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Vesogenic Erectile Dysfunction in Chronic Spinal Cord Injured Person: A casereport

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Vasogenic Erectile Dysfunction in Chronic Spinal Cord Injured Person — A Case Report

Ngok-Kiu Chu, Fuk-Tan Tang, Pong-Yuen Wong,
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Sexual dysfunction with erectile disability is a common complication in spinal cord injured males. Usually their erectile dysfunction are neurogenic in origin. We have begun to apply intracavernous injection of prostaglandin E1 (PGE1) for management of erectile dysfunction in spinal cord injuries since 1991 and encouraging results have been achieved. We report here a case of chronic spinal cord injury with vasogenic erectile dysfunction who does not respond to intracavernous PGE1 injection. We want to clarify that the use of intracavernous PGE1 injection in application to cavernosography and penile blood flow study is of great value in differential diagnosis of erectile dysfunction. Also the rehabilitation team shall keep in mind that vasogenic origin may be a cause of erectile dysfunction in spinal cord injured persons.

Key words: erectile dysfunction, spinal cord injury, intracavernous injection

INTRODUCTION

Sexual dysfunction is a common complication in men who have had spinal cord injury. Erectile dysfunction is the most prevalent problem during sexual activity. Since the physical and social sequelae of a cord injury are likely to disrupt a person, sexuality is also important in our social relation. Restoration of sexual dysfunction, as other major problems after spinal cord injury, is considered an important priority in the component of rehabilitation.

The cause of erectile dysfunction is classified into three main categories: 1. psychogenic, 2. neurogenic, 3. vasogenic [1]. Different kinds of manag-

ing methods directed to each category have been developed during the past decade. Usually the erectile dysfunction among those spinal cord injured persons are mainly neurogenic [1]. We report a spinal cord injured male who has vasogenic erectile dysfunction, since it has the same importance but different therapeutic direction.

CASE REPORT

A 43-year-old man who had occurred a falling accident from a bridge and resulted in T-12 fracture-dislocation with paraplegia, left humerus fracture, and left multiple ribs fracture in Jan. 1982. No pelvic fracture was noted after evaluation. Be-

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side the sequela of paraplegia, recurrent urinary tract infections and pressure sores affected him in the past years, and those resulted in chronic scrotal abscess and periurethral infection with fibrosis. He received left paraepididymectomy for the left chronic epididymitis in Oct. 1991. The person has had normal sexual life before the accident and he has two daughters. His sexual activity was disturbed after spinal cord injury.

In our department, we have applied intracavernous injection of PGE1 for the management of erectile dysfunction in cord injured persons since 1991, and encouraging results has been achieved in the past three years. However, ineffective response was noted in this case, and no full erection could be induced after intracavernous PGE1 injection, but penile erection of this person was adequately sustained with vacuum tumescence constriction therapy.

Since vasogenic erectile dysfunction was implicated, we have arranged a series of studies to this person for further evaluation. The testicular scan

showed that the blood flow to the left scrotal region was decreased and also the left scrotum was smaller in size. There was no abnormality in the penile blood flow study. But contrast leakage was found in the internal pudendal plexus and the penile deep dorsal venous system after intracavernous contrast medium injection in the study of cavernosography (Fig. 1).

DISCUSSION

Sexual dysfunction with inadequate or poorly sustained erection is a common problem among spinal cord injured persons [1]. Especially erectile dysfunction is the most prevalent problem because penile erection is a complex vascular event involving the integration of humoral and neural mechanisms at various levels of neuraxis. Reflexogenic and psychogenic stimuli trigger a neurally mediated penile arterial dilation and sinusoidal relaxation with restriction of venous outflow, leading to the distension of the cavernous tissue [2].

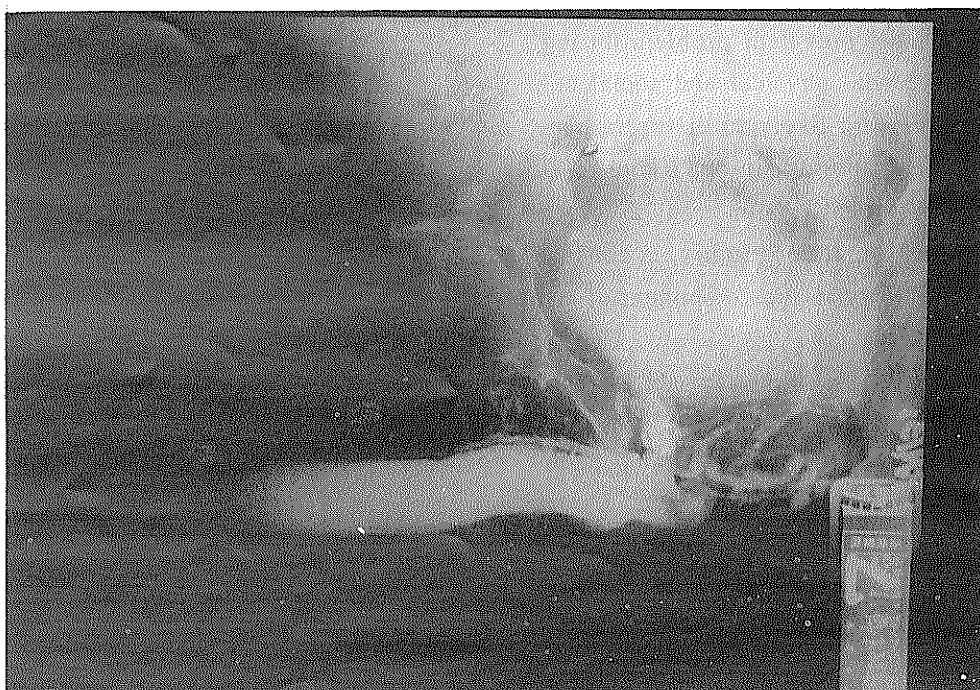


Fig. 1. Contrast leakage noted in the internal pudendal plexus and the penile deep dorsal venous system.

Usually the cord injuries are disrupted with neurogenic erectile dysfunction although reflex erection may be preserved in upper motor neuron, and psychogenic erection may be preserved in incomplete lower motor neuron lesion.

Trauma is one of the cause of either arterial or venogenic erectile dysfunction that may occur in cord injuries, and such type of erectile dysfunction is easily missed in the acute or subacute stage of management. Always the strong shearing force generated by a pelvic fracture that ruptures the posterior urethra can similarly damage the closely lying neurovascular supply to the penis [3]. In this case, even though he had no pelvic fracture, excessive stretching or tearing of neurovascular bundle might occur at any location along the erectile neural or vascular pathway and could result in impotence.

Current methods in differential diagnosis of erectile dysfunction include monitoring nocturnal penile tumescence (NPT), penile arteriography, color doppler ultrasonography, penile duplex ultrasonography, radioisotope penography. The gold standard is pharmacocavernosometry-pharmacocavernosography, against which the result obtained with other new screening test are compared [4]. Several methods of investigating vasogenic impotence often require expensive equipment and invasive studies, and are subject to various degrees of psychological inhibition. Intracavernous vasoactive drugs injection has reduced the number of false-positive results, and so it simplifies the diagnostic pathway and facilitates the choice of treatment [4,5].

Use of a combination of papaverine and phenolamine as the intracavernous injection of vasoactive drugs is preferred at many centers in the early 1980's, since it is effective and the dose of papaverine is low. However, injection of this solution is associated with an incidence of complications such as priapism, nodularity, induration and fibrosis [6-9]. Prostaglandin E1 has begun to be used as a vasoactive drug for diagnosis and treatment in late 1980's, because the risk of priapism is extremely

low, although it may induced painful erection in about 10% of cases [6].

In our case, ineffective response was noted after intracavernous injection of PGE1 but full erection could be sustained with vacuum tumescence constriction therapy. After penile blood flow and cavernosography studies, we had proved our idea of venogenic erectile dysfunction. Reviewing the articles, Ishigooka et al [10] had reported an encouraging result of applying intracavernous injection of PGE1 to cavernosography and penile blood flow measurement for the diagnosis of venogenic impotence. They found that cavernosography after PGE1 injection appeared to be useful for differential the venous factor of impotence since venous leakage noted after cavernosography in those cases who did not response well to intracavernous PGE1 injection, but no venous leakage noted in the cases that response fully to PGE1 [10].

Presently, venous surgery, vacuum device and penile implants are the main therapeutic options for venogenic impotence. Intracavernous injection of vasoactive drugs have also been used for treatment but the results have often been reported as unsatisfactory [11]. We want to clarify that, intracavernous PGE1 injection is of great value in helping the differential diagnosis of erectile dysfunction. On the other hand, the rehabilitation team shall keep in mind that vasogenic origin may be a cause of erectile dysfunction when managing such spinal cord injured persons.

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慢性脊髓損傷病患之血管性勃起障礙—病例報告

朱岳喬 鄧復旦 王邦元 林永明 黃美涓 譚芷峰*

性功能障礙是脊髓損傷病患常見的後遺症，其中又以勃起障礙影響病患性生活活動最重要。勃起障礙引起之原因大概可分為三大類，即：心因性、神經性、血管性。脊髓損傷病患常因神經性勃起障礙，而影響他們的性生活，至於血管性勃起障礙則較罕見。本篇報告一脊髓損傷患者於十年前從橋上掉下受傷，並合併有勃起功能障礙。本科於三年前開始以前列腺素E1做陰莖海綿體注射，針對脊髓損傷病患之勃起障礙做治療，且有顯著之成效。但唯獨此病患對前列腺素

E1做陰莖海綿體注射之反應不佳，卻對真空吸引器之治療有良好之反應，經陰莖血流檢查及陰莖海綿體造影檢查，證實病患是屬於血管性勃起障礙。對於脊髓損傷病患之勃起功能障礙的鑑別診斷是十分重要的，因為治療方法並不完全一樣，血管性勃起障礙患者，對於陰莖海綿體注射血管性藥物的反應並不理想。本篇並討論以前列腺素E1做陰莖海綿體注射，在配合陰莖血流檢查，及陰莖海綿體造影檢查，對於勃起障礙之鑑別診斷有莫大的助益。