



## Distal Traumatic Penile Gangrene: A Rare Entity

Sudhir Kumar Jain, Dharmender Aggarwal\*, Vishnuraja Rajendran and Ankit Jain

Department of Surgery, Maulana Azad Medical College, India

### Abstract

Penile gangrene is a rare occurrence and have been associated with priapism, end stage renal disease, urethral obstruction and circumcision but penile gangrene caused by blunt trauma has not been reported in the literature so far. We present case of a 50 year old male who presented with penile gangrene after a road traffic accident. Patient was managed by partial penectomy. Extensive investigations were done and other possible causes of penile gangrene were ruled out.

**Keywords:** Penile gangrene; Trauma; Penectomy

### Introduction

Penile gangrene in general, is a rare occurrence but it is associated with significant morbidity and mortality [1]. Urethral stricture, impacted urethral calculus, circumcision, priapism, diabetes mellitus and end stage renal disease have all been rarely attributed to cause penile gangrene [2,3], So far no case of penile gangrene has been reported caused by blunt trauma. Penile gangrene is rare because of multiple arteries supplying penis and good anastomosis among them. Fournier's gangrene of the penis has been reported but it is associated with the involvement of skin and fascial planes only and involves scrotum invariably. In our case the gangrene involves a deeper tissue plane which differentiates it from Fournier's gangrene.

### Case Presentation

A 50 year old male presented to surgery emergency with an alleged history of road traffic accident, hit in groin by a scooter and fell afterwards and developed abrasions and contusive injury by handlebar, 4 days back with complaints of blackening and swelling of penis which was gradually progressive and associated with dull aching pain for past 3 days. There was no history of urinary complaints or recent intercourse. Patient was not suffering from any chronic medical illnesses. General physical examination was unremarkable with pulse rate 86/min and BP 116/78 mmHg. Patient was afebrile and had a slab applied over the left arm and forearm for the left radial bone fractured during the accident. Slab was applied by a private practitioner in orthopaedics who referred patient to surgery. On local examination gangrene of penis was present in the distal 4cm with a clear line of demarcation from the healthy portion of penis. Penile arterial Doppler was done which showed normal colour flow in the B/L cavernosal arteries in proximal healthy part, whereas distal gangrenous portion could not be evaluated.

Patient was taken immediately for surgery. Intra operatively there was gangrene of the penis involving skin, fascia and underlying corpora cavernosa and spongiosum with pus discharge in anterior 2/3<sup>rd</sup> of the penis. Partial penectomy of the gangrenous portion with healthy margins was done. Remaining stump was healthy with active bleeding. Post operative period was uneventful. Biopsy report showed features of gangrene with viable periurethral residual margins and dilated and congested vessels. No evidence of any embolism in arteries of gangrenous part. Post operatively patient was evaluated extensively to rule out other causes for penile gangrene.

Blood investigations showed blood urea 16mg/dl, serum creatinine 0.6mg/dl, serum triglycerides 150mg/dl and HDL 50mg/dl. The blood glucose was also within normal limits. ECG, Chest Xray and echocardiography was performed which showed no abnormalities. Arterial Doppler was done for aorta, B/L common iliac, B/L external and internal iliac arteries and showed normal flow without any plaques or source of embolism. Well informed and written consent was obtained from patient while keeping the identification of patient confidential.

### Discussion

Penis is formed by erectile tissue in the form of corpora cavernosa and corpora cavernosa. Urethra passes through corpora spongiosum. Corpora cavernosa and spongiosum are covered by

### OPEN ACCESS

#### \*Correspondence:

Dharmender Aggarwal, Department of Surgery, Maulana Azad Medical College, New Delhi – 110002, India, E-mail: dharmender8888@gmail.com

**Received Date:** 14 Oct 2016

**Accepted Date:** 13 Nov 2016

**Published Date:** 29 Nov 2016

#### Citation:

Jain SK, Aggarwal D, Rajendran V, Jain A. Distal Traumatic Penile Gangrene: A Rare Entity. *Ann Clin Case Rep.* 2016; 1: 1192.

**Copyright** © 2016 Aggarwal D. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



Figure 1: Distal penile gangrene after trauma.



Figure 2: Postoperative healthy stump.

tunica albuginea, buck's fascia, dartos fascia and skin from inside outwards. Penis is supplied by branches of internal pudendal artery [4]. Bulbo-cavernosus artery passes in corpus spongiosum and supply urethra and bulbo-urethral glands. Deep/cavernous arteries pass into corpus cavernosum and dorsal artery of penis in dorsum of penis deeper to veins. These 3 planes are complementary and supplemented by planes immediately above it [4]. Due to this peculiar arrangement, gangrene of penis is a very rare entity.

Gangrene of the penis may be dry or infective and the causative factors may be infective or vascular [5]. Among infective causes, mostly the source of infection can be identified in form of urethral stricture and perianal abscess, fissures, fistula and instrumentation [3]. Infective gangrene is usually associated with signs of sepsis. Dry gangrene, on the other hand, is classically vascular in origin. The most common cause for ischaemic penile gangrene is diabetes mellitus with end-stage renal disease leading to secondary hyperparathyroidism and subsequent calciphylaxis of penile arteries [3]. Other causes for dry gangrene include tourniquet syndrome, priapism and venous thromboembolism causing venous engorgement and swelling of penis which further leads to arterial insufficiency leading to dry gangrene. Case reports of penile gangrene after heroin injection have

been reported, in which the injection into the femoral vessels causes arterial embolization of particulate matter into microcirculation of the genitalia causing arterial thrombosis [6]. Similarly, there is a case report of isolated gangrene of the corpus spongiosum for idiopathic origin [7]. Penile gangrene due to Fournier's infection has been reported but it is limited to skin and fascial planes only and does not involve corpora tissues.

A possibility of coitus-related ring entrapment gangrene was also considered as a cause for this gangrene but ring entrapment is generally seen at the base of the penis for prolongation of erection and the mid-shaft is not a usual site for this type of injury. Further, almost all ring entrapment gangrene shows an impression of a ring in the proximal healthy part, which was not present in our case. The patient was not having any psychiatric illness and was also accompanied by his wife, who also confirmed the history.

Our patient presented with penile gangrene without sepsis, indicating it as a dry gangrene. The patient was not diabetic and his renal function was also normal. There was no history of priapism, any drug intake or any drug abuse. The only associated factor was trauma 4 days back.

Our hypothesis is blunt trauma might have caused severe vasospasm of all penile arteries, resulting in gangrene of the penis, as all other causes were ruled out by thorough investigations.

## Conclusion

Trauma as a cause for penile gangrene needs to be evaluated further and more evidence will be needed for establishing it as a cause for the same.

## References

1. Spirnak JP, Resnick MI, Hampel N, Persky L. Fournier's gangrene: Report of 20 patients. *J Urol.* 1984; 131: 289-291.
2. Ntia IO, Mungadi IA. The pattern of penile gangrene in Sokoto, Nigeria. *African J Urol.* 2007; 13: 256-261.
3. Singh V, Sinha RJ, Sankwar SN. Penile gangrene: A devastating and lethal entity. *Saudi J Kidney Dis Transpl.* 2011; 22: 359-361.
4. Juskiewski J, Vaysse PH, Moscovici J, Hammoudi S, Bouissou E. A study of the arterial blood supply to the penis. *Anatomia Clinica.* 1982; 4: 101-107.
5. Stein M, Anderson C, Ricciardi R, Chamberlin JW, Lerner SE, Glicklich D. Penile gangrene associated with chronic renal failure: report of 7 cases and review of the literature. *J Urol.* 1994; 152: 2014-2016.
6. Somers WJ, Lowe FC. Localized gangrene of the scrotum and penis: A complication of heroin injection into the femoral vessels. *J Urol.* 1986; 136: 111-113.
7. Kharbach Y, Tenkorang S, Bouchikhi A, Mellas S, Ammari JE, Tazi MF, et al. Elective gangrene of the corpus spongiosum of idiopathic origin: A case report. *Can Urol Assoc J.* 2014; 8: 934-937.