# 症例

- **SUZUKI, Noriyoshi**
- **SATO, Yoshikazu**
- **TSUKAMOTO, Taiji**
- **KOITO, Kazumitsu**
- **MARUTA, Hiroshi**
- **HISASUE, Shinichi**

## 担当部門
- **泌尿器科**

## 発行年月日
- **1999-01**

## URL
- [http://hdl.handle.net/2433/113959](http://hdl.handle.net/2433/113959)

## 言語
- 日本語
POST-TRAUMATIC ARTERIAL PRIAPISM EVALUATION
WITH COLOR DOPPLER ULTRASONOGRAPHY:
A CASE REPORT

Noriyoshi Suzuki, Yoshikazu Sato and Taiji Tsukamoto
From the Department of Urology, Sapporo Medical University, School of Medicine
Kazumitsu Kito
From the Department of Radiology, Sapporo Medical University, School of Medicine
Hiroshi Maruta
From the Department of Urology, Muroran General Hospital
Shinichi Hisasue
From the Department of Urology, Saiseikai Otaru Hokusei Hospital

The patient was a 19-year-old man who was examined due to persistent penile erection, which
appeared following a blow to the perineal region during work. Color Doppler ultrasonography of the
corpora cavernosa revealed a cavity in one part of the cavernous artery that suggested a blood leak, and
a diagnosis of high flow type priapism due to trauma was made. Bilateral internal pudendal
arteriography demonstrated dilation and extravasation in one part of the right cavernous artery, then
transarterial embolization was performed superselectively in the right cavernous artery using an
autologous clot. However, 2 weeks after treatment, slight penile erection reoccurred. Color Doppler
ultrasonography revealed reformation of the cavity at the treated lesion, and embolization was again
performed using a gelatin sponge. Following embolization, the course proceeded satisfactorily without
any relapse. Color Doppler ultrasonography, which is non-invasive and can be easily performed, is
considered to be an effective means for diagnosis and follow up of arterial high flow priapism.

Key words: Priapism, Ultrasonography, Embolization

INTRODUCTION

Priapism is a relatively rare idiopathic disease or a
disease with various causes. We experienced a case
of traumatic high flow priapism that occurred
following a blow to the perineal region. Arterial
embolization using an autologous clot was first
performed, but due to the relapse, a second emboli-
zation using a gelatin sponge was performed.

Here, we report the usefulness of color Doppler
ultrasonography for both diagnosis and post-
operative follow up in such a case of high flow
priapism.

CASE REPORT

A 19-year-old man received a blow to the perineal
region after accidently falling from a stepladder
during work. One hour after the accident, he
experienced a persistent penile erection. As he had
persistent erection and penile pain, he was referred to
our institution.

Hematuria was not detected in the urinalysis, and
no notable abnormal findings were seen in the
peripheral blood or in biochemical tests of the blood.
The results of cavernous blood gas analysis (pH
7.429, P02 80.7 mmHg and Pco2 41.8 mmHg) showed
that the blood was bright red and close to arterial
blood.

Color Doppler ultrasonography performed on the
penis showed a cavity with arterial pulsations and a
turbulent blood flow in the right corpora cavernosa
near the crus (Fig. 1).

Cavernosography showed extravasation of the
contrast medium in the crus and a flow of the contrast
medium to the veins immediately after injection.

As there was no clear obstruction to the venous
system, the persistent penile erection was diagnosed
as a high flow priapism, that was caused by damage
to the artery flowing into the corpora cavernosa from
a blow to the perineal region. No urethral injury
was found. Selective internal pudendal arterio-
graphy on the right side revealed a cavernous arterial
blush consistent with a lacerated branch of the
cavernous artery. An angiographic catheter was
advanced through the right cavernous artery, and
embolization was performed with a 4.5 ml autologous
clot (Fig. 2). Immediately after embolization, the
fistula was completely occluded and the penis became
flaccid. The cavity also disappeared from the color
Doppler ultrasonography.

Two weeks later, he felt again mildly persistent
erection, and a cavity-reformation was revealed on
color Doppler ultrasonography (Fig. 3). A second embolization was performed using a gelatin sponge, which takes a longer time to be absorbed than an autologous clot. Following the second embolization, penile relaxation was obtained and the cavity disappeared on color Doppler ultrasonography. Although the patient has not yet achieved full erection, Rigi scan which was performed 14 days after embolization demonstrated normal nocturnal penile tumescence. The post-operative course was uneventful without recurrence of priapism up to a year.

**DISCUSSION**

Priapism is a morbid condition of persistent penile erection, which arises when the blood flow to the corpora cavernosa is obstructed, leading to an increase in pressure inside the corpora cavernosa. Priapism can be classified into two types, the low flow and the high flow types, according to the differences in blood dynamics. In the high flow type, the cavernous artery is damaged due to a traumatic injury such as that in the present case. This results in the formation of an A-V fistula between the artery and the cavernous sinus, and the inflow of arterial blood into the penis exceeds the outflow of blood from the penis, which is the cause of this type of priapism.

To identify the lesion in the blood vessel, cavernosography and internal pudendal arteriography have been used. However, color Doppler ultrasonography allows very detailed observation of the blood flow. It can show the turbulent flow due to the outflow of arterial blood from the damaged blood vessel, and a diagnosis of high flow priapism can be obtained in almost all cases by the use of this method. As color Doppler ultrasonography can be performed easily and is non-invasive, it is considered to be a very useful method not only for diagnosis but also, as in the present case, for monitoring for relapse following therapy.

High flow priapism is generally treated by embolization of the damaged blood vessel, and an autologous clot is most widely used as the embolus. An autologous clot causes very little damage to tissue compared to emboli such as coils. It also allows reopening of the blood vessel by thrombolysis and therefore has the advantage of preventing post-operative impotence. However, there have also been reports of relapse following this method of embolization. Relapse also occurred in the present case and the patient was treated successfully by a second embolization using a gelatin sponge, which has a longer absorption time than an autologous clot. Thus, although embolization using an autologous clot is a useful method for treating high flow priapism, in the case of relapse, an embolus having a longer absorption time may be considered. On the other hand, surgical treatment of high-flow priapism often results in post-operative impotence, and there is opinion that high flow priapism should
not be treated but just followed if there are no obvious subjective symptoms such as pain, and if sexual intercourse is possible. Thus, observation of the course should be considered as one option in the treatment of high flow priapism.

CONCLUSION

We reported a case of post-traumatic arterial priapism and proved it to be valuable as part of the diagnostic evaluation.

REFERENCES


(Received on July 2, 1998)
(Accepted on September 2, 1998)
和文抄録

カラードップラー超音波が有効であった外傷後に生じた
動脈性持続勃起症の1例

札幌医科大学泌尿器科学教室（主任：塚本泰司教授）
鈴木範宜，佐藤嘉一，塚本泰司

札幌医科大学放射線科
小井戸一光

市立室蘭総合病院泌尿器科
丸田浩

滋生会小樽病院泌尿器科
久末伸一

症例は19歳，男性，仕事中に会陰部を強打，その後
より持続する陰茎勃起が出現するため受診，カラードッ-
プラーレにて右陰茎播種体脚部に血液の leak と思われ
る cavity を認め，high-flow type の外傷性
priapism を診断した。両側内臓部動脈造影を施行
したところ，右海綿体動脈の一部に造影剤の滲出像を認
めたため，自己血凝血塊を用いた動脈塞栓術を施行し
た，しかし治療2週間後より再び持続性勃起を認める
ようになり，カラードプラーで前回と同じ部位に
cavity の再発を認めたため，今回は自己血凝血塊より
もさらに吸収時間の長い gelatin sponge を用いて
再度，動脈塞栓術を施行した。その後は再発を認める
ことなく経過している。本症の診断と治療後の經過観
察において，カラードプラーは優駿もなく容易に行う
うことができたため，有用であると考えられた。

（泌尿紀要 45 : 65-68，1999）