

## Priapism in Acute Spinal Cord Injury-Case Report

Dr. Prateek Gupta<sup>1</sup>, Dr. Gautam Ram Choudhary<sup>2</sup>, Dr. Suresh Goyal<sup>3</sup>, Dr. Mahendra Singh<sup>4</sup>, Dr. Pritesh Jain<sup>5\*</sup>

<sup>1</sup>Resident, Department of Urology, All India Institute of Medical Sciences, Jodhpur, Rajasthan, India

<sup>2</sup>Associate professor, Department of Urology, All India Institute of Medical Sciences, Jodhpur, Rajasthan, India

<sup>3</sup>Senior resident, Department of Urology, All India Institute of Medical Sciences, Jodhpur, Rajasthan, India

<sup>4</sup>Assistant Professor, Department of Urology, All India Institute of Medical Sciences, Jodhpur, Rajasthan, India

<sup>5</sup>Senior resident, Department of Urology, All India Institute of Medical Sciences, Jodhpur, Rajasthan, India

\*Corresponding author: Dr. Pritesh Jain

| Received: 02.04.2019 | Accepted: 07.04.2019 | Published: 30.04.2019

DOI: 10.36347/sjmcr.2019.v07i04.012

### Abstract

### Case Report

Priapism is broadly divided into ischemic and non-ischemic (high flow) priapism. High flow priapism may result from increased arterial inflow into the cavernosal tissue following pelvic trauma with injury to the cavernosal artery or one of its branches or rarely after spinal cord injury (SCI) and loss of sympathetic outflow. Diagnosis and differentiation between ischemic and high flow is important, because treatment options are separate for both entities and if treatment is delayed it may result in dire consequences. Priapism associated with SCI are rare events therefore management protocols are scanty for this type of priapism. Close watch and follow up is also of paramount importance to avoid erectile dysfunction and its ill-effects. Here, we present a rare case of non-ischemic priapism following SCI, which was successfully managed conservatively.

**Keywords:** Penis, priapism, spinal cord injury, trauma, sympathetic.

**Copyright © 2019:** This is an open-access article distributed under the terms of the Creative Commons Attribution license which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use (NonCommercial, or CC-BY-NC) provided the original author and source are credited.

## INTRODUCTION

Priapism is a persistent penile erection lasting more than 4 hours which is not related to sexual stimulation [1]. It could be ischemic (low-flow) or non-ischemic (high-flow), ischemic being more common [1]. Ischemic appears to be due to a persistent reduced venous outflow resulting in local tissue ischemia and pain, which is a urological emergency as impotence may be a sequel. Therapeutic interventions range from aspiration and irrigation, instillation of alpha-adrenergic agents and shunt procedures. Non-ischemic priapism results from increased arterial inflow into the cavernosal tissue. This occurs primarily as a result of pelvic trauma with injury to the cavernosal artery or one of its branches. As compared to ischemic priapism permanent corporal fibrosis and cellular damage are rare with non-ischemic priapism. Thus, it can be managed conservatively or with selective embolization or ligation of feeding vessel. There is very limited literature on priapism after SCI [2-4]. Mechanism most likely accepted is abrupt loss of sympathetic input to the pelvic vasculature leads to increased parasympathetic

input and uncontrolled arterial inflow directly into the penile sinusoidal spaces. There is no definite literature available for diagnosing and managing this condition. Thus, we are reporting this case of spinal cord injury induced priapism managed conservatively.

## CASE REPORT

A 24-year-old male presented to our hospital with alleged history of road traffic accident following which patient lost consciousness. Patient had vomiting, external bleeding wound on temporal region with Glasgow coma scale E4V5M6, stable vitals and saturation. He had cervical spine tenderness, quadriparesis with intact sensory system (C5, C6 level contusion of ventro-lateral spinal cord). Urologist opinion was sought for associated priapism. There was no history of sickle cell disease, drug abuse or injury to perineum. On examining priapism, penis was semi rigid with minimal tenderness; glans was normal in consistency and had no signs of perineal or pelvic trauma [Figure 1].



**Fig-1: Images showing rigid penis and normal consistency of glans penis**

Patient was on per urethral catheter, draining clear urine. Examination findings and history of spinal trauma made us suspect high-flow priapism. Urgent

penile Doppler was done, which confirmed findings of high-flow priapism without any evidence of fistula or pseudo aneurysm [Figure 2].



**Fig-2: Penile colour Doppler ultrasound image showing high- arterial flow suggestive of non-ischemic priapism**

Patient was managed conservatively with ice packs and analgesics. Within next 24 hours priapism gradually settled. Patient was also managed conservatively by neurosurgery team for neurological deficit and motor power showed gradual recovery (power grade 3/4) in next 3-5 days.

## DISCUSSION

Priapism can occur in acute spinal cord injury, due to loss of sympathetic supply leading to increased arterial inflow. Priapism following acute spinal cord injury is considered as high-flow priapism, which can be easily diagnosed clinically (painless and semi-rigid penis, non-tender and normal appearing glans). To confirm clinical suspicion, penile Doppler (suggesting high arterial flow with normal flow in veins) and

cavernosal blood gas analysis (suggesting arterial blood) should be used to plan further management. Here, in the present case, we corroborated our clinical findings with penile Doppler and avoided pricking the patient for cavernosal blood gas analysis.

Though, priapism after SCI has a long history, a very limited scientific literature is available about its management Gordon *et al.* [2, 3, 5]. Reported six patients with priapism following acute SCI where all six patients had a complete spinal cord lesion [2]. In another case by Rodi *et al.* patient who was undergoing posterior spinal fixation reported priapism and paralysis due to large epidural hematoma after surgery for fracture of L2 vertebrae [3]. Priapism has also been reported in patients with chronic conditions like spinal stenosis, sacral tumours, transverse myelitis, epidural

hematoma, transurethral surgery or spinal anaesthesia, which explains probable mechanism to be same as in acute injuries [5]. In the present case, lesion was at C5-C6 spinal cord level ventrolateral (involving sympathetic region). The majority of spinal cord lesions that are associated with priapism are located in the cervical region, but the lesion can be at any level in the spine as sympathetic outflow to the penis and clitoris arises from the lowest levels of the spinal cord, the conus. In Gordon *et al.*'s six patients, five patients had cervical lesions (four at C5-C7, one at C5-C6) and one patient had a lesion at T12 [2]. Most of the cases of priapism associated with spinal cord injuries have been complete spinal cord lesion (complete motor and sensory), while in our case dorsal spinal cord was involved, thus sensory system was spared.

Priapism in acute traumatic SCI is a short-lasting phenomenon, which must be distinguished from recurrent or refractory priapism that can occur in patients with chronic SCI. Once priapism has occurred (following acute traumatic SCI) it usually settles on conservative management rapidly. Gordon *et al.* treated their four cases with conservative management and the erection settled spontaneously within 5 h in all cases, while in one case author reported that erection subsided after 24 hours. Therefore, conservative management is mainstay if SCI associated priapism is diagnosed to be high-flow thus avoiding unnecessary irrigation and intra-cavernosal phenylephrine as in 2 cases reported by Gordon *et al.* [2]. In conclusion, priapism related to acute SCI can be managed conservatively. More cases are needed to confirm this observation.

## REFERENCES

1. Bassett JI, Rajfer J. Diagnostic and therapeutic options for the management of ischemic and non ischemic priapism. *Rev Urol.* 2010 Winter;12(1):56-63.
2. Gordon SA, Stage KH, Tansey KE, Lotan Y. Conservative management of priapism in acute spinal cord injury. *Urology.* 2005; 65(6): 1195-97.
3. Rodi Z, Strtaus I, Denic K, Deletis V, Vodusek DB. Transient paraplegia revealed by intraoperative neuropsychological monitoring: was it caused by the epidural anaesthetic or an epidural haematoma? *AnesthAnalg.* 2003; 96: 1785–88.
4. Turliuc MD, Turliuc S, Cucu AI, Tamas C, Carauleanu A, Buzduga C, Sava A, Dumitrescu GF, Costea CF. Through Clinical Observation: The History of Priapism After Spinal Cord Injuries. *World neurosurgery.* 2018 Jan 1;109:365-71.
5. Todd NV. Priapism in acute spinal cord injury. *Spinal Cord.* 2011 Oct;49(10):1033-35.