Case Report

Successful treatment of ejaculation pain with silodosin in patient with Zinner syndrome: a case report

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Background: Zinner syndrome is a rare congenital anomaly featuring a unilateral seminal vesicle cyst and ipsilateral renal agenesis. While the majority of affected patients are asymptomatic and followed with conservative management, others have symptoms such as micturition, ejaculatory difficulties, and/or pain, thus may require treatment. These patients often undergo an invasive procedure as first-line treatment, such as transurethral resection of the ejaculatory duct, or aspiration and drainage, which reduces pressure within the seminal vesicle cyst, or surgical resection of the seminal vesicle. Reported here is a patient with ejaculation pain and pelvic discomfort associated with Zinner syndrome who was successfully treated in a non-invasive manner with silodosin, an α_1-adrenoceptor antagonist.

Case Description: A 37-year-old Japanese male had ejaculation pain and pelvic discomfort associated with Zinner syndrome. Two months of treatment with silodosin, an α_1-blocker, resulted in complete pain relief. Thereafter, conservative management with regular follow-up examinations has been conducted for five years, without recurrence of ejaculation pain or other symptoms associated with Zinner syndrome.

Conclusions: This is the first known published case report of a patient with Zinner syndrome treated with silodosin who was completely relieved from ejaculation pain. The effect of α1-adrenoceptor antagonists to inhibit seminal vesicle contraction, as well as cause relaxation of smooth muscles of the urethra and prostate may contribute to reduce pain associated with ejaculation. We concluded that silodosin treatment should be attempted in affected patients before considering surgical treatment.

Keywords: Zinner syndrome; ejaculation pain; α_1-adrenoceptor antagonist; silodosin; case report

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Introduction

Zinner syndrome, first reported by Zinner in 1914 (1), is a rare congenital malformation that features development of a unilateral seminal vesicle cyst and ejaculatory duct obstruction (EDO) in association with ipsilateral renal agenesis. Affected patients are often asymptomatic while the coexisting seminal vesicle cyst is small, in which case follow-up examinations is an acceptable strategy. However,

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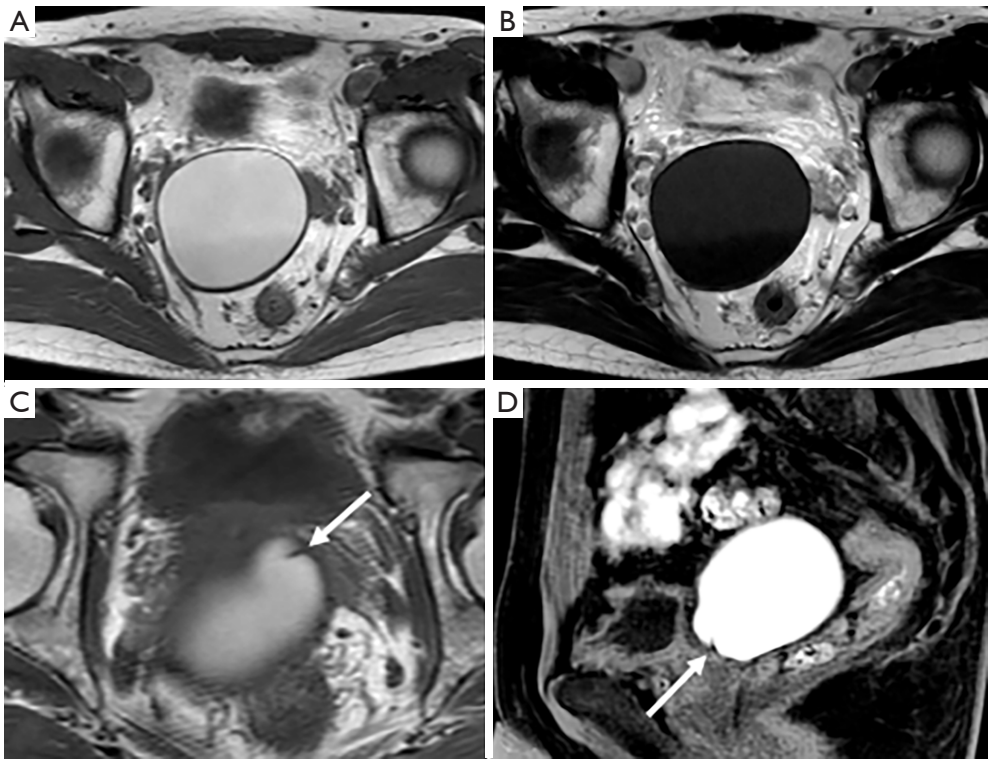

Figure 1 Non-enhanced pelvic magnetic resonance imaging demonstrated mass on dorsal side of bladder, which showed uniform high-intensity in T1-weighted (A) and low-intensity in T2-weighted (B) images. A wedge-shaped structure in the mass was partially visible in both axial (C) and sagittal (D) T1 images (arrows).

the cyst generally grows due to EDO-induced seminal fluid accumulation, resulting in development of symptoms such as perineal discomfort, difficulty with urination, and ejaculation pain, with surgical treatment often required (2). A recent systematic review of 214 cases of Zinner syndrome conducted by Liu *et al.* (3) showed that approximately 80% of affected patients received some form of invasive treatment, including surgery.

Reported here is a 37-year-old Japanese male patient with ejaculation pain and pelvic discomfort associated with Zinner syndrome who was successfully treated in a non-invasive manner with silodosin, an α_1-adrenoceptor antagonist. Administration of silodosin rapidly improved ejaculation pain and pelvic discomfort, allowing for avoidance of invasive treatment and conservative management with regular follow-up examinations. To the best of our knowledge, this is the first presented case report of use of an α_1-adrenoceptor antagonist for ejaculation pain associated with Zinner syndrome. We present this article in accordance with the CARE reporting checklist (available at https://tau.amegroups.com/article/view/10.21037/tau-22-746/rc).

Case presentation

A 37-year-old, unmarried, childless Japanese male patient visited a nearby urological clinic for painful ejaculation, as well as perineal discomfort and flank pain that lasted for approximately two weeks after ejaculation, which had been developing for the previous six months. Non-enhanced pelvic magnetic resonance imaging (MRI) performed as part of a detailed examination revealed a cystic lesion on the dorsal side of the bladder and bordering the prostate gland (15 mL), thus the patient was referred to our hospital for further examination and treatment. Physical examination findings revealed no abnormalities in appearance, including the genitourinary organs such as the testicles and penis, and the bilateral vas deferens were palpable. The mass on the dorsal side of the bladder was 7 cm in its greatest diameter and located slightly to the right of the midline, and MRI showed uniform high intensity in T1-weighted images (*Figure 1A*) and low intensity in T2-weighted images (*Figure 1B*), suggesting a hemorrhagic cyst. In addition, a wedge-shaped structure in the mass was partially visible in

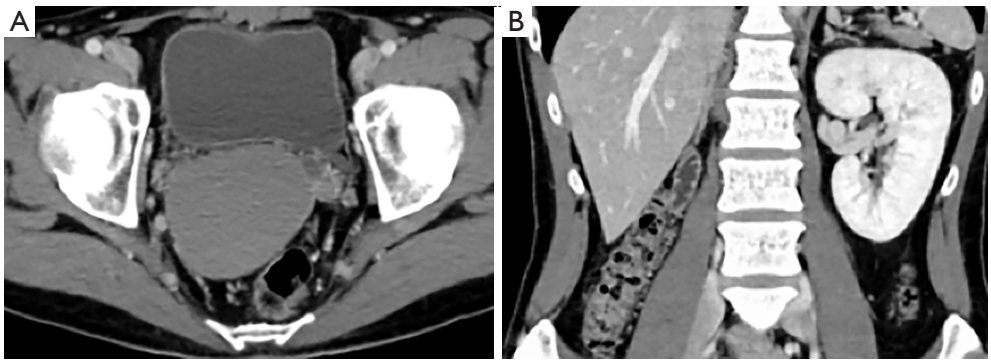

Figure 2 Enhanced computed tomography scanning revealed slightly high density mass without enhancement (A) and defect in the right kidney (B).

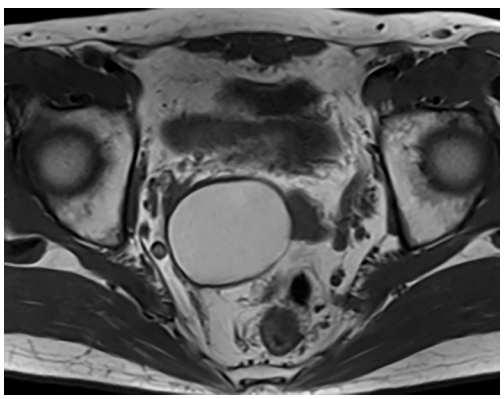

Figure 3 The seminal vesicle cyst showed no tendency to enlarge. Magnetic resonance imaging results at five years after treatment showed that maximum diameter had decreased to approximately 5 cm.

MRI images, suggesting a cystic mass arising from a seminal vesicle (*Figure 1C,1D*). To better explore the features of the cystic mass, enhanced abdominopelvic computed tomography (CT) was performed. Those results showed that the cystic lesion had a uniform internal structure with slightly high density and no enhancement effect (*Figure 2A*), while the right kidney was not visualized (*Figure 2B*). Based on these findings of right renal agenesis and ipsilateral seminal vesicle cyst, the diagnosis was Zinner syndrome. Semen analysis showed asthenozoospermia (semen volume 1.0 mL, motility 22%), while results of fluorescence in situ hybridization analysis of the sex-determining region Y gene, as well as routine laboratory studies of blood and urine including hormonal examinations were normal. Neither a cystoscopy nor vasospermography procedure was performed because of lack of patient consent.

The need for management by use of percutaneous drainage and transurethral or transrectal aspiration, or a surgical procedure, either a laparoscopic or open vesiculectomy, was discussed with the patient, who expressed a desire to avoid invasive treatment as much as possible. Thus, administrations of silodosin, an α_1-adrenoceptor antagonist for treatment of benign prostate hyperplasia (BPH), at 8 mg/day were started for the purpose of suppressing seminal vesicle contraction presumed to cause an increase in seminal vesicle pressure at the time of ejaculation as the main cause of the pain. After providing a full explanation of the risk of ejaculation disorder and orthostatic hypotension due to use of silodosin, the patient provided informed consent and the treatment was commenced. Immediately after starting treatment, the patient was relieved of ejaculation pain, and no longer experienced perineal discomfort or flan pain after ejaculation. The oral silodosin prescription was terminated at two months after initiation because the symptoms were stable and annual follow-up MRI examinations were started. At the time of writing, five years have passed without recurrence of ejaculation pain or ejaculation-related symptoms, and MRI results show a tendency for shrinkage of the right seminal vesicle cyst (*Figure 3*).

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the editorial office of this journal.

Discussion

Zinner syndrome is a rare anomaly occurring in the Wolffian duct, with approximately 220 cases reported worldwide to date (3). Anomalous growth of the mesonephric or Wolffian duct between four and 13 weeks of gestation is thought to affect embryological development of the kidneys and ejaculatory duct, inducing congenital conditions, such as ipsilateral renal hypoplasia, EDO, and a seminal vesicle cyst, noted in Zinner syndrome cases (4). Affected individuals are presented with a wide range of symptoms, including perineal discomfort and post-ejaculation pain, with their onset and severity related to the size of the cyst (3). Therefore, symptoms related to Zinner syndrome often appear after beginning sexual activity due to accumulation of semen in the seminal vesicle and cases are often initially diagnosed at that point (5).

Zinner syndrome symptoms are classified into urinary related, local pain, and reproductive dysfunction, of which ejaculation pain is a typical reproductive dysfunction symptom noted by approximately 10% of diagnosed patients (3). Pain and/or discomfort during ejaculation, found in 6.7% of all men over the age of 50 in a multinational survey of aging males (6), is considered to be a significant quality of life-impairing problem for those affected (7). A multitude of factors are implicated in ejaculation pain, including infection or inflammation of the urinary tract, BPH, post-surgery for inguinal hernia, and EDO, with specific treatment strategies needed according to cause (8). Ejaculation pain noted in patients with Zinner syndrome is presumed to be caused by an increase in seminal vesicle pressure caused by contraction of the seminal vesicles during orgasm, which become dilated with semen due to EDO. Therefore, these patients often undergo an invasive procedure as first-line treatment, such as transurethral resection of the ejaculatory duct, or aspiration and drainage, which reduces pressure within the seminal vesicle cyst, or surgical resection of the seminal vesicle (3,8). Among those, a seminal vesiculectomy procedure, including open, laparoscopic, and robot-assisted approaches, is performed in nearly 60% of affected cases because of the advantage of less recurrence as compared to conservative management (3). However, that report also noted that performance of a seminal vesicle resection is associated with high risk for surgical complications leading to erectile dysfunction and urinary incontinence.

The α1-adrenoceptor is involved in vasoconstriction and blood pressure regulation, and also known to play an important role in regulation of seminal vesicle contraction. Indeed, α_1-adrenoceptor antagonists, widely used as first-line drugs for BPH due to their high levels of efficacy and safety, often cause ejaculation dysfunction. This may be related to retrograde ejaculation or inhibition of seminal vesicle contraction through blockage of the α_1-adrenoceptor abundantly present in seminal vesicles (9). There are three α1-adrenoceptor subtypes (α_{1A}, α_{1B}, α_{1D}) as well as α_1-adrenoceptor antagonists that target these receptors, ranging from subtype nonselective to those that act selectively. The previously described α1 adrenergic receptor subtype C was later found to be a variant of α_{1A} and then integrated into subtype A. The α_{1A} and α_{1D} receptors are present in prostate and bladder neck smooth muscle tissues, while α_{1B} is abundant in vascular smooth muscle. Presently, tamsulosin, silodosin, and naftopidil are α1 blocker drugs available in Japan for treating BPH. Of those, it is well known that silodosin has a high affinity for the α_{1A} receptor and naftopidil a strong affinity for the α_{1D} receptor, which is also distributed in the bladder. Previous animal experiments showed that inhibition of α_{1A}-adrenoceptors in particular strongly inhibits seminal vesicle contraction (10). Such findings led us to attempt administration of 8 mg/day of silodosin, an α_{1A}-adrenoceptor selective antagonist, to relieve ejaculation pain in the present patient by inhibiting seminal vesicle contraction, with the result rapid improvements with associated pain and discomfort. Two months after beginning treatment, follow-up observations were started without oral administration and no recurrence of symptoms has been observed for approximately five years. We believe that this is the first case report noting successful relief of pain and discomfort associated with ejaculation pain in a patient with Zinner syndrome by administration of an oral α_1-adrenoceptor antagonist.

Apart from Zinner syndrome with ejaculation pain, several studies have shown that post-ejaculation pain in patients being treated for prostate cancer or with lower urinary tract symptoms can be relieved by use of an α_1-adrenoceptor antagonist (11,12). Such positive therapeutic results are thought to be due to the relaxant effect of these antagonists on smooth muscle in the urethra, prostate, and prostate capsule, where the α_1-adrenoceptor is associated with sympathetic nerves. In addition, blocking of the α1-adrenoceptor suppresses release of neuropeptides related to neurogenic inflammatory responses, which may have a role to relieve ejaculation pain in individuals with lower urinary tract symptoms (13). It is considered possible that these effects of the prescribed α_1-adrenoceptor antagonist provided for symptomatic improvement in the present case.

The absence of other symptoms caused by compression of surrounding organs by a seminal vesicle cyst and no tendency for cyst growth are considered to explain why the symptoms were well managed by only administration of silodosin in our patient. Furthermore, since there was no recurrence of symptoms after the end of treatment and the seminal vesicle cysts showed a shrinking tendency, silodosin may have had some effect to improve EDO, though the mechanism is unknown. Nevertheless, it should also be kept in mind that there are cases in which seminal vesicle cyst growth noted during follow-up led to surgery or cancer arising from the cyst (3). Continued conservative management with regular follow-up examinations are planned for this case.

Conclusions

In conclusion, reported here is a patient with Zinner syndrome whose ejaculation pain was successfully managed with silodosin. Administration of such an α_1-adrenoceptor antagonist can be a useful non-invasive treatment option for such patients complaining mainly of symptoms associated with ejaculation who do not want to undergo surgery.

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Footnote

Reporting Checklist: The authors have completed the CARE reporting checklist. Available at https://tau.amegroups.com/article/view/10.21037/tau-22-746/rc

Peer Review File: Available at https://tau.amegroups.com/article/view/10.21037/tau-22-746/prf

Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at https://tau.amegroups.com/article/view/10.21037/tau-22-746/coif). The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the editorial office of this journal.

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