Successful conception using home intravaginal insemination following spinal cord injury in a man

Daniela Keren MSc MD  Martina Kelly MB BCh MA

An estimated 86,000 Canadians live with spinal cord injury (SCI), of which 90% identify family physicians as their regular doctors. Eighty percent of those affected by traumatic SCI are men and the most common age of injury is from 20 to 29 years. Sexual health and fertility are important health care needs in this group of patients and are often under-addressed in the community setting. Family physicians might experience difficulty raising the topic of fertility to patients, yet patients expect their health care providers to initiate conversations about their sexual health. This is compounded by a lack of SCI training for primary care physicians. We report the case of a couple who self-managed their fertility issues and successfully conceived after home semen collection and intravaginal insemination. While intravaginal home insemination has long been understood to be a practical method of achieving pregnancy, this has not often been discussed in the field of family medicine with respect to patients with SCI.

Case
Mr S., aged 40, and Ms J., aged 34, attended the family physician’s office to confirm pregnancy. Their family doctor was surprised, as Mr S. had an SCI after a snowboarding accident, which resulted in complete transection of his spinal cord, with loss of power and sensation from the waist down. Mr S. and Ms J. already have 1 child. For that pregnancy, semen had been extracted using electrostimulation, which is a technique where a probe is placed in the anal canal and electric shocks are given to aid ejaculation. Intrauterine insemination was unsuccessful, so their first child was conceived using in vitro fertilization. Three years later, the couple tried for a second pregnancy using their final frozen embryo, but the pregnancy did not progress. The couple wanted to have another child, but the medicalization of pregnancy and the cost of in vitro fertilization were off putting, so the couple sought alternative options. Mr S. found that he could induce ejaculation by rapidly changing the temperature of his leg muscles, as in showering with very hot water after exposure to freezing winter weather, or by working out to heat up his muscles and then taking a cold shower. Ms J. figured out when she was ovulating using an over-the-counter ovulation monitoring kit. When she was ovulating, Mr S. ejaculated and collected his semen in a cup, which Ms J. drew up into a syringe. She injected the semen into her vagina and lay down for a minimum of 20 minutes. After several unsuccessful attempts, Mr S. designed an insemination kit by researching online and adapting a syringe to have a longer tube to help place the sperm further into the vagina (Figure 1). The couple conceived and Ms J. had a normal pregnancy, giving birth to a healthy baby.

Discussion
In a study comparing the care of this patient population across Canada, the United States, and the United Kingdom, 95% of Canadian participants identified themselves as having a family physician as their primary care provider.
Despite this, 80% of participants (n = 71) never discussed family planning with a physician. As SCI most commonly affects men of reproductive age, having discussions about reproductive health is an important part of these patients’ routine care.

We reviewed the literature regarding home-assisted reproduction in PubMed and CINAHL using the search terms spinal cord injury, home insemination, and assisted reproduction. We included English articles from all publication years. We found that home intravaginal insemination for patients with SCI has been discussed predominantly in SCI, fertility, and physical medicine and rehabilitation journals. Of the studies reviewed, the success rate of intravaginal insemination in couples affected by SCI ranged from 25% to 70%.

Intravaginal insemination at home is the closest to natural conception and the least expensive technique of those available. For the highest chance of successful pregnancy, a man can time insemination with a woman’s ovulatory cycle using an ovulation monitoring kit. While many men sustaining SCI cannot ejaculate during sexual intercourse, some men can ejaculate by masturbation. For men who are able to ejaculate during intercourse, a seminal collection device can be used during intercourse, which has been shown to produce higher quality semen than that produced by masturbation. For those who cannot ejaculate during intercourse, the literature suggests that natural manners of achieving ejaculation should be still tried first, with an emphasis on encouraging longer periods of stimulation despite poor success rates of achieving ejaculation. Literature looking specifically at the achievement of ejaculation by masturbation in men with SCI found that, when encouraged to maintain longer stimulation, 30% to 33% of participants achieved ejaculation.

However, in patients who are not able to achieve ejaculation naturally, more advanced assistive methods might allow for home insemination. Penile vibratory stimulation is a painless technique in which a specialized mechanical vibrator is placed at the base of the glans penis and is set to a certain frequency and amplitude. Electroejaculation is another technique that can be used, in which an electric probe is inserted rectally and positioned against the prostate, thus stimulating ejaculation.

While men with SCI might have reduced sperm motility, the ejaculate often contains sufficiently motile sperm to be used for intravaginal insemination. There is no evidence to suggest that time since the SCI reduces sperm quality in this patient population. Sperm should be collected in a nonspermicidal cup, after which the semen is drawn up into a 3-mL or 5-mL syringe barrel. This syringe can then be introduced into the vagina, and the plunger gently pushed to deposit semen into the vagina. An alternative method is to use a cervical cup, which has been shown to facilitate pregnancy in some couples with male infertility concerns.
This case suggests that home intravaginal insemination might be a viable conception option for some patients with SCI. Given the gap in sexual and reproductive information that is being provided to this patient population, we present an important area for discussion between family physicians and their patients with SCI.

**Conclusion**

This case suggests that home intravaginal insemination might be a viable conception option for some patients with SCI. Given the gap in sexual and reproductive information that is being provided to this patient population, we present an important area for discussion between family physicians and their patients with SCI.

**Dr Keren** is a family medicine resident in the Schulich School of Medicine & Dentistry at Western University in London, Ont. **Dr Kelly** is Associate Professor in the Department of Family Medicine in the Cumming School of Medicine at the University of Calgary in Alberta.

**Competing interests**

None declared

**Correspondence**

Dr Daniela Keren; e-mail dkeren@uwo.ca

**References**


