

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

Daniela Keren MSc MD Martina Kelly MBBCh MA

An estimated 86 000 Canadians live with spinal cord injury (SCI),<sup>1</sup> of which 90% identify family physicians as their regular doctors.<sup>2</sup> Eighty percent of those affected by traumatic SCI are men and the most common age of injury is from 20 to 29 years.<sup>3</sup> Sexual health and fertility are important health care needs in this group of patients and are often under-addressed in the community setting.<sup>4,5</sup> 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.<sup>4</sup> This is compounded by a lack of SCI training for primary care physicians.<sup>5</sup> 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,<sup>6</sup> 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.<sup>2</sup>

## Editor's key points

- ▶ Spinal cord injuries (SCIs) are common in men at the peak of their reproductive years. However, while many men with SCI are unable to achieve erections, it is possible to induce ejaculation.
- ▶ Family physicians are the primary doctors for men with SCI; despite feelings of discomfort around the topic of fertility, family physicians should initiate conversations on sexual and reproductive health with SCI patients.
- ▶ Family physicians are ideally placed to educate patients on home intravaginal insemination, which could be a more affordable, fast, and less invasive option for conception in those with fertility difficulties.

## Points de repère du rédacteur

- ▶ Les lésions médullaires (LM) sont communes chez les hommes au sommet de leurs années de procréation. Toutefois, comme de nombreux hommes atteints d'une LM ne peuvent pas avoir d'érection, il est possible d'induire une éjaculation.
- ▶ Les médecins de famille sont les premiers intervenants auprès des hommes atteints d'une LM; même s'ils se sentent mal à l'aise de discuter de fertilité, les médecins de famille devraient amorcer avec ces patients des conversations entourant la santé sexuelle et reproductive.
- ▶ Les médecins de famille sont bien placés pour renseigner les patients à propos de l'insémination intravaginale à domicile, une option moins coûteuse, plus rapide et moins invasive pour la conception pour ceux qui éprouvent des problèmes de fertilité.

Despite this, 80% of participants (n=71) never discussed family planning with a physician.<sup>2</sup> As SCI most commonly affects men of reproductive age,<sup>3</sup> 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%.<sup>7,8</sup>

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.<sup>9</sup> 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.<sup>10</sup> 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.<sup>11</sup> 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.<sup>12</sup>

However, in patients who are not able to achieve ejaculation naturally, more advanced assistive methods might allow for home insemination.<sup>9</sup> 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.<sup>3</sup> There is no evidence to suggest that time since the SCI reduces sperm quality in this patient population.<sup>13,14</sup> 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.<sup>7</sup> An alternative method is to use a cervical cup, which has been shown to facilitate pregnancy in some couples with male infertility concerns.<sup>15</sup> In this method,

**Figure 1.** Homemade insemination kit

a cervical cup is placed into the vagina, and the syringe containing semen is attached to the stem of the cup, such that the semen can be directly introduced.<sup>15</sup> For optimal chance of success, the woman should lie down for 15 to 20 minutes after intravaginal insemination.<sup>16</sup>

The presented case highlights an important area of education for family physicians. In this case, the couple tried home intravaginal insemination on their own, rather than based on physician advice, despite regular contact with their family doctor and annual review with an SCI specialist. This emphasizes the need for family physicians to be proactive in addressing sexual health needs in patients with SCI. Although patients might require specialist referrals for fertility treatment, assisted reproduction is largely not publicly funded in Canada, so education surrounding home intravaginal insemination might be an affordable, fast, and less invasive first option.

## 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](mailto:dkeren@uwo.ca)

### References

- Noonan VK, Fingas M, Farry A, Baxter D, Singh A, Fehlings MG, et al. Incidence and prevalence of spinal cord injury in Canada: a national perspective. *Neuroepidemiology* 2012;38(4):219-26. Epub 2012 Apr 27.

- Donnelly C, McColl MA, Charlifue S, Glass C, O'Brien P, Savic G, et al. Utilization, access and satisfaction with primary care among people with spinal cord injuries: a comparison of three countries. *Spinal Cord* 2007;45(1):25-36. Epub 2006 May 30.
- Sinha V, Elliott S, Ibrahim E, Lynne CM, Brackett NL. Reproductive health of men with spinal cord injury. *Top Spinal Cord Inj Rehabil* 2017;23(1):31-41.
- Aikman K, Oliffe JL, Kelly MT, McCuaig F. Sexual health in men with traumatic spinal cord injuries: a review and recommendations for primary health-care providers. *Am J Mens Health* 2018;12(6):2044-54. Epub 2018 Jul 25.
- McColl MA, Aiken A, McColl A, Sakakibara B, Smith K. Primary care of people with spinal cord injury: scoping review. *Can Fam Physician* 2012;58:1207-16 (Eng), e626-35 (Fr).
- McLaughlin EA, Bromwich PD, Macken AM, Walker AP, Newton JR. Use of home insemination in programmes of artificial insemination with donor semen. *Br Med J (Clin Res Ed)* 1983;287(6399):1110.
- Kathiresan AS, Ibrahim E, Aballa TC, Attia GR, Lynne CM, Brackett NL. Pregnancy outcomes by intravaginal and intrauterine insemination in 82 couples with male factor infertility due to spinal cord injuries. *Fertil Steril* 2011;96(2):328-31. Epub 2011 May 31.
- Sønksen J, Fode M, Löchner-Ernst D, Ohl DA. Vibratory ejaculation in 140 spinal cord injured men and home insemination of their partners. *Spinal Cord* 2012;50(1):63-6. Epub 2011 Sep 13.
- Ibrahim E, Brackett NL, Lynne CM. Advances in the management of infertility in men with spinal cord injury. *Asian J Androl* 2016;18(3):382-90. Epub 2016 Apr 5.
- Zavos PM, Goodpasture JC. Clinical improvements of specific seminal deficiencies via intercourse with a seminal collection device versus masturbation. *Fertil Steril* 1989;51(1):190-3.
- Alexander M, Courtois F, Elliott S, Tepper M. Improving sexual satisfaction in persons with spinal cord injuries: collective wisdom. *Top Spinal Cord Inj Rehabil* 2017;23(1):57-70.
- Courtois F, Charvier K, Leriche A, Vézina JG, Côté I, Raymond D, et al. Perceived physiological and orgasmic sensations at ejaculation in spinal cord injured men. *J Sex Med* 2008;5(10):2419-30. Epub 2008 May 7.
- Iremashvili V, Brackett NL, Ibrahim E, Aballa TC, Lynne CM. Semen quality remains stable during the chronic phase of spinal cord injury: a longitudinal study. *J Urol* 2010;184(5):2073-7.
- Patki P, Woodhouse J, Hamid R, Craggs M, Shah J. Effects of spinal cord injury on semen parameters. *J Spinal Cord Med* 2008;31(1):27-32.
- Diamond MP, Christianson C, Daniell JF, Wentz AC. Pregnancy following use of the cervical cup for home artificial insemination utilizing homologous semen. *Fertil Steril* 1983;39(4):480-4.
- Banerjee K, Singla B. Pregnancy outcome of home intravaginal insemination in couples with unconsummated marriage. *J Hum Reprod Sci* 2017;10(4):293-6.

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