

Managing Symptomatic Severe Disc Prolapse in Pregnancy with Normal Vaginal Delivery: An MDT Approach

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Abstract

Low back pain is common in pregnancy secondary to the hormonal effects on the musculoskeletal system together with the mechanical strain of the pregnant abdomen. An underlying spinal pathology is rare, with disc prolapse being the most common, affecting 1 in 10,000 pregnant women¹. Disc prolapse may cause permanent neural deficit in pregnancy. The complexity of managing such a patient requires a multidisciplinary approach involving the obstetrician, community midwife, physiotherapist, health visitor, General Practitioner (GP), anaesthetist, neonatal and spinal teams as seen in our this case report. The plan of care will involve the management of pain and reduced mobility symptoms, choice of analgesia, the social impact of this in the context of a working woman with dependants, consideration of the risk of Venous Thromboembolism (VTE), the potential need for surgery and the influence that this may have on the mode and timing of delivery.

Keywords: Backache; Disc prolapse; Pregnancy

Case Report

A 33 year old lady, in her second pregnancy (Para 1 Gravida 2), had severe low back pain and sciatica in her left leg secondary to a prolapsed disc since the vaginal delivery of her twin boys five years previously. These symptoms were managed on paracetamol, diclofenac, codeine and amitriptyline. Diclofenac was stopped on the diagnosis of her current pregnancy. She booked at 10/40, when she was already under the care of a physiotherapist and chiropractor and required crutches to mobilise. Her symptoms progressed so much so that at 16/40 she required diazepam and a wheelchair to mobilise. Her regular follow up with spinal surgeons did not reveal any sensory deficit but there was limited mobility of both legs. A magnetic resonance imaging (MRI) showed loss of the lumbar lordosis with dehydrated discs in lumbar are at the level of Lumbar 4/Lumbar 5 and Lumbar 5/Sacral1; narrowing of the L5/S1 disc space and a large left para-central disc protrusion that was occupying the lateral recess and compromising the left nerve root exiting at this level. Her symptoms progressively got worse and at 23/40 weeks of gestation she attended antenatal clinic on the stretcher, unable to mobilise from a supine position secondary to exacerbation of her pain symptoms. She was extremely emotional as the analgesics were not effective and she was almost bed bound at home; her husband was her full time carer. In view of the severity of her symptoms, she was admitted to the antenatal ward for full assessment to rule out cauda equina and to optimise her analgesia. An urgent Multi disciplinary team meeting was arranged with senior midwife, Obstetrics, anaesthetist consultants and antenatal ward manager to discuss the further immediate plans as well as long term plans for the management in this pregnancy. Spinal team was consulted and they organised an appropriate bed to the antenatal ward and following anaesthetic review she was started on regular oromorph to assess her opiate requirements. In consultation with the spinal team an appropriate bed was arranged in the antenatal ward. She was started on regular oromorph after full assessment by the anaesthetist team. Spinal team suggested for epidural as analgesia if she did not respond to regular oromorph. Given her immobility she was started on prophylactic low molecular weight heparin as venous thromboprophylaxis. After twenty-four hours her pain was managed with higher dose of oromorph (40 mg daily). She responded to the new analgesic plan in next 24 hours and was discharged home, aware that she could attend the antenatal ward for readmission if any further exacerbations occurred. Her GP and community midwife were kept informed and planned to increase the oromorph if needed. At 25/40,

she was started on morphine sulphate (MST) 50mg BD. Through the combined efforts of her Obstetrician, GP and the Orthopaedic nursing team, an orthopaedic bed was provided to support her at home. Given the severity of her symptoms a provisional plan for delivery by her Obstetrician and spinal team at 34 weeks was made, so that a micro-discectomy could be performed two weeks post-partum. However her symptoms improved, such that she reduced her MST to 30mg bd twice daily and a repeat MRI scan showed no worsening of MRI features compared to the previous report. Her mobility was slightly improved. Therefore, delivery was re-scheduled for 37/40 (term), with a planned micro-discectomy two weeks after delivery. There was lengthy discussion regarding the mode of delivery with patient in close liaison with spinal surgeon. In view of previous uncomplicated delivery of twins patient was extremely keen to avoid caesarean section and try for a normal delivery. An Obstetric MDT in collaboration with the Consultant spinal surgeon agreed that patient was suitable for a vaginal delivery while the spinal team will be kept fully informed of the progress of her labour. Awareness of the symptoms of cauda equina and the need for urgent surgical intervention in their presence was highlighted to the Obstetric multi-disciplinary team and the induction was planned when the spinal Surgeon would be available, if required in an emergency. Patient had a successful and uncomplicated normal vaginal delivery following cervical priming with prostaglandin and an artificial rupture of membranes under epidural analgesia. Her baby was delivered with good apgar score and normal blood gases. There was no evidence of neonatal abstinence syndrome with monitoring.

An uncomplicated elective microdiscectomy of lumbar intervertebral disc was performed by spinal team 2 weeks following delivery. Follow up review by spinal team at 6 weeks showed good progress with marked improvement in her back and leg pain with

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normal neurological examination. Further follow up at 3 months post-surgery revealed complete resolution of her backache and leg pain. Her last appointment with spinal surgeon team at 9 months post-surgery revealed marked improvement with only residual backache and occasional 'tingling sensation and numbness' down the leg. Overall she had good range of movements of the spine and residual symptoms were thought to be due to the degenerative changes as well possibly some fibrosis around the operator nerve root and she was discharged from the clinic with advice of regular regime of exercises to improve control of her postural muscles and to improve general function.

Discussion

Symptomatic lumbar disc protrusion in pregnancy is rarely encountered with an incidence of approximately 1 in 10,000 pregnancies¹. Pressure on the lumbar intervertebral discs in the lumbar spinal cord can lead to protrusion of the outer fibrous portion (annulus fibrosus) of the disc and tearing of this tissue can lead to the softer inner tissue (nucleus pulposus) herniating into the spinal canal. A combination of an inflammatory reaction and direct compression of nerve routes leads to pain in the areas supplied to them. With lumbar disc protrusion this may cause severe lower back, buttock and leg pain that limits straight leg raising, movement and certain positioning. The level and extent of disc protrusion can be confirmed and monitored using MRI of the spine, which is considered to be safe in pregnancy [1,2].

During pregnancy the release of hormones including relaxin are thought to soften ligaments of the pelvis in preparation of childbirth. This joint laxity accompanied by the musculoskeletal adaptations and the mechanical strain of the gravid abdomen may exacerbate pre-existing disc disease and sub-optimal patient positioning if corrective surgery is required. The incidence of complications such as cauda equine is not known to be increased during pregnancy.

The presence of a lumbar disc protrusion doesn't have a direct effect on the pregnancy however the indirect effects include the increased risk of venous thrombosis in the presence of immobility, the risk of neonatal abstinence syndrome with the use of strong opioid analgesia, muscle relaxants and antidepressants and the potential risk of iatrogenic, pre-term operative delivery.

Most pregnant woman presenting with back pain will respond to simple analgesia and physiotherapy avoiding Non-Steroidal Anti-Inflammatory Drugs (NSAID) due to the risk of premature closure of ductus arteriosus, fetal renal failure and oligohydramnios. If simple analgesia fails to manage symptoms, then the use of muscle relaxants, amitriptyline and stronger opioid analgesia would be considered. Each of these carry a risk of neonatal abstinence syndrome (NAS) in which babies experience varied symptoms of withdrawal including jitteriness, irritability and a high pitched cry. NAS is reported in 5-20% of babies to women on prescription opioid medication³ and 20-50% of those taking tricyclic anti-depressants [3]. Polypharmacy increases the risk of NAS in the neonate and maternal dosage seems to correlate with the duration of treatment required in the neonate, whilst stopping opiates one week prior to delivery are associated with a reduced incidence of NAS [4]. The risks of developing NAS need to be considered in the context of fetal maturity gained by progressing with the pregnancy, maternal physical and psychological well-being and the potential to avoid surgical intervention. Close liaison with the neonatal team, informing them of the planned timing of delivery will allow the team to plan to observe the baby and treat NAS if it occurs. Steroid injection in the epidural space has also been used to manage pain symptoms [5]. Reduced immobility secondary to pain symptoms

is a moderate risk factor of venous thromboembolism and in the presence of two other intermediate risk factors, thrombo-prophylaxis would be recommended from 28 weeks gestation [6]. Consideration of the psychological impact of pain and limited mobility should be made, particularly in the context of any previous history of depression. In the event of conservative measures failing, corrective surgery including microdiscectomy, laminectomy and discectomy may be considered if there is intractable pain or progressive neurological deficit during pregnancy. Cauda Equina occurs when spinal cord compression gives rise to symptoms of loss of sensation in the saddle area, loss of bladder sensation, with possible urinary and faecal incontinence. It is an absolute indication for urgent surgery to prevent long term sequelae irrespective of the gestation.

Ideally these procedures are usually performed in a prone position to minimise blood loss and allow access to the surgical field [7], however surgery in the left lateral position are reported [8] although there are concerns about the possibility of a longer procedure with an increase in blood loss [9]. In severe cases where conservative measures have failed to control the symptoms, women can be operated safely in the first and second trimester and then continuing with the pregnancy until term [5]. However in the third trimester, the gravid uterus may mean that the desired positioning cannot be achieved [7]. After 34 weeks, delivery prior to corrective surgery may be considered weighing up the relatively lower risk of complications of prematurity at this gestation against the technical challenges of operating including the difficulty in monitoring fetal well-being. The decision of whether to interrupt the pregnancy would be a multi-professional involving the patient, spinal surgeon, neonatologist, midwife and Obstetrician. Ochi et al suggest a protocol to aid the decision making process of continuing or interrupting the pregnancy and in cases where the prone position cannot be safely achieved but delivery is considered too risky for the fetus then surgery in the lateral position is suggested [7].

There is no clear cut guidance on mode of delivery in such cases. Historically caesarean section has been chosen as preferred mode of delivery due to the theoretical risk of a raised intra-thecal pressure with the second stage as well as convenience of combining caesarean delivery with the spinal surgery. However there is no evidence that vaginal delivery is contraindicated in such cases and also performing two surgeries at a time exposes the patient to the risks of a prolonged operating time and its consequences. As we grow more knowledgeable about the risks of caesarean section not only at the time of surgery but also in future pregnancies, careful consideration is required as to the appropriateness of this. In our case, this lady had a previous uncomplicated twin vaginal delivery and so the chances of a successful vaginal delivery when established were high. Irrespective of mode of delivery epidural anaesthesia can be administered in the presence of a lumbar prolapse [7].

In women who had corrective surgery prior to pregnancy, an observational study of 41 women comparing the effectiveness of regional anaesthesia found no difference however reported a higher rate of requiring multiple insertions [10]. Whereas in 21 women who had regional anaesthesia in labour within the study by Sven et al found that 52% were not satisfactory [11]. This study also showed that vaginal delivery is not associated with a persistence of lumbar symptoms¹¹ and that there seemed to be a (non- statistically significant) trend towards an increase in pain in those delivered by caesarean.

Summary

Given the uncommon occurrence of significant disc protrusion

in pregnancy, each case should be individually assessed and managed with integration of the multi-disciplinary, multi-professional team, ideally centrally co-ordinated by the Obstetric Specialist. The prompt adaptation of the delivery of care services in this case ensured that her pain symptoms were managed and the subsequent support within the community prevented further deterioration resulting in a term vaginal delivery and elective corrective surgery, minimising potential risk to both the mother and her baby.

References

1. LaBan MM, Rapp NS, von Oeyen P, Meerschaert JR (1995) The lumbar herniated disk of pregnancy: a report of six cases identified by magnetic resonance imaging. *Arch Phys Med Rehabil* 76: 476-479.
2. Brown MD, Levi AD (2001) Surgery for lumbar disc herniation during pregnancy. *Spine (Phila Pa 1976)* 26: 440-443.
3. Kocherlakota P (2014) Neonatal abstinence syndrome. *Pediatrics* 134: e547-561.
4. Cramton RE, Gruchala NE (2013) Babies breaking bad: neonatal and iatrogenic withdrawal syndromes. *Curr Opin Pediatr* 25: 532-542.
5. Abou-Shameh MA, Dosani D, Gopal S, McLaren AG (2006) Lumbar discectomy in pregnancy. *Int J Gynaecol Obstet* 92: 167-169.
6. (2015) Thrombosis and Embolism during Pregnancy and the Puerperium, Reducing the Risk (Green-top Guideline No. 37a) RCOG.
7. Ochi H, Ohno R, Kubota M, Hanyu R, Sakai K, et al. (2014) Case report: The operation for the lumbar disk herniation just after cesarean delivery in the third trimester of pregnancy. *Int J Surg Case Rep* 5: 1178-1182.
8. Kathirgamanathan A, Jardine AD, Levy DM, Grevitt MP (2006) Lumbar disc surgery in the third trimester--with the fetus in utero. *Int J Obstet Anesth* 15: 181-182.
9. Al-areibi A, Coveney L, Singh S, Katsiris S (2007) Case report: anesthetic management for sequential Cesarean delivery and laminectomy. *Can J Anaesth* 54: 471-474.
10. Bauchat JR, McCarthy RJ, Koski TR, Cambic CR, Lee AI, et al. (2012) Prior lumbar discectomy surgery does not alter the efficacy of neuraxial labor analgesia. *Anesth Analg* 115: 348-353.
11. Berkmann S, Fandino J (2012) Pregnancy and childbirth after microsurgery for lumbar disc herniation. *Acta Neurochir (Wien)* 154: 329-334.