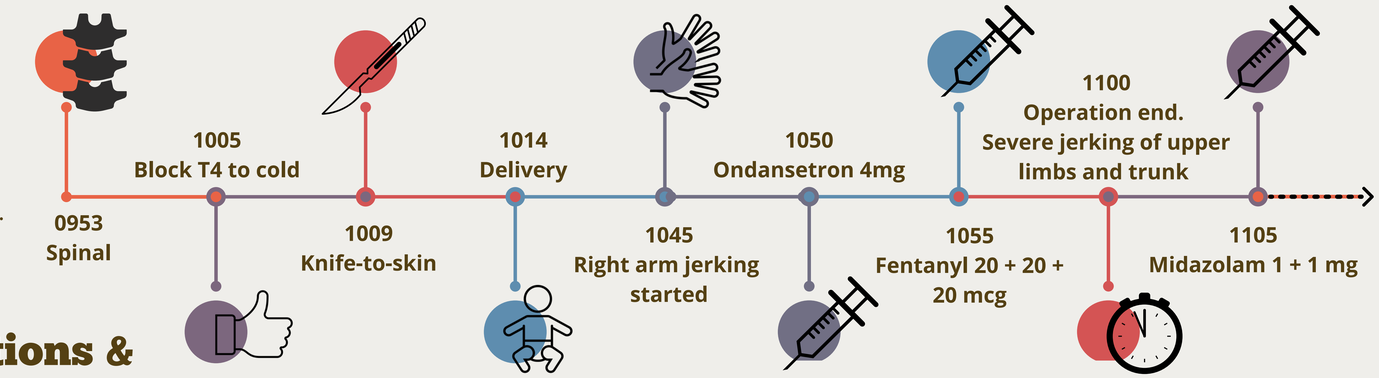
# Propriospinal myoclonus following neuraxial anaesthesia for caesarean section

**Dr V Pradhan CT2, Dr E Robson Consultant**
**Correspondence: vidushi.pradhan@nhs.net**

NHS
Frimley Health
NHS Foundation Trust

## Introduction

Spinal myoclonus (SM) following neuraxial anaesthesia (SM-NA) is uncommon with limited published research on the topic. It is characterised by involuntary myoclonic jerking, which can affect single or multiple muscle groups, commonly presenting in the lower extremities known as segmental myoclonus. Rarely, it can spread across multiple spinal segments involving the upper extremities and trunk, where it is known as propriospinal myoclonus [1,2].




## Case Presentation

A 40-year-old multiparous woman presented for elective caesarean section (CS) having had two previous unremarkable CS under spinal anaesthesia, with a background of hypothyroidism on levothyroxine and gestational diabetes on metformin and insulin. A spinal block was administered at the lumbar 3-4 level using a 25-gauge Sprotte needle and 13mg of 0.5% hyperbaric bupivicaine, 15 mcg fentanyl and 100 mcg preservative free morphine injected. Self-resolving left leg paraesthesia was reported by the patient prior to injection, with no further episodes reported during the procedure. The patient had a block to T5 to touch, and T4 to cold bilaterally. Routine antibiotic prophylaxis (cefuroxime 1.5g and metronidazole 500mg) was administered. After delivery, 5 units of oxytocin were given followed by 40 units oxytocin infusion in 500ml 0.9% Normal Saline.

Sixty minutes following administration of spinal anaesthesia, during closing of the rectus sheath, the patient started having mild intermittent myoclonic movements of the right upper limb which swiftly progressed in severity spreading to both upper limbs and trunk. The jerking presented as involuntary abduction of her shoulder, flexion of her elbow joints, and truncal flexion. No jerking was observed in the lower limbs. A venous blood gas performed at the time was normal. Her block was re-tested and was T2 to cold bilaterally. The patient was awake and alert throughout, and her observations were within normal limits.

## Investigations & Management

Our patient was reviewed by a consultant neurologist in recovery. Apart from the movements, no other abnormal findings were noted. Post-operative blood glucose levels, thyroid function tests, serum electrolytes, computer tomography brain imaging and magnetic resonance imaging and venogram brain imaging were found to be normal. The patient also had an electroencephalogram study the following day (during which jerking of the right arm was observed) reported as normal.

A total of 60 mcg fentanyl (in 20 mcg aliquots) and 2 mg midazolam (in 1 mg aliquots) were administered intravenously in theatre and recovery, to negligible effect. The movements improved in severity and reduced significantly in frequency 6 hours following the spinal anaesthetic and resolved completely by 48 hours. She was discharged from hospital 3 days following her CS with no issues reported at one-week midwifery follow-up. She was offered follow-up in our high-risk anaesthetic clinic at 8 weeks but failed to attend. After review of the literature, our primary differential diagnosis was propriospinal myoclonus, a form of SM-NA

## Discussion

The cause of SM-NA has been hypothesised to be due to loss of inhibitory function of descending pathways and hyperactivity of anterior dorsal horn cells during elimination of local anaesthetic [1]. Opioid interaction with local anaesthetic could also contribute to the pathophysiology [2]. In our case, the neurologist included a functional movement disorder in her differential as she felt the movements were more pronounced during her examination. However, the patient did not have a prior mental health history, had two previous spinal anaesthetics for CS with no complications, and the movements were also present while the patient was sleeping. The prognosis of SM-NA is very favourable, with case reports reporting complete resolution of symptoms usually within 24-48 hours in most published cases. It is important for obstetric anaesthetists to be aware of this rare complication of neuraxial anaesthesia, to be knowledgeable about potential treatments and be able to provide reassurance to the woman and her family.

References:
1. Shiratori T, Hotta K, Satoh M. Spinal myoclonus following neuraxial anesthesia: a literature review. J Anesth. 2019;33:140–147.
2. Lev A, Korn-Lubezki I, Steiner-BirmannsB, Samueloff A, Gozal Y, Ioscovich A. Prolonged propriospinal myoclonus following spinal anesthesia for cesarean section: case report and literature review. Arch Gynecol Obstet. 2012;286:271–272.

Wexham Park Hospital, Frimley Health NHS Foundation Trust