

Background

Spinal cord stimulators (SCS) are increasingly used to treat refractory chronic pain syndromes such as complex regional pain syndrome (CRPS), neuropathic pain, and failed back surgery syndrome. While effective in pain control, SCS presents unique challenges in pregnancy, including concerns about device integrity, electromagnetic interference, altered pharmacological management, and the impact of pregnancy on pain symptoms. There is limited literature on obstetric outcomes and optimal management strategies for pregnant women with SCS in situ. This case series explores the antenatal, intrapartum, and postpartum considerations in two pregnant patients with spinal cord stimulators.

Case Presentation

Case 1 involved a 26-year-old G3P1 woman with a history of complex regional pain syndrome (CRPS) affecting her right upper limb (post-traumatic) and left lower limb (idiopathic). She had dual spinal cord stimulator (SCS) systems implanted at thoracic and lumbar levels at the Walton Centre, Liverpool. The devices were deactivated during the first trimester on the advice of the pain team. Despite stepwise analgesia, her pain worsened in the third trimester. Fetal growth and Doppler studies remained within normal limits. Labour was induced with a membrane sweep at 37 weeks followed by prostaglandin induction at 38 weeks. She had an uncomplicated vaginal delivery, and her postpartum pain improved without the need to reactivate the device.

Case 2 described a 37-year-old G1P0 woman with severe sciatic neuropathic pain following a previous discectomy. She had an Intellis SCS (Medtronic) implanted with wires extending to T8. Her medical history was notable for a long-term infection treated with a PICC line in 2018 and a diagnosis of pulmonary embolism at 18 weeks gestation, for which she was started on low molecular weight heparin. Her SCS had been deactivated prior to conception. Serial growth scans showed fetal growth above the 97th centile. At 35+1 weeks, she presented with spontaneous rupture of membranes and rapid labour progression. Due to an occipito-posterior fetal position and failure to progress, she underwent an emergency cesarean section. The procedure was uncomplicated, with careful intraoperative positioning to avoid damage to the leads or battery.

Discussion

Pregnancy in women with SCS requires **tailored multidisciplinary care**. While no teratogenic risks from SCS have been reported, **theoretical risks** from electrical stimulation to fetal development or uterine irritability warrant deactivation during pregnancy. This can lead to **resurgence of pain**, requiring careful analgesic planning with obstetric, pain, and anesthetic teams. Labor and delivery planning must consider the **location of implanted components**, especially for regional anesthesia. In Case 2, the cesarean section was performed under general anesthesia due to uncertainty regarding epidural access and urgency. This highlights the importance of early anesthetic consultation. **Postpartum care** includes evaluating the need to **reactivate the SCS** and assessing for postpartum exacerbation of pain. Both women in our series recovered well, and their devices remained structurally intact. Despite device deactivation, **favorable maternal and neonatal outcomes** were achieved, supporting the feasibility of normal pregnancy and delivery with appropriate monitoring.

Conclusion

Pregnancy in patients with SCS is rare but increasing. These cases reinforce the need for:

- **Early multidisciplinary planning**
- **Risk-benefit discussion** around SCS deactivation
- **Delivery planning** that incorporates anesthetic and device considerations

There is a pressing need for formal **guidelines** and **registries** to document maternal and fetal outcomes in this population.

References

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