

## Incidental Discovery of a Persistent Sciatic Artery Following a Thigh Trauma

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### Abstract

### Case Report

**Introduction:** Persistent sciatic artery (PSA) is a rare congenital vascular anomaly of the lower limb, usually discovered incidentally. It is typically asymptomatic but can become clinically significant in the context of trauma or vascular complications. **Case Report:** We report the case of a 25-year-old male with no prior medical history, admitted to the emergency department in hypovolemic shock following a stab wound. Clinical examination revealed a deep laceration on the lateral aspect of the mid-thigh, with active and profuse bleeding. An emergency CT angiography revealed a left-sided persistent sciatic artery, which was the dominant vessel supplying the lower limb. The artery had been injured along its aberrant course, explaining the severity of the hemorrhage. This incidental finding guided the surgical management. **Discussion:** The PSA arises from the persistence of the embryonic axial artery. Its prevalence is low (<0.05%) and it is most often discovered incidentally, during imaging or following complications such as aneurysm or embolism. This case is notable for its traumatic presentation and for involving a dominant PSA, which is a rare variant. A review of the literature is included to provide context for this unusual presentation. **Conclusion:** This case highlights the importance of considering rare vascular anomalies in traumatic settings, as early recognition can significantly impact diagnosis and management strategies.

**Keywords:** Persistent Sciatic Artery (PSA), Vascular Anomaly, Traumatic Injury, Hemorrhage, Dominant Artery.

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## 1. INTRODUCTION

Persistent sciatic artery (PSA) is a rare vascular anomaly of the lower limbs, resulting from the persistence of the embryonic axial artery. It can remain asymptomatic throughout life or be discovered incidentally during imaging, surgical interventions, or trauma. We report here an exceptional case of PSA discovered in the context of a hemorrhagic traumatic thigh injury, with confirmation both intraoperatively and through imaging.

## 2. CASE PRESENTATION

A 25-year-old male with no significant medical history was admitted to the emergency department in a state of hypovolemic shock following a stab wound. He presented with a deep wound on the lateral aspect of the mid-left thigh. An emergency CT angiography revealed a persistent sciatic artery (PSA), which had been injured during the assault. The PSA was dominant, serving as the primary vascular supply to the lower limb.

## 2. Imagerie – Angioscanner

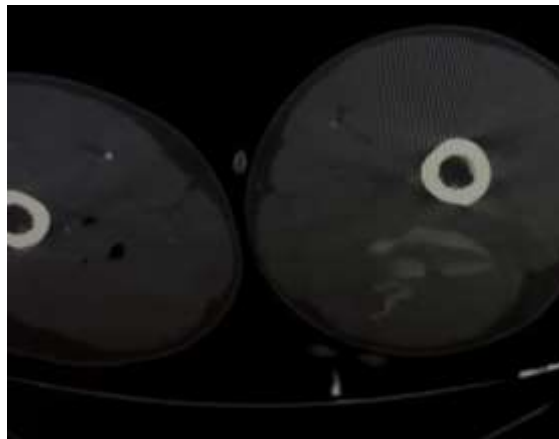


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**Figure 1: CT angiographic slice showing a left-sided persistent sciatic artery (PSA) with contrast extravasation**



**Figure 2: Lower limb CT angiography revealing the course of the left PSA**



**Figure 3: Contrast extravasation along the trajectory of the PSA**

### 3. Image peropératoire



**Figure 4: Deep laceration with active arterial bleeding in the mid-third of the left thigh**



**Figure 5: Postoperative image after arterial lesion repair by bypass grafting**

#### 4. DISCUSSION

Persistent sciatic artery (PSA) is a rare congenital anomaly, with an estimated prevalence of 0.025% to 0.06% in the general population [1,2]. It results from the failure of regression of the embryonic axial artery, which initially supplies the lower limb via the internal iliac artery. Normally, this artery regresses in favor of the femoral artery. When this process is incomplete, a PSA may persist, partially or totally dominant [1].

There are two types of PSA:

- **Complete (dominant) type:** it is the sole supplier to the leg, with a hypoplastic superficial femoral artery.
- **Incomplete type:** it coexists with a functional femoral artery.

PSA is often asymptomatic and incidentally discovered during imaging (CT angiography, MRI) or surgery [3]. However, it can lead to complications such as:

- Arterial thrombosis or embolism
- Aneurysm formation (reported in 15–40% of PSA cases) [4]
- Sciatic nerve compression due to anatomical proximity
- High risk of traumatic injury, as in our case

Our observation is unique because:

1. The PSA was dominant, providing sole distal perfusion.
2. It was injured by a penetrating thigh wound.
3. It was discovered incidentally on emergency CT angiography, highlighting the importance of this imaging modality in deep hemorrhages with atypical locations.

4. Its urgent repair prevented acute limb ischemia.

In a review of 36 symptomatic PSA cases, Van Hooft et al. reported significant mortality in cases of rupture or undiagnosed traumatic injury [5]. This underscores the need for prompt recognition of this anatomical variant, especially in emergency vascular settings.

## 5. CONCLUSION

This exceptional case of traumatic vascular injury revealing a dominant PSA highlights the importance of recognizing vascular anatomical variants, particularly in emergency settings. The combination of CT angiography, prompt surgical management, and strong anatomical knowledge led to a favorable outcome.

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**Consent for Publication:** Informed consent was obtained from the patient.

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