

# Strangulated Male External Genitalia by Steel Ring: A Safe Rescue Case Report

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## Abstract

We reported strangulated male external genitalia by three steel rings for 24 hours. It is difficult to manage without adequate device and some rescue devices may bring possible iatrogenic injury to genital organ. Steel ring was removed by hydraulic cutter instead of angle grinder which was applied in our previous experience and mentioned by literature. Angle grinder may bring cutting or thermal injury to patient or medical staff. It may be safer method to rescue strangulation with hydraulic cutter instead of angle grinder especially in those patients with blood borne disease. However, management may be individualized for difference material and shape of constricting device.

**Keywords:** Strangulation; Male external genitalia; Steel ring; Hydraulic cutter; Iatrogenic injury

## Introduction

Strangulated male external genitalia by steel ring is hard to remove soon due to the lack of suitable device in hospital. However, delayed removal may induce genital organ necrosis or irreversible damage. We announced a safe rescue case report, and reviewed literature for find out a possible safe method for those conditions.

## Case Report

32 y/o male with the underlying disease of Human Immunodeficiency Virus (HIV) infection presented at our Emergency Room (ER) for help on a weekday night. Three steel rings strangled

his external genitalia (Figure 1). It accompanied with pain, local heat and edematous change over scrotal wall. He denied difficulty voiding. He applied rings over scrotum since about 24 hours ago. Adequate pain control with intramuscular injection (IM), nonsteroidal anti-inflammatory drug (NSAID) was performed immediately. It cannot be removed manually with lubrication.

Ioannis Efthimiou et al. [1] had reported a successful steel ring removal by angle grinder under general anaesthesia. In our hospital, we had a similar case about several months ago, and angle grinder was performed by fireman with protection penis by gauze and pouring cold normal saline for preventing thermal injury by urologist in our ER. Ring was removed smoothly without obvious injury at that time. However, using angle grinder accompanied with high risk of cutting to patient, medical staff or even ambulancemen. Potential thermal injury by sparking during cutting can be irreversible damage to genital organ. This time, hydraulic cutter was conduct by fireman (Figure 2). We seperated ring from skin by using spatula.

Three ring was broken down individually in 10 minutes without any iatrogenic injury (Figure 3). After ring removal, pain improved, and only tiny ringcompression related ulceration wound and scrotal wall and prepuce edema were found. He was discharged uneventful from our ER with oral form antibiotics and pain killer later.

## Discussion

It is a challenge to deal with those strangulation in ER setting. Several device had been reported using for rescue external genitalia strangulation [1-2]. However, most of those devices may not be available in hospital. In Taiwan, at most time, we contacted with fireman for device support. However, standard rescue method may not be established yet. It may be hard to develop standard rescue solution for different material and type constricting devices. In those two cases in our hospital, we had used angle grinder and hydraulic cutter respectively. Both cases were saved without specific consequence.



Figure 1: External genitalia strangulation.

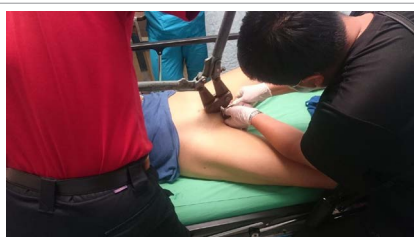


Figure 2: Rescue by hydraulic cutter.

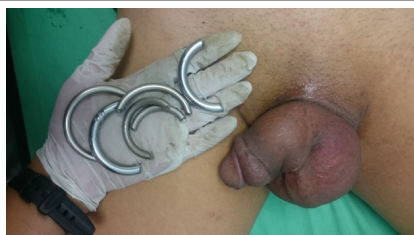


Figure 3: Successful ring removal.

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However, it may increase unnecessary risk of blood borne disease transmission with angle grinder. Possible cutting or thermal injury may also happen to patient or medical staff by angle grinder.

Previous report supported this viewpoint [3-5]. Kyei et al. reported electric circular grinder removed metallic nut successfully but induced thermal burns leading to urethrocutaneous fistula [3]. On the top of that, a positive correlation was found between the time of incarceration and the length of hospitalization [4]. A report from previous successful stragulation removal by motoroperated emery wheel machine revealed that the mean operation duration was 36 minutes [5]. Hence, hydraulic cutter may be a safer and sooner way in our patient situation.

## Conclusion

We reported a nonrare case of male external genitalia strangulation by steel ring. It may be safer method to rescue with hydraulic cutter

instead of angle grinder especially in those patient with blood borne disease. However, management may be individualized for difference material and shape of constricting device.

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