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Aamir Jalal Al-Mosawi *

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Review Article

The rare association of imperforate anus with neurogenic bladder dysfunction and later development of retrograde ejaculation: An educational article and expert opinion

Aamir Jalal Al-Mosawi*

Advisor doctor The National Training and Development Center and Baghdad Medical City

*__Corresponding Author:__ Aamir Jalal Al-Mosawi, Advisor doctor The National Training and Development Center and Baghdad Medical City

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Abstract

Background: Retrograde ejaculation, a condition where semen is redirected into the bladder rather than being expelled through the urethra during orgasm, can be caused by various factors including congenital abnormalities and surgical interventions. Effective management is crucial for improving patient outcomes and addressing associated symptoms.

Patients and methods: This paper explores a rare case of retrograde ejaculation associated with an imperforate anus and neurogenic bladder dysfunction. It also reviews various evidence-based treatments for retrograde ejaculation and evaluates the role of alfuzosin in managing related symptoms. The paper underscores the value of oral alfuzosin in managing this condition and to review the pharmacological treatments available for retrograde ejaculation.

Results: A 17-year-old male with a history of imperforate anus and bilateral hydroureteronephrosis underwent treatment with oral alfuzosin, an alpha1-adrenergic blocker. The patient experienced significant improvements in hydroureteronephrosis following one year of treatment with oral alfuzosin. Initial treatment involved a daily dose of 2.5 mg, which was increased to 5 mg after one month, and subsequently adjusted to 10 mg daily. The treatment led to reduced hydroureteronephrosis and preserved renal function.

Conclusion: This case supports the use of long-term oral alfuzosin as a non-invasive therapeutic option for neurogenic bladder dysfunction and retrograde ejaculation. Evidence from the literature indicates that a range of medical therapies can offer significant benefits for patients with retrograde ejaculation, underscoring the importance of individualized treatment strategies.

Keywords: imperforate anus; neurogenic bladder dysfunction; retrograde ejaculation; non-invasive therapies

Introduction

Discharge of semen into the posterior urethra before ejaculation is influenced by the sympathetic nervous system, which causes contraction of the smooth muscles in the epididymides, vasa deferentia, prostate, and bladder neck. This contraction results in the flow of prostate-vesicular secretions into the prostatic urethra. The closure of the bladder neck prevents retrograde flow into the bladder.Retrograde ejaculation is characterized by poor or absent ejaculation during orgasm due to the failure of the vesical neck sphincteric muscles to contract properly. This failure allows semen to reflux into the bladder instead of exiting through the urethra. Retrograde ejaculation can be congenital, acquired due to conditions such as transurethral prostatectomy or diabetic neuropathy, or idiopathic. The failure of the bladder neck muscles may result from muscle weakness or nerve damage [1, 2].

Patients and methods:

We describe a rare case of imperforate anus associated with neurogenic bladder dysfunction and subsequent development of retrograde ejaculation. We present evidence-based treatment for retrograde ejaculation and expert opinions.

Results:

A seventeen-year-old male presented with poor ejaculation during masturbation and the later presence of semen in the urine. He had undergone surgical treatment for imperforate anus early in life and bilateral ureteral reimplantation during childhood to address bilateral hydroureteronephrosis. At approximately seven years of age, he was referred to us because the surgery had not been beneficial, and he had severe bilateral hydroureteronephrosis. Treatment with oral alfuzosin, an alpha1-adrenergic blocker, was initiated at a dose of 2.5 mg daily at night, increased to 5 mg after one month. This treatment was based on evidence provided by Schulte-Baukloh et al. (2002) and Cisternino et al. (2002).

After about a year, treatment led to significant improvement, with only mild bilateral hydroureteronephrosis noted on renal ultrasound. Thus, the

treatment was continued. At age 17, the patient was taking oral alfuzosin 10 mg daily at night, and renal ultrasound showed mild bilateral hydroureteronephrosis. An additional dose of 2.5 mg oral alfuzosin was added at 1 pm to further improve bladder dysfunction, based on evidence from Yeung et al. (2021), which suggested that alfuzosin can preserve ejaculatory function when used to improve lower urinary tract symptoms [5].

Discussion:

The patient had surgical treatment for imperforate anus, and retrograde ejaculation following rectal surgery, such as abdomino-perineal excision of the rectum, was first reported as early as 1951 [6]. The association of retrograde ejaculation with congenital neurogenic bladder dysfunction was likely first reported by Keiserman and colleagues in 1974 [7].

In September 1974, Karl Stockamp, Friedhelm Schreiter, and Jens E. Altwein reported treating six young patients with retrograde ejaculation resulting from sympathetic nerve injury during retroperitoneal lymphadenectomy with synephrine, a sympathomimetic medication aimed at restoring antegrade ejaculation. Success was achieved in one patient [8].

In December 1974, Bruce H. Stewart and James A. Bergant emphasized the importance of sympathetic neural stimulation of the vesical neck and posterior urethra in preventing retrograde ejaculation. They reported that Hinman Jr F had successfully used oral ephedrine (a sympathomimetic medication) 50 mg 1 to 2 hours before intercourse to treat retrograde ejaculation resulting from retroperitoneal lymphadenectomy, with minimal side effects. However, a 25 mg dose of oral ephedrine was generally ineffective. Stewart and Bergant also noted successful treatment of retrograde ejaculation caused by diabetic neuropathy with oral phenylpropanolamine, a sympathomimetic medication with low systemic toxicity [9].

In 1975, Andaloro and Dube reported the successful treatment of retrograde ejaculation in juvenile diabetic male patient with brompheniramine, a first-generation sedative antihistamine medication with anticholinergic properties [10].

In 1975, Andaloro and Dube successfully treated retrograde ejaculation in a juvenile diabetic male with brompheniramine, a first-generation sedative antihistamine with anticholinergic properties [10]. Similarly, in 1990, Schill from Germany reported success with brompheniramine in treating retrograde ejaculation and ejaculatory sterility caused by incomplete emission failure [11].

In 1979, Jonas and colleagues reported the treatment of 12 patients who had retrograde ejaculation that occurred after retroperitoneal lymphadenectomy with oral midodrin, an alpha-sympathomimetic. Treatment was associated with improvements in seven of the 12 patients.

Jonas and colleagues also reported the restoration of normal ejaculation with emission of sperms into the posterior urethra in three of 12 patients treated by a single intravenous injection of midodrin 25-30 mg [12].

In 1982, Nijman et al. successfully used oral imipramine (25-50 mg) for retrograde ejaculation caused by bilateral retroperitoneal lymph node dissection for testicular tumors [13]. In 1985, Fosså et al. reported treating ten patients with retrograde ejaculation from right-sided retroperitoneal lymph node dissection for testicular tumor with imipramine chloride. Seven patients experienced a significant increase in ejaculatory volume, and four achieved pregnancies [14].

In 1987, Nijman et al. from the Netherland treated 55 patients with retrograde ejaculation from bilateral retroperitoneal lymph node dissection for testicular cancer with imipramine, finding it potentially effective in achieving pregnancy through intercourse [15].

In 1994, Gilja et al. treated 17 diabetic patients with retrograde ejaculation using ephedrine sulfate 50 mg or imipramine hydrochloride 75 mg. Improvement occurred in 17.6% of patients on ephedrine and 11.7% of patients on ephedrine followed by imipramine [16].

In 1999, Ochsenkühn and colleagues from Germany reported the treatment of eleven infertile patients who had retrograde ejaculation (Ten patients caused by retroperitoneal lymph node dissection for testicular cancer, and one patient with aortic thromboendarterectomy). The patients were treated with oral imipramine 25 to 50 mg for one week. Antegrade ejaculation was achieved in all patients with a sperm counts ranging from 3.9 to 276.0 x 10(6)/mL Treatment was not associated with major side effects, but 50% of the patients experienced some degrees of dizziness, weakness, nausea or sweating. In two patients, the achievement of normal sperm concentrations was associated with the achievement of spontaneous pregnancy. Therefore, oral imipramine was found to be safe and effective treatment in retrograde ejaculation and can help in achieving pregnancy by coitus [17].

In 2002, Kamischke and Nieschlag reviewed 36 studies on pharmacological treatment of retrograde ejaculation, finding that imipramine and chlorpheniramine plus phenylpropanolamine had higher reversal rates compared to ephedrine [18].

In 2005, Tomasi and colleagues reported the treatment of two patients who had retrograde ejaculation and not responding to oral imipramine by intramuscular methoxamine (Pure alpha1-adrenergic agonist) administered thirty minutes before masturbation or coitus. Treatment was associated with considerable increase in semen count. In one patient who had insulin-dependent diabetes, semen count increased from 22 million to 488 and 419.5 million with good motility, on two occasions, and pregnancy was achieved. Treatment was considered safe, but it was associated with slight increase in blood pressure value and visible erection of hair (Piloerection) [19].

In 2008, Arafa and Tabie from Egypt treated 33 diabetic patients with retrograde ejaculation (23 complete and 10 partial) with sequential courses of imipramine, pseudoephedrine, or both. Imipramine alone induced antegrade ejaculate in 38.5% of patients with complete retrograde ejaculation, while pseudoephedrine alone did so in 47.8%. Imipramine plus pseudoephedrine was successful in 61.5% of patients. Partial retrograde ejaculation was treated with significant improvements in semen volume, count, and motility [20].

As early as 2002, Schulte-Baukloh et al. reported a study which included 17 children with a mean age of 6.3 years who had neurogenic bladder associated with an upper motor neurone lesion. The patients were treated with oral alfuzosin (2.5-7.5 mg daily) for three weeks. Treatment was well tolerated and was not associated with severe side-effects. Treatment was associated with reduction of the detrusor leak-point pressure, and helped in avoiding intermittent catheterization in six children [3].

In 2006, Cisternino et al. treated 41 male patients (average age 43 years) with primary bladder neck obstruction using alpha1-adrenergic blockers (alfuzosin or tamsulosin) for at least six months. Treatment was beneficial in 29 of the 41 patients [4].

In 2021, Yeung et al. from Australia emphasized that alfuzosin can preserve ejaculatory function while improving lower urinary tract symptoms, based on a systematic review of six studies involving 1371 patients [5]

Expert opinion:

We have previously reported that early cutaneous vesicotomy can improve hydroureteronephrosis resulting from severe neurogenic bladder dysfunction [21]. This paper underscores that early use of long-term oral alfuzosin offers a non-invasive therapeutic option for treating neurogenic bladder dysfunction. Current evidence-based expert opinion suggests that various medical therapies can provide non-invasive treatment for retrograde ejaculation.

Conclusion:

This case supports the use of long-term oral alfuzosin as a non-invasive therapeutic option for neurogenic bladder dysfunction and retrograde ejaculation. Evidence from the literature indicates that a range of medical therapies can offer significant benefits for patients with retrograde ejaculation, underscoring the importance of individualized treatment strategies

Conflict of interest: None.

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