Case Report

SILDENAFIL INDUCED PRIAPISM

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Abstract

A 53 year-old Japanese man was referred to our hospital for persistent priapism, which had been induced by 200mg (usual dose 25–50mg) of sildenafil citrate (Viagra™) three days earlier. He had a history of erectile dysfunction and had undergone penile injection therapy elsewhere; however, he had not used injection therapy this time. He obtained sildenafil personally without a doctor's prescription. He had not taken any other drugs that affect the metabolism of sildenafil, nor did he have any medical complications that might induce priapism. Since needle aspiration and irrigation were ineffective as first line therapy, surgical treatment was indicated to relieve the condition; a incision of tunica albuginea of both corpora cavernosa was made, and vigorous irrigation of saline washed out the blood clots. This is the first case report of priapism induced by sildenafil. Although this drug can be obtained through private commerce, it should be used under professional guidance as its abuse may lead to severe morbidity.

Key words: Sildenafil—Priapism—Erectile dysfunction—Adverse effect

CASE REPORT

A 53-year old Japanese trader was referred to our hospital for persistent and painful priapism in August of 1998; the condition had been induced by 200mg of sildenafil citrate (Viagra™) taken three days earlier (Fig. 1). His penile shaft was erected completely and no necrotic changes were noted despite the longstanding priapism in his penile shaft. He had taken two 50 mg tablets and another two tablets thirty minutes later in one night. He

had a history of erectile dysfunction which responded to penile injection therapy. He obtained sildenafil without a doctor's prescription. It was the first time he had used this drug. He did not use penile injection or other drugs in combination with this drug. Moreover, he had no symptoms associated with induction of priapism. The clinical inspection results were as follows: no diabetic or hypertensive state; normal liver and renal function; normal blood counts, hemogram, and blood coagulability; slightly lowered free testoster-

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Fig. 1 The patient had longstanding complete priapism without necrotic changes in the penile shaft, suggesting high flow type priapism

Fig. 2 Vigorous irrigation of saline under surgical intervention was needed to relieve the condition. Irrigation fluid was washed out from the left cavernous incision (syringe) to the right cavernous incision

Table 1 Adverse events reported at phase II/III studies (From the draft package insert)

Headache	16
Flushing	10
Dyspepsia	7
Nasal congestion	4
Urinary tract infection	3
Abnormal vision	3
Diarrhea	3
Dizziness	2
Rash	2

(%)

one, 9.3 ng/dl (normal value; 15–43 ng/dl). From his history and data of the clinical inspection, however, we could not isolate the type and extent of erectile dysfunction. Multiple artificial penile insert “pearls” were observed at the time of treatment. Since needle aspiration and irrigation of the clots in the corpora cavernosa using 14-gauge needle were ineffective as first line therapy, emergency surgical intervention was performed to relieve the condition. Under spinal anesthesia, incision of the tunica albuginea of both corporal bodies and vigorous aspiration and irrigation with heparinized saline were performed (Fig. 2). No shunt formation between the corpora cavernosa and corpus spongiosum was made, because fresh bleeding was observed after several old clots were washed out from the corpora cavernosa.

DISCUSSION

Sildenafil citrate; the first pill type drug for all types of erectile dysfunction with high efficacy, 63–82%, is epochal and very attractive to patients^{3,5,6}. There are increasing reports in the media that people have managed to obtain the drug through individual commerce or with informal methods from foreign countries, despite the Japanese government's approval of its use on doctor's prescription in 1999. Meanwhile, several reports have indicated that forced erection and intercourse may induce cardiovascular overload, which can lead to severe morbidity⁵. Therefore, appropriate use under professional guidance is strongly advised.

Sildenafil citrate, a type-5 cyclic guanosine monophosphate (cGMP) phosphodiesterase inhibitor, increases the level of cGMP induced by nitric oxide in the corpus cavernosum during sexual stimulation, and consequently enhances smooth muscle relaxation, thus allowing blood into the corpus cavernosum for erection²). Sildenafil only strengthens the effect of nitric oxide which requires sexual stimulation for activation; therefore it is not an aphrodisiac drug. Those who do not have erectile dysfunction basically will not benefit with the drug. As sildenafil is cleared by cytochrome P450 in the liver, hepatic dysfunction or drugs that affect the activity of

cytochrome P450 such as cimetidine and erythromycin reduce the clearance of sildenafil⁵⁾. The concurrent use of organic nitrate is contraindicated because sildenafil may exaggerate the vasodilative effect. The duration of the effect is reported to be 4 hours, and the drug and metabolite have terminal half-lives of 3 to 5 hours¹⁾. The effect of the drug is dose dependent. Twenty-five or fifty mg of sildenafil is the recommended dose for erectile dysfunction for use at one time in Japan, although it varies from 25 mg to 100 mg in Western countries. Overdose tests of up to 800 mg have been reported to have increased the rates of the adverse effects cited in the Table 1.

Priapism is defined as a condition of prolonged painful erection; about 60% of the cases are idiopathic, and the remaining 40% are associated with diseases⁴⁾. The current theories concerning the mechanism of priapism presume a physiologic obstruction of the venous drainage in the corpora cavernosa. So far there have been no reports of priapism induced by this drug^{3,5)}, although the draft package insert cautions users having conditions that may predispose them to priapism such as sickle cell anemia, multiple myeloma or leukemia to be careful in using the drug. Our patient had not taken any drugs that affect the metabolism of sildenafil, nor did he have any complications that might induce priapism. We think that his priapism was not associated with the action of the drug but with its inappropriate usage. Overdosage and prolonged sexual emotion kept him erect all through the night, leading to priapism. Previous penile injection therapy and artificial penile insert might have contributed to penile organic changes such as local cavernous fibrosis to some extent. However, no thorough pathological or physiological examination could be performed at the time of operation. We think that the most responsible cause was inappropriate drug use, and proper advice in using the drug should be provided.

Some people may think this drug has an aphrodisiac effect and that everybody can get more pleasure in sexual activity by using it; they may also think that the more tablets they take the more pleasure they can experience. We are afraid that sensational reports in the media will lead the public to misunderstand this drug. Although it can be obtained through private commerce, it should be used under professional guidance, and we issue a strong warning that abuse may lead to severe morbidity.

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