

## Posterior Tibial Artery Injury Leading to Sudden Death- A Case Report

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**Abstract:** Traumatic laceration of the posterior tibial artery is a highly dangerous injury. Peripheral vascular injuries may result from severe penetrating or blunt trauma to the extremities. If not diagnosed properly and treated rapidly, it may lead to the loss of life and limb. On examination patient had cut wound measuring 18x4cmxbony deep over the right calf region, gastrocnemius muscle is completely cut posterior tibial artery not palpable and dorsalis pedis artery palpable. Patient conscious and oriented, blood pressure-130/80mmhg, pulse 110/m. Tight pressure bandage was applied and was referred to higher centre because of non availability of vascular surgeon in ambulance. After one hour patient was brought back to hospital with history of sudden death on the way. Then body was subjected to postmortem. On dissection, cut section of all the organs was pale indicating severe blood loss due to injury to major vessels like posterior tibial artery & vein and fibular artery & vein leading to hemorrhagic shock.

**Keywords:** peripheral vascular injury, posterior tibial artery, peroneal artery.

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### INTRODUCTION

Traumatic laceration of the posterior tibial artery is a highly dangerous injury. Peripheral vascular injuries may result from severe penetrating or blunt trauma to the extremities. If not diagnosed properly and treated rapidly, it may lead to the loss of life and limb. Below the knee, the popliteal artery trifurcates to form the anterior and posterior tibial arteries and the peroneal artery [1, 2].

Peripheral vascular trauma account for 80% of all cases of vascular injury. The lower limbs are involved in two thirds of all patients with vascular injuries. Penetrating trauma accounts for 70-90% of vascular injuries. In the past, iatrogenic injuries related to endovascular procedures accounted for less than 10% of all cases. This percentage is increasing due to the growing use of endovascular procedures for diagnostic and therapeutic purposes. Death due solely to peripheral vascular injuries is uncommon, but does occur due to improper diagnosis and treatment [3-5].

The overall incidence of vascular injury following extremity trauma varies widely by population, geographic location, and mechanism of injury (penetrating vs blunt trauma). In a recent National Trauma Data Bank analysis, the incidence for vascular injury in orthopedic trauma was 1.6% for adults and 0.6% for pediatric patients, which is significantly lower than the 6% to 12% incidence among combat casualties. Patients with extremity vascular injuries tend to be younger (average age- 30 years) and predominantly (70%-90%) male, even

though this trend tends to change to elderly patients. In the austere environment, high-caliber rounds and explosive ordinance with shrapnel are the predominant wounding agents [ 6, 7].

### CASE REPORT

On December 2016 we received a deceased body of 71 year old male for post mortem examination at department of forensic medicine & toxicology, Adichunchanagiri Institute of Medical Sciences, B G nagar.

### HISTORY

One day before the postmortem examination, there was a quarrel between 2 gentle men, under the influence of alcohol accused manhandled the victim by using sickle. Because of this the victim sustained large cut wound on the right calf region with severe bleeding. He was taken to nearby hospital for further management.

On examination patient had cut wound measuring 18x4cmxbony deep over the right calf region, gastrocnemius muscle is completely cut, posterior tibial artery not palpable and dorsalis pedis artery palpable. Patient conscious and oriented, blood pressure-130/80mmhg, pulse 110/m. Tight pressure bandage was applied and referred to higher centre because of non availability of vascular surgeon in ambulance. After one hour patient was brought back to hospital with history of sudden death on the way. Then body was subjected to postmortem.

## POSTMORTEM FINDINGS

Deceased body is of male aged 71 year old, measuring 172 cms in height, both the eyes were closed and pupil dilated bilaterally. Rigor mortis and post mortem staining appeared. Body was pale.

On further dissection of injured area, cut wound measuring 18x4cmx bony deep over the right calf region, gastronemeus muscle is completely cut with exposure of bone. On further dissection, posterior tibial

artery & vein and fibular artery & vein were completely lacerated with surrounding hematoma.

On dissection, cut section of all the organs was pale indicating severe blood loss due to injury to major vessels like posterior tibial artery & vein and fibular artery & vein leading to hemorrhagic shock.

## CAUSE OF DEATH

Hemorrhagic shock due to cut injury sustained to major blood vessels in the right lower limb.



Fig-1: showing cut wound in the right calf region

## CONCLUSION

Peripheral vascular injury in orthopedic trauma is challenging to manage. The risk to life and limb can be high. In the absence of clear signs of vascular compromise, these injuries may easily be missed leading to potentially devastating consequences. In the above case mentioned, though from medico-legal aspect, a plea of novus actus interveniens can be taken by the accused assailant, the plea of novus actus is difficult to prove in a court in light of the circumstances the treating doctor managed the patient to the best of his ability keeping in mind the limited facilities that were available at that point of time. Therefore, early diagnosis and management of peripheral vascular injury is of high importance and should be taken as early as possible. However, urgent surgical exploration of limb may be the prime importance, resuscitation and management of associated life-threatening injuries should take priority over any extremity problems. Damage-control resuscitation with early blood transfusion is necessary in patients with hemorrhagic shock. Neurovascular status should be assessed in every injured extremity as a priority. Active bleeding should be controlled in an emergency manner, either by tourniquet or a gloved hand compressing the bleeding site. However the choice of referral in major vascular injuries from one centre to another depends upon the experience and competence of the treating surgeon keeping in mind the anticipation of deterioration of the patient that may happen during transfer period consequent to life threatening bleed from injured vessels or sites.

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