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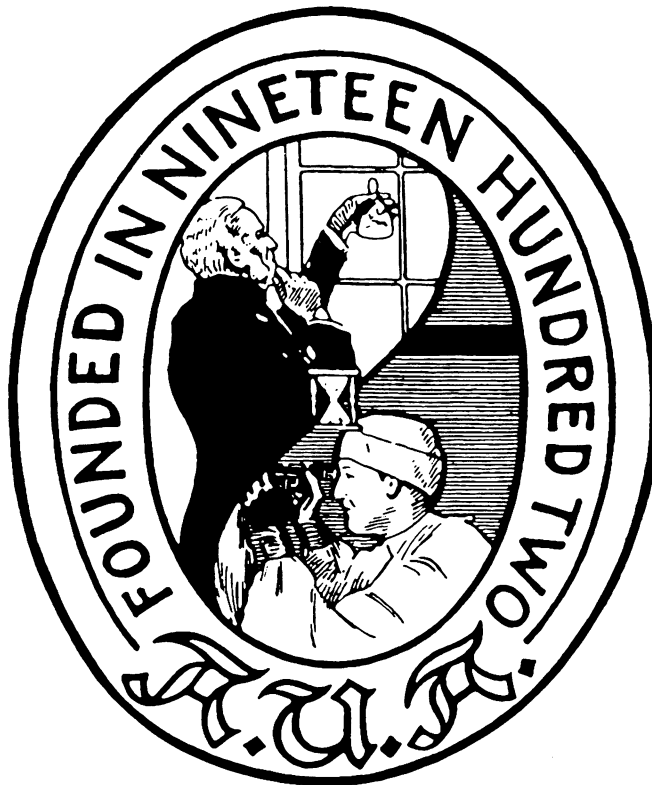
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A NEW THERAPEUTIC CONCEPT FOR LONG-LASTING IATROGENIC PRIAPISM: A CASE REPORT

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ABSTRACT

In a therapeutic attempt on an 18-year-old patient with iatrogenic priapism lasting for more than 2 weeks after internal urethrotomy, intracavernous lysis was commenced with 80,000 IU streptokinase per hour. Following a dosage of 300,000 IU streptokinase the lysis was stopped because of severe bleeding from the urethrotomy scar. At 4 weeks after the patient was discharged from the hospital he reported normal erections and intercourse, while single potential analysis of cavernous electrical activity and ultrasound returned to normal. Provided there are no contraindications, intracavernous lysis seems to be an effective treatment for long-lasting priapism induced by intracavernous thrombosis.

KEY WORDS: priapism, streptokinase, penile erection, thrombosis

Currently, priapism is mostly seen after intracavernous injections of vasoactive drugs in the diagnosis and therapy of male erectile dysfunction.¹ Various other reasons for this syndrome are known, including primary priapism (idiopathic or after prolonged sexual excitement) and secondary priapism (hematological diseases, neurological dysfunctions, local disorders and pharmacological agents).² Postoperative priapism is a rare but severe complication of various urological and other iatrogenic manipulations.³ The diagnosis is made by clinical evaluation. Differentiation between high flow and low flow priapism can be made by Doppler sonography. The nervous dysfunction is demonstrated by single potential analysis of cavernous electrical activity with electrical anodes applied to the penis, and registered and analyzed by a neurophysiological measuring instrument.

Early intervention is of prime importance in the treatment of all forms of priapism. Therapeutic trials performed after 24 hours are mostly of limited success because of thrombosis and fibrosis of the corpora cavernosa.⁴ The initial therapy administered is aspiration of intracavernous blood and/or intracavernous injection of an α -adrenoreceptor agonist, such as metaraminol (2 to 4 mg.).^{5,6} In case of failure, a shunt procedure⁷⁻⁹ is done, or in the case of arterial high inflow priapism selective temporary embolization of the pudendal arteries with autologous clots may follow.¹⁰ In regard to long-term results, many patients with priapism are permanently impotent. In this case the only therapeutic option is placement of a semirigid or malleable penile prosthesis, which imposes difficulties in the operative management due to cavernous fibrosis.¹¹

CASE REPORT

Iatrogenic priapism occurred in an 18-year-old patient after internal urethrotomy for urethral stricture due to catheterization during a cardiac operation 13 years ago. At 2 weeks following urethrotomy the patient was referred to our hospital for priapism, which had begun 14 days previously. At clinical evaluation the penis was still erect but painless. On palpation it was not entirely rigid but the consistency of the corporeal bodies was dramatically increased even though the glans was soft.

Doppler ultrasound of the penile arteries showed strong cavernous artery pulses bilaterally but decreased inflow velocity. Ultrasound showed increased density of the cavernous tissue (fig. 1) and single potential analysis of cavernous electrical activity revealed significantly decreased cavernous electrical activity.¹² Two attempts involving aspiration of the cavernous

blood (2 times 200 ml.), which appeared glutinous and cyanotic, followed by intracavernous injection of 0.4 mg. phenylephrine and then 4 mg. metaraminol induced no detumescence.

Since cavernous thrombosis could be assumed by ultrasound, single potential analysis of cavernous electrical activity and clinical evaluation, intracavernous lysis with streptokinase was attempted. Lysis was begun with 80,000 IU per hour streptokinase perfused intracavernously via 2 butterfly cannulas bilaterally under cardiovascular monitoring to attain the maximal dosage of 500,000 IU streptokinase. A dosage of only 300,000 IU streptokinase could be injected due to severe bleeding from the urethrotomy scar. There was a marked decrease in rigidity while under therapy.

Single potential analysis of cavernous electrical activity 7 days later showed improved cavernous activity and ultrasound revealed clear diminution of intracavernous hyperechogenicity (fig. 2). At 4 weeks after he was discharged from the hospital the patient reported normal erections and intercourse. Clinical evaluation revealed the corpora cavernosa to be soft. No deviation or fibrosis was palpable, and single potential analysis of cavernous electrical activity and ultrasound findings returned to normal.

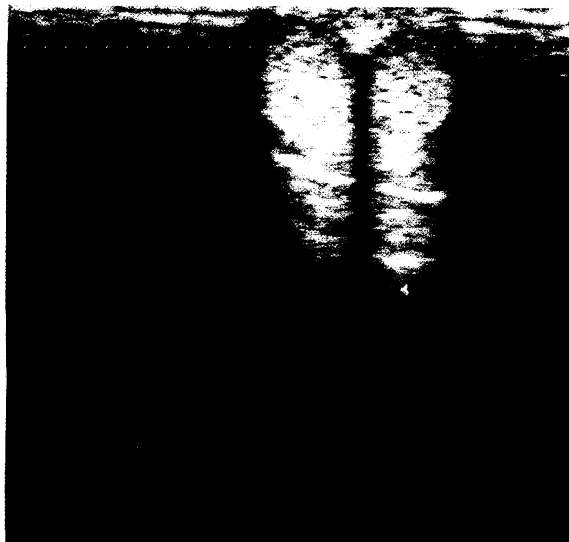


FIG. 1. Ultrasonography of corpora cavernosa with thrombosis and beginning of fibrosis before therapy.



FIG. 2. Ultrasonography of corpora cavernosa 7 days after intracavernous lysis. Note obvious decrease of intracavernous echo reflections.

DISCUSSION

After transurethral manipulations, a blood stasis or low flow priapism can occur by nervous dysfunction caused by anesthesia, urethral injury or spinal cord disorders while the causal mechanism is not clear. This may be assumed as a nervous dysfunction of smooth muscle fibers in the corpora cavernosa. It is not clear if the transformation of cavernous smooth muscle cells to fibroblast-like cells is the cause or a consequence of the priapism.¹³ The nervous dysfunction can be proved by single potential analysis of cavernous electrical activity. Blood stasis leads to an elevation of carbon dioxide and an increase in blood viscosity, with consequent edema of the cavernous tissue. Thrombosis and subsequent destruction of the cavernous ultrastructures were observed.¹⁴ In case of complete fibrosis of the corpora cavernosa and consequent impotence, a penile prosthesis seems to be the only available therapy.

A decrease in the blood viscosity and lysis of commencing thrombosis may interrupt the vicious circle. In long-lasting priapism with commencement of fibrosis streptokinase may dissolve the thrombosis and lead to increased blood flow. Streptokinase is a protein from β -hemolyzing streptococci, which begins the human fibrinolysis by activating plasminogen to plasmin.¹⁵ Therefore, old wounds can start bleeding, so that in priapism therapy following transurethral manipulations catheterization should be done.

Patients with long-term, low flow priapism and intracavernous thrombosis should undergo therapy after diagnostic pro-

cedures (Doppler sonography, single potential analysis of cavernous electrical activity, aspiration and analysis of intracavernous blood) and exclusion of contraindications (hypertonus, myocardial infarcts more than 12 hours previously, hemostatic diseases, recent operations until day 6 or severe gastrointestinal diseases). A local lysis can be done using a high dosage of fibrinolytic agent (500,000 IU streptokinase), perfused slowly with 2 butterfly cannulas intracavernously. Control of the partial thromboplastin time is inevitable during therapy. Side effects include bleeding, allergic reactions, increase of temperature and nausea. In case of severe bleeding streptokinase infusion should be stopped and a proteinase inhibitor, synthetic antifibrinolytic agents or substitution of coagulation factors should be given.¹⁶ Intracavernous lysis seems to be an effective treatment for long-lasting priapism induced by intracavernous thrombosis. However, more experience in this field is required.

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