

NON-ISCHEMIC PRIAPISM IN PATIENTS WITH SPINAL CORD INJURY CERVICAL 2-6 ACCOMPANIED BY SPINAL SHOCK

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Abstrak

Priapismus yang terjadi pada pasien dengan spinal cord Injury (SCI) merupakan kasus yang jarang terjadi. Priapismus pada pasien dengan SCI dapat terjadi karena penurunan fungsi dari sistem saraf simpatis dan peningkatan fungsi dari sistem saraf parasimpatis yang menyebabkan aliran arterial pada ruang *sinusoidal* penis. Pasien SCI biasanya datang dengan grade A *American Spinal Injury Association*. Penulis melaporkan pasien dengan Non-Ischemic Priapismus yang diakibatkan Spinal Cord Injury Cervical 2 -6 yang disertai dengan *Spinal Shock*.

Kata Kunci: priapismus; *spinal cord injury*; *non-ischemic*

Abstract

Priapism in patients with spinal cord injury (SCI) accompanied by spinal shock rarely occurs. Priapism in patients with SCI can happen due to a decreased function of the sympathetic nervous system and an increased function of the parasympathetic nervous system causing arterial inflow in penile sinusoidal spaces. SCI grade in patients is usually a grade A American Spinal Injury Association. The author presently reports patients with Non-Ischemic Priapism due to Spinal Cord Injury Cervical 2 – 6 accompanied by Spinal Shock.

Keywords: *priapism; spinal cord injury; non-ischemic*

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Pendahuluan

Priapism is persistent erection for more than 4 hours in men. No sufficient data reported the time and duration of priapism in patients that experience spinal cord injury (SCI). SCI level is also open to debate.

A study conducted by Gordon et al. reported that 6 patients with priapism experienced acute SCI with a complete spinal lesion (American Spinal Injury Association A).¹ Priapism is divided into 2 types, namely low-flow (Ischemic) priapism and High-Flow (Non-Ischemic) priapism. Low-Flow priapism will show a hard shaft penis, soft gland penis accompanied by pain caused by Leukemia, Sickle Cell Anemia or

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diffuse intravascular coagulation, drugs, malignancy pelvis. The result of an analysis of penile blood gas will show $pO_2 < 30$, $pCO_2 > 60$, and $pH < 7.25$.² Meanwhile, High-Flow priapism is generally not painful and caused by a trauma in the perineum area or spinal cord. Another cause is spinal canal stenosis, sacral tumors, transverse myelitis, epidural hematoma, and transurethral surgery or spinal anesthesia. The result of the analysis of penile blood gas in patients with high-flow priapism will show $pO_2 > 90$, $pCO_2 < 40$, and $pH < 7.4$. SCI that frequently causes priapism is a trauma that occurs in the cervical area, yet lesions can occur in all levels of spines.³ Priapism occurs differently depending on the frequency of spinal cord injury occurrence based on the American Spinal Injury Association criteria.

A. Case Presentation

A case was reported when a 56-year old man experienced the trauma of falling from a 3-meter height stair. When arriving at the Emergency Unit, the patient with tetraplegia could not move the four upper and lower limbs with a motor strength of 0 and had a sensory dysfunction at a cervical of 2-6 with grade A American Spinal Injury Association. After 2 hours of the incident, he was reported to have priapism. From a physical examination, it was found that his penis was erected with a hard shaft penis and soft gland penis without any pain. From the result of MRI, it obtained a disc protruding to a central part and the right and left-sided foramen at C5-6 level that led to grade III spinal canal stenosis and spinal cord compression, neural foraminal stenosis as well as the left and right-sided nerve root C6 compression. From the rectal examination with a rectal toucher, it was found that the prostate was not increasingly bigger, the reflex of bulbocavernosus and the anal sphincter tonus were declining. The analysis of penile blood gas was conducted after 5 hours of onset from the priapism and it indicated a pH of 7.34, pCO_2 of 48, and pO_2 of 59. Complete blood count examination with a Haemoglobin (HB) value of 13.0 g/dl, White Blood Cell (WBC) of $23.71 \times 10^3/\mu L$, and a platelet (PLT) value of $288 \times 10^3/\mu L$, with normal kidney function. He was diagnosed with non-ischemic priapism and conservative treatment was conducted. After 24 hours, he experienced urinary retention. Next, an ultrasound examination was conducted and it resulted in a normal state in two kidneys, a normal bladder wall with full urine, and normal prostate. A 16fr-catheter was installed with an excreted initial stream of urine of 1000 cc with a clear yellow color. 48 hours after priapism, the analysis of penile blood gas obtained a better result, namely a pH value of 7.4, pCO_2 of 47, and pO_2 of 75. The penis experienced a maximum detumescence on the third day after having a trauma. He was given anti-inflammatory drugs and vitamins for the nervous system, namely methylprednisolone injection, methylcobalamin injection, and Alinamin F injection.

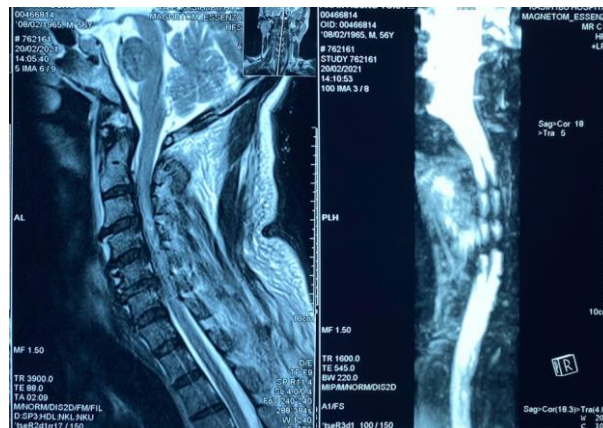


Figure 1
Illustrating the Magnetic Resonance Imaging (MRI) result, disc

protrusion to central and right and left-sided foramen at a level of C5-6, causing grade III spinal canal stenosis, spinal cord compression, and neural foraminal stenosis, and a compression exiting the left and right-sided nerve root C6. It was accompanied by a central disc protrusion at a level of C2-3, C3-4, and C4-5.



Figure 2
the clinical image shows the second day of priapism

A patient starts to experience detumescence. It also experiences a maximum detumescence on the third day.

Method

It is case report study. It's described rare case, patient with Non-Ischemic Priapism in Spinal Cord Injury with ASIA score grade A. We got the data from private hospital in Denpasar, Bali. And get approved by committee ethic for collect the data.

Results and Discussions

The mechanism of priapism in patients with spinal cord injury is caused by the sympathetic nervous system dysfunction in the pelvic blood vessels resulting in parasympathetic increase leading to arterial inflow in penile sinusoidal spaces.⁴ In this

study, Gordon et al., found 6 patients; 5 of them with cervical trauma and another with lesions at T12; those six patients had a degree (grade A American Spinal Injury Association)¹. A sympathetic nervous system occurred from a thoracolumbar spine so that the spinal cord also occurred from T2 to conus medullaris (L1-2). The sympathetic nervous system to the penis and clitoris occurred from lower end of the spinal cord, namely conus medullaris. This is the reason why all levels of spinal cord injury to conus medullaris can cause priapism. Spinal shock is a physiological cause of traumatic motor and reversible sensory paralysis in some hours or days. The spinal shock has been reported in priapism case⁵, and this rarely occurs in patients with traumatic SCI that have a motor and sensory paraplegia, whereby in its initial assessment indicates irreversible lesions; therefore, patients with SCI accompanied by priapism have a worse prognosis in the neurological and functional recovery. Not all people with SCI will suffer from priapism. Based on a study conducted by Gordon et al., a patient with cervical SCI with conservative management will get better in 5 hours and another patient will get better in 24 hours.

Conclusion

Patients with SCI and spinal shock accompanied by priapism will indicate a worse prognosis to the motor and sensory functions. Patients will come with a condition of SCI grade (American Spinal Injury Association A) and it is accompanied by urinary dysfunction (neurogenic bladder). The type of priapism caused by SCI is a non-ischemic or high flow type. The analysis of penile blood gas will indicate normal mixed venous blood (room air) or Normal arterial blood (room air). In patients with priapism caused by SCI and categorized as non-ischemic type in the blood gas analysis can be solved by conducting conservative management and it will show an improvement in 1-2 days.

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