vivantes Klinikum im Friedrichshain, Berlin, Germany

^b Department of Neurosurgery, Vivantes Klinikum im Friedrichshain, Berlin, Germany

ARTICLE INFO

Article history:

Received 1 April 2018

Received in revised form 11 May 2018

Accepted 15 May 2018

Available online xxxx

Keywords:

Pregnancy

Lumbar disc prolapse

Microsurgical sequestectomy

ABSTRACT

About 30% of pregnant women experience lower back pain. The cause is usually increased mechanical stress combined with the ligament laxity induced by relaxin. Rarely, lower back pain is related to disc herniation. We report such a case, where microsurgical sequestectomy was performed at 36 weeks and three days of gestation because of severe extensor paresis of the left foot and big toe. The case shows that microsurgical treatment during pregnancy is safe. After treatment the patient regained full motor function and her pain regressed. She had a spontaneous vaginal delivery at 38 weeks.

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1. Introduction

About 30% of pregnant women experience lower back pain. The cause is usually the increased mechanical stress combined with ligament laxity induced by relaxin [1]. Rarely in pregnancy, lower back pain is related to a disc herniation [2]. We report a case in which microsurgical sequestectomy was performed at 36 weeks and 3 days of gestation because the patient had severe extensor paresis of the left foot and big toe resulting from disc herniation.

2. Case Report

A 37-year-old woman (gravida 2, para 1) at 36 weeks and 3 days of gestation presented at the emergency room with a one-week history of left-sided severe back pain affecting the L5 dermatome. In addition, she complained about extensor paresis of the left foot and big toe. Ultrasound confirmed a normal singleton pregnancy. The fetal heart rate pattern was normal and the woman was not having contractions. The patient was admitted for further diagnostic assessment and treatment.

Physical examination revealed severe extensor paresis of the left foot and big toe; muscle strength was graded 1/5. The patient had no saddle anaesthesia. There was no loss of bladder or bowel control. Ultrasound showed no residual urine after micturition.

Magnetic resonance imaging (MRI) indicated a large left-sided, paracentral disc prolapse at L4–L5 with compression of the nerve root of L5 on the left side (Fig. 1).

Taking all findings into consideration, surgery was conducted under general anaesthesia given via an endotracheal tube. The microsurgical

sequestectomy at L4/L5 was performed with the patient in a left lateral position to avoid aorto-caval compression and thus to minimize fetal compromise. In case of fetal distress, preparations were made for the option of an emergency caesarean.

The L5 nerve root was neurolysed. Fetal heart rate patterns were monitored throughout the procedure. They showed a resting pattern with neither accelerations nor decelerations, consistent with general anaesthesia.

After the operation, the patient showed no signs of new motor deficits. The previously described pain had regressed, as had the paresis; muscle strength was graded 3–4/5 on the day of discharge.

At 37 weeks and 6 days of gestation the patient presented with ruptured membranes. Prophylactic antibiotic treatment was initiated and labour was induced using a prostaglandin vaginal insert (dinoprostone). For pain relief, an epidural catheter was installed, without complication.

The patient delivered vaginally a full-term healthy boy (birth weight 3140 g [48th percentile], length 50 cm, Apgar score 9–10–10, NA-pH 7.24) at 38 weeks and 1 day of gestation.

3. Discussion

Lumbar disc herniation in pregnant women has an incidence of only 1:10,000 [2]. Starting from the 10th to 12th week of pregnancy, levels of relaxin are elevated. Relaxin is first produced by the corpus luteum and later by the placenta. As a peptide belonging to the family of insulin growth factor hormones, relaxin is known to remodel collagen structures in pregnant mammals, thereby causing a greater laxity of pelvic and spinal ligaments [3–7]. Additionally, women in advanced stages of pregnancy experience a significant change in spinal curvature, and the modified mechanical stress increases the risk of intervertebral disc prolapse [8].

* Corresponding author.

E-mail address: julia.kummer@vivantes.de (J. Kummer).

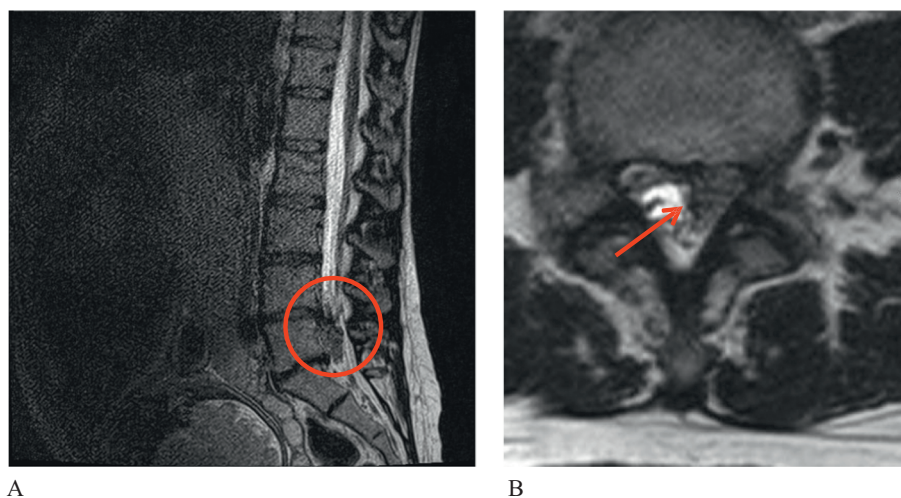


Fig. 1. Magnetic resonance scan of the lower spine (T2 weighted). A: Sagittal image of the lower spine. Note the disc prolapse on level L4/5. B: Horizontal image of L5. Note the paracentral left-sided disc prolapse.

If a patient presents with severe back pain or motor deficit during pregnancy, further diagnostic assessment is required. The gold standard in diagnosing a disc herniation is MRI, as there is no radiation exposure and it gives the best portrayal of soft tissue [9–11]. Our patient complained of severe extensor paresis of the left foot and big toe. MRI was used to confirm the disc prolapse and to show its extent.

Berkmann et al. revealed in their prospective study that it was possible for women to deliver vaginally after microsurgical lumbar discectomy. The mean time between surgery and delivery was 42.5 ± 34.8 months (i.e. women in the sample were diagnosed and treated before as well as during pregnancy) [12]. In our case, the patient gave birth without complications 12 days after surgery and was able receive epidural anaesthesia without complication.

4. Conclusion

We report of a case of disc prolapse of L4/L5 in a near-term pregnancy. Successful microsurgical sequestectomy was performed. After treatment, the patient regained full function and delivered a baby at term vaginally.

Contributors

All authors made a substantive contribution to the information or material submitted for publication and take public responsibility.

Conflict of Interest

The authors declare that they have no conflict of interest regarding the publication of this case report.

Funding

No funding was sought or secured in relation to this case report.

Patient Consent

Written informed consent was obtained from the patient for the publication of this case report and the accompanying images.

Provenance and Peer Review

This case report was peer reviewed.

References

- [1] P. Kristiansson, et al., Back pain during pregnancy: a prospective study, *Spine (Phila Pa 1976)* 21 (6) (1996 Mar 15) 702–709.
- [2] M.M. LaBan, et al., Pregnancy and the herniated lumbar disc, *Arch. Phys. Med. Rehabil.* 64 (7) (1983 Jul) 319–321.
- [3] F.L. Hisaw, et al., Experimental relaxation of the pubic ligament of the guinea pig, *Proc. Soc. Exp. Biol. Med.* 23 (23) (1926) 661–663.
- [4] C.S. Samuel, et al., The effect of relaxin on collagen metabolism in the nonpregnant rat pubic symphysis: the influence of estrogen and progesterone in regulating relaxin activity, *Endocrinology* 137 (9) (1996) 3884–3890.
- [5] E.N. Unemori, et al., Relaxin modulates synthesis and secretion of procollagenase and collagen by human dermal fibroblasts, *J. Biol. Chem.* 265 (18) (1990) 10681–10685.
- [6] R. Bell, et al., Relaxin in human pregnancy serum measured with an homologous radioimmunoassay, *Obstet. Gynecol.* 69 (4) (1987) 585.
- [7] D. Aldabe, et al., Pregnancy-related pelvic girdle pain and its relationship with relaxin levels during pregnancy: a systematic review, *Eur. Spine J.* 21 (9) (2012 Sep) 1769–1776.
- [8] Joanne E. Bullock, et al., The relationship of low back pain to postural changes during pregnancy, *Aust. J. Physiother.* 33 (1) (1987) 10–17.
- [9] A. Zimmer, et al., Diagnostics and therapy of spinal disc herniation, *Radiologe* 54 (11) (2014 Nov) 1082–1086.
- [10] M.M. LaBan, et al., Magnetic resonance imaging of the lumbar herniated disc in pregnancy, *Am. J. Phys. Med. Rehabil.* 74 (1) (1995 Jan-Feb) 59–61.
- [11] Martino Di, et al., How to treat lumbar disc herniation in pregnancy? A systematic review on current standards, *Eur. Spine J.* 26 (Supplement 4) (2017) 496–504.
- [12] S. Berkmann, et al., Pregnancy and childbirth after microsurgery for lumbar disc herniation, *Acta Neurochir.* 154 (2) (2012 Feb) 329–334.