



Intradetrusor OnabotulinumtoxinA injection for refractory bladder spasms before vesicovaginal fistula repair

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ABSTRACT

This is a report of a woman who failed 2 surgical repairs of vesicovaginal fistula secondary to refractory bladder spasms.

After each surgical procedure – the hysterectomy and subsequent fistula repairs – the patient reported severe bladder spasms refractory to medical management.

Our treatment was intradetrusor onabotulinumtoxinA injections 4 weeks prior to a planned surgical fistula repair. The patient had successful vaginal approach fistula repair and has not required any subsequent overactive bladder (OAB) treatment.

1. Introduction

Vesicovaginal fistula (VVF) repair has high success rates whether approached *trans*-vaginally or abdominally. However, there are patient and technical factors that may contribute to VVF repair failure. Classic patient risks are the use of tobacco, prior abdominal radiation, diabetes, and chronic urinary tract infection (UTI).¹ Surgical risk factors include a repair under tension, a closure with overlapping suture lines, or improper management of inflammation.² Although less recognized, refractory detrusor spasms can also contribute to VVF repair failure.

We present a patient that failed two VVF repairs, and common to both, reported severe pelvic pain with leakage around the catheter in the immediate post operative period, despite aggressive oral medication and belladonna and opioid (B&O) suppositories. We treated the patient with off label use of intradetrusor onabotulinumtoxinA (Botox) injection 4 weeks before a repeat VVF repair. The repair was done vaginally with no interposition flap and she healed without issue.

2. Case presentation

The patient was a 44-year-old woman with a BMI of 27. She was a non-smoker, non-diabetic and had no history of radiation therapy. During an abdominal hysterectomy for dysfunctional uterine bleeding there was a recognized bladder injury. A urologist was called in who

separated the vaginal cuff from the bladder wall and repaired a 2 cm bladder injury, well away from the ureters, in 2 layers with 4-0 vicryl mucosal and 2-0 vicryl muscular layer. There was no advancement flap used and no suprapubic tube was placed. On post operative day 1 she reported severe symptoms of intermittent bladder/pelvic cramping pain and leakage around the catheter consistent with bladder spasms refractory to oral Oxybutynin 10 mg TID around the clock, and B&O suppositories every 8 hours. The foley catheter was removed at 3 weeks and at 4 weeks her surgeon recognized an apical fistula at the vaginal cuff. The patient then had a vaginal approach VVF repair, 3–4 mm at the vaginal cuff, above the trigone away from the ureters. The repair was standard 2 layer with Vicryl without tissue flap or suprapubic catheter. She had the same severe pelvic pain, with urine leaking around the catheter during the post operative course that did not respond to around the clock oral Oxybutynin and B&O suppositories. The catheter was removed at 3 weeks and she noted vaginal leakage immediately and was found to have a 5–6 mm fistula at the vaginal apex. She then had an open abdominal fistula repair by a second surgeon for a 5–6mm fistula at the vaginal cuff. No tissue interposition or suprapubic catheter was used. Post-operatively she again reported severe bladder/pelvic pain refractory oxybutynin and B&O suppositories. Her foley catheter was removed at 3 weeks, and she immediately reported recurrent vaginal leakage and on examination an apical 3–4 mm fistula was seen at the vaginal cuff.

Abbreviations: OAB, overactive bladder; VVF, vesico-vaginal fistula; UTI, urinary tract infection; B&O, belladonna and opioid; Botox, onabotulinumtoxinA.

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At our institution the patient was found to have a 3–4 mm fistula at the vaginal apex in the midline above the trigone, well away from the ureters. She underwent intradetrusor onabotulinumtoxinA, 100 units, injected four weeks before planned surgical repair. The fistula surgery was done vaginally, the 3–4 mm fistula repaired with 4-0 vicryl mucosa and 3-0 vicryl muscular layer, without interposition flap or suprapubic catheter placement. Importantly, the patient did not report any of the pelvic/bladder pain, or urine leakage around the catheter in the post operative period. The patient is now more than 3 years post operative with no recurrence of VVF. She has not remained on overactive bladder medication or had required repeat Botox injection.

3. Discussion

We report a patient that had two VVF repair failures after experiencing severe, intermittent bladder/pelvic pain with leakage of urine around the catheter during the pain, consistent with detrusor spasms. Both oral oxybutynin and B&O suppositories failed to control her post operative pain/bladder spasms. She had successful VVF repair 4 weeks after intradetrusor Botox injection and she did not report the same severe post operative pain. There is little in the literature discussing immediate post-operative bladder spasms as a reason for VVF repair failure, or on the pre-operative use of intradetrusor Botox to manage these difficult bladder spasms.

Kursh first reported that patients who develop VVF commonly suffer postoperative abdominal pain and “bladder irritability” compared to patients with no development of VVF.³ Li reported that patients after abdominal approach VVF repair who develop new, progressive post-operative OAB symptoms may need “special assessment” to evaluate for fistula repair break down.¹ They suggest that new, persistent OAB symptoms after VVF repair could reflect inflammation, edema, tension, or bleeding in the repair site and thus affect wound healing.

Botox is an effective treatment for bladder spasms,⁴ the timing prior to VVF repair is important. While sensory fibers are most decreased at 12–16 weeks post-injection, studies have shown patients experience significant urodynamic improvements by four weeks.⁵ In our patient, the four-week interval between Botox injection and the VVF repair allowed for adequate control of the detrusor spasms and a successful long-term VVF repair outcome.

We have only injected Botox in VVF patients who had severe bladder spasms and have already failed a VVF repair. Immediate post operative bladder symptoms are common but the presence of severe pelvic pain with urine leaking around the catheter during the pain strongly suggests bladder spasm. Since all our patients have an indwelling catheter after VVF repair we find it important to place all post-operative VVF repair patients immediately on oral bladder spasm medications around the clock and B&O suppositories as needed.

4. Conclusion

We report a patient who had failed two VVF repairs and reported severe post-surgical symptoms consistent with bladder spasms. We treated with intradetrusor onabotulinumtoxinA (Botox) injection before successful repeat vaginal approach VVF repair. Symptoms of bladder spasms should be investigated in patients who develop VVF or who fail VVF repair. Intradetrusor Botox injection should be a considered intervention in these in patients.

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References

1. Li AY, Papin JE, Suskind AM, Cameron AP, Clemens JQ, et al. Abdominal approach for vesicovaginal fistulas: outcomes and risk factors for failure. *Int Arch Urol Complic.* 2017;3. <https://doi.org/10.23937/2469-5742/1510029>, 029.
2. Gupta NP, Mishra S, Mishra A, Seth A, Anand A. Outcome of repeat supratrigonal obstetric vesicovaginal fistula repair after previous failed repair. *Urol Int.* 2012;88(3): 259–262. <https://doi.org/10.1159/000331503>.
3. Kursh ED, Morse RM, Resnick MI, Persky L. Prevention of the development of a vesicovaginal fistula. *May 1 Surg Gynecol Obstet.* 1988;166(5):409–412. PMID: 3363460.
4. Dmochowski R, Chapple C, Nitti V, Chancellor M, et al. Efficacy and safety of OnabotulinumtoxinA for idiopathic overactive bladder: a double-blind, placebo controlled, randomized, dose ranging trial. *J Urol.* Dec 2010;184(6):2416–2422. <https://doi.org/10.1016/j.juro.2010.08.021>.
5. Linsenmeyer TA. Use of botulinum toxin in individuals with neurogenic detrusor overactivity: state of the art review. *J Spinal Cord Med.* 2013 Sep;36(5):402–419. <https://doi.org/10.1179/2045772313Y.0000000116>.