

# A Case Report of Prolonged Hemorrhage Following Traditional Phlebotomy (Fasd)

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Phlebotomy, a therapeutic method of bloodletting typically performed using a needle, has a traditional technique known as “Fasd.” In this method, blood is extracted by creating a longitudinal incision on a vein (3-5 mm) with a surgical scalpel blade, usually blade No. 11. Due to the incision in the vessel wall, establishing hemostasis is more challenging compared to conventional methods. Hemostasis is usually achieved within minutes after Fasd. We present a case highlighting an uncommon yet significant complication of traditional phlebotomy. A 55-year-old man with no prior medical conditions underwent traditional phlebotomy at an academic traditional medicine clinic. Senior MD-PhD students in Iranian Traditional Medicine, under professor supervision, performed Fasd. A sterile scalpel blade No. 11 was used to create a longitudinal incision of approximately 4 mm on the patient’s median basilic vein in the right hand. After removing 400 cc of blood, a pressure dressing was applied to the incision site. Despite attempts such as hand elevation, ice pack application, prolonged direct pressure, and tight elastic bandaging, bleeding from the incision persisted. After an hour of supportive therapy, hemostasis was eventually achieved within a few minutes using burnt cotton dressing (a traditional method for blood hemostasis). Following intravenous hydration, the patient was discharged in stable condition and reported no issues during the one-month follow-up. The traditional phlebotomy (Fasd) carries the risk of serious complications, including uncontrolled and prolonged bleeding. Further research on the efficacy and safety of burnt cotton dressing for controlling hemostasis is recommended.

**Keywords:** case report, phlebotomy, hemorrhage, persian medicine, burnt cotton

## INTRODUCTION

Fasd (traditional phlebotomy) represents a traditional therapeutic approach to bloodletting that involves the deliberate rupture of blood vessels to extract blood. In Persian Medicine (PM), fasd holds a significant place as a common treatment method believed to yield positive effects in managing a spectrum of conditions, including headaches, uterine issues, musculoskeletal disorders, and mental ailments [1].

In conventional medicine, phlebotomy serves as a therapeutic approach to alleviate iron overload and excess red blood cells in conditions such as polycythemia vera, hemochromatosis, sickle cell disease, and porphyria cutanea tarda [2]. In contem-

porary phlebotomy practices, venipuncture is performed using specialized sterile needles, such as butterfly needles, allowing blood to flow through tubes into designated collection bags [3]. In contrast, the traditional method involves creating an incision in a vein wall using a sterile surgical blade, typically blade size 11. Subsequently, blood is released with pressure, and the process continues as determined by the attending physician (Fig. 1). It is worth noting that traditional fasd procedures, which are conducted within academic traditional medicine clinics in Iran, adhere to hygienic conditions, and practitioners utilize sterile and hygienic equipment. The primary distinctions between traditional fasd and contemporary phlebotomy are outlined in Table 1.

Fasd is generally well tolerated and has few complications. Although one of its side effects is bleeding, it typically ceases within minutes. Notably, the risk of bleeding in patients who undergo fasd is greater than that in patients who undergo standard phlebotomy. In this report, we present a rare case in which a patient experienced prolonged bleeding following fasd. Additionally, we highlight the effective use of burnt cotton as a treatment in this particular case.

## CASE PRESENTATION

The patient, a 55-year-old individual weighing 108 kg, with a height of 182 cm, was referred to an educational academic clinic specializing in Iranian Traditional Medicine located in Tehran, Iran, in June 2023. Two weeks prior to the visit, the patient underwent wet cupping. After consultation with a traditional medicine specialist, it was recommended that the patient undergo fasd due to elevated blood viscosity. The patient's initial



**Figure 1.** Traditional phlebotomy.

visit to the clinic involved an assessment by a medical professional who held an academic position as a professor of Iranian traditional medicine. After evaluating the patient's vital signs and reviewing their medical history to ensure the absence of contraindications for fasd, the patient was subsequently guided to the manual therapy room for the administration of fasd.

The patient had no pre-existing medical conditions or history of undergoing phlebotomy procedures. Aside from taking antacids to manage gastric issues, he had not been on any other medications. Notably, the patient had a history of heavy smoking, but he had successfully quit smoking seven years prior. Given that procedures in the educational clinic are typically carried out by MD-PhD students under the guidance of professors, a senior student with prior experience in fasd was designated by the professor to perform the procedure. The patient was placed in the supine position, and a plastic covering was placed around the patient's forearm. Subsequently, a tourniquet was secured around the arm, and the incision site was identified and disinfected with alcohol. Then, the student proceeded to conduct the fasd using disposable surgical scalpel blades, specifically size 11, creating a longitudinal incision approximately 4 mm in length on the patient's right-hand median basilic vein. Promptly, blood was extracted by creating a jet stream (utilizing a disposable cup to channel the blood flow into a collection container). Bleeding persisted until approximately 400 cc of blood had been collected, and no complications were observed throughout the procedure. After completing the phlebotomy procedure, the tourniquet was released, and it became evident that blood continued to flow steadily from the incision site. Then, sterile gauze was promptly applied to the incision area, and direct pressure was applied for several minutes. However, upon releasing the pressure, the bleeding persisted unabated. Afterward, sterile gauze was gently coated with a mixture of turmeric and honey, followed by the application of sustained pressure for several

**Table 1.** The differences between traditional fasd and phlebotomy

Traditional fasd	Phlebotomy
The vein is incised using a razor blade	The vein is punctured using a needle
Blood usually jets from the site of cutting	Blood flows through the tube into a bag
Changes in the appearance of blood during fasd, such as lightening of blood color, are important for the physician	The visual characteristics of blood hold minimal importance
The choice of vein depends on the individual's medical condition	The vein is selected based on its availability and suitable conditions for performing the technique
A patient's physical strength plays a pivotal role in influencing the volume of blood that a physician permits for extraction	The volume of blood removed is usually based on the results of hemoglobin and ferritin tests

minutes. Notably, the combination of turmeric and honey is a traditional remedy for hemostasis.

Moreover, to facilitate hemostasis, an ice pack was applied to the bleeding site. Intriguingly, even sustained finger pressure for a duration of 10 minutes failed to yield the desired effect on hemostasis. As a subsequent intervention, an elastic bandage was tightly wrapped around the patient's cubital area. However, after a brief period of bandaging, hemostasis was not achieved, as the bandage showed signs of blood staining. We aimed to minimize gauze exchange over the wound to avoid disrupting the ongoing hemostasis process. However, due to rapid blood staining, we eventually had to remove the bandage and persistently apply direct pressure to the incision site on the vein.

After one hour of supportive measurements, at a critical juncture, considering the possibility of seeking assistance from emergency services, we resorted to a final measure, applying a pressure dressing crafted from burnt cotton. It is important to emphasize that burnt cotton is a common therapeutic remedy in traditional medicine for promoting hemostasis. Remarkably, we observed that hemostasis was achieved within a mere two to three minutes, with no further bleeding detected at the incision site. As a final step, without removing the burnt cotton dressing, we positioned two layers of gauze over it and secured them tightly with a bandage (Fig. 2).

During this period, the patient remained conscious, and his vital signs remained stable. However, he reported sensations of weakness, lightheadedness, and anxiety. To address these

symptoms, the patient was administered honey for energy support, and a small amount of salt was placed on his tongue. After achieving hemostasis, the patient's blood pressure stabilized at 100/60 mmHg. Consequently, we administered 500 cc of normal saline intravenously over a 15-minute period. Notably, no additional bleeding occurred during the insertion of the angio-catheter for serum injection, indicating the absence of a bleeding disorder in the patient.

After the patient achieved stability and demonstrated adequate fluid intake, he was discharged with essential guidance, which included the requirement of a companion's presence for the ensuing 24 hours. Additionally, the patient and their companion were provided with the doctor's contact number for any emergent concerns. No further bleeding was reported during the follow-up period. In the hours following discharge from the clinic, the patient experienced sporadic episodes of dizziness. Nevertheless, he remained capable of resuming his daily activities. Consequently, the patient was advised to consume honey syrup, increase fluid intake, and prioritize rest for their continued well-being.

We were unable to provide a precise quantification of the post-fasd bleeding volume, but it appeared to be less than 200 cc. Additionally, an accurate assessment of the incision depth was not possible. However, an experienced nurse assisting us reported that the incision seemed deeper than normal.

The day after discharge, the patient experienced hand swelling, likely attributed to bandage pressure. Consequently, the bandage was removed, the wound was thoroughly cleaned, and as a result, the swelling progressively subsided (Fig. 3). In the subsequent days leading up to the 2-month follow-up, the patient did not report any local or systemic issues. Notably, the



**Figure 2.** Burnt cotton for dressing bleeding wound.



**Figure 3.** Patient's elbow two days after traditional phlebotomy. the arrow highlights the incision site. typically, ecchymosis around the incision resolves within a few days.

patient expressed a feeling of freshness and observed the resolution of certain concerns, such as the presence of pimples on the back of the neck, in the weeks following the *fasd* procedure, and expressed willingness to undergo the *fasd* procedure again.

## DISCUSSION

Hypovolemic shock is a type of shock caused by blood loss. In a healthy adult human weighing 70 kg, if the bleeding volume is less than 15% of the total blood volume (less than 750 cc), observable changes in the patient's hemodynamic parameters, such as breathing, pulse, and blood pressure, may not be evident. However, as the bleeding exceeds 15%, administering additional blood may reveal symptoms of hypovolemic shock. The risk of mortality becomes notably pronounced when the bleeding reaches more than 40% of the total blood volume [4]. While hypovolemic shock is primarily associated with trauma, iatrogenic factors represent a less common cause. To the best of our knowledge, recent reports on hypovolemic shock following phlebotomy are scarce. Nevertheless, historical documents note fatalities associated with phlebotomy [4, 5]. One notable historical instance illustrating the complication of death resulting from phlebitis was the demise of US President George Washington in 1799. While being treated for epiglottitis, he underwent phlebotomy, during which 2,365 cc of blood was extracted over a span of 12 hours, ultimately leading to his death [6].

In this study, we presented an unusual yet significant complication arising from traditional phlebotomy. Based on our clinical experience and consultations with colleagues well versed in *fasd*, it is typically expected that hemostasis occurs within a few minutes following *fasd*, and instances where bleeding persists beyond one hour are infrequent. Nevertheless, there is a potential for re-bleeding from the incision site, especially in cases involving pressure or sudden movements within a few hours after the *fasd*.

According to published studies, traditional phlebotomy is generally well tolerated by patients, with only a few reported minor local side effects, such as hematoma [7, 8]. Table 2 shows the most common adverse events associated with traditional phlebotomy, as documented in prior research [1, 9]. One of the most critical complications associated with phlebotomy is hypovolemic shock, which can result from the excessive removal of blood or inadequate hemostasis control. Additionally, when the procedure is performed improperly, there is a risk of damaging nerves, severing arteries, and causing injury to the sur-

rounding tissues near the blood vessels.

In accordance with Iranian Traditional Medicine principles, phlebotomy is ideally executed by creating a moderate-sized incision on the vein to ensure the thorough removal of thick and viscous blood. Emphasis is placed on avoiding excessive width in the incision to prevent an excessive outflow of blood [1].

In recent years, randomized clinical trials investigating the efficacy of traditional *fasd* have been performed. These trials have demonstrated the potential benefits of *fasd* in ameliorating conditions such as sciatalgia, carpal tunnel syndrome, and lower limb pain [7, 8]. Additionally, certain case reports have highlighted the positive impact of *fasd* in conjunction with other traditional treatments on various disorders [10, 11]. In addition, an intriguing animal study designed to explore the impact of traditional *fasd* on neurological damage after traumatic brain injury demonstrated compelling results. The study revealed that performing *fasd* on the saphenous vein using a surgical blade in Wistar rats resulted in improved neurological outcomes [12].

According to the principles of circulatory physiology, blood typically flows in a laminar fashion through vessels, with a lower velocity near the vessel wall [13]. Consequently, when an incision is made, all layers of blood, including those adjacent to the vessel wall, are expelled. In contrast, conventional phlebotomy, which utilizes a needle, allows blood from the central regions of the vessel to exit. It is plausible that, compared to the narrow lumen of a needle, a cut on the vessel may allow for the passage of larger, denser, and more viscous materials. Nonethe-

**Table 2. Potential complications of traditional phlebotomy**

Local	Systemic
• Pain	• Fear
• Swelling	• Pallor
• Erythema	• Dizziness
• Ecchymosis	• Weakness
• Scar	• Vasovagal reaction
• Infection	• Syncope
• Hematoma	• Gastrointestinal problems such as vomiting
• Keloid formation	• Fever
• Thrombophlebitis	• Anemia
• Prolonged bleeding	• Hypotension
• Venous pseudoaneurysm	• Hypovolemia
• Accidental nerve injury	
• Accidental artery rupture	

less, the precise mechanism underlying the therapeutic effects of fasd has not been fully elucidated.

Although phlebotomy performed with a scalpel blade closely aligns with traditional medical practices, recent studies have demonstrated positive outcomes with contemporary phlebotomy methods as well. Khan et al. (2022), Habib et al. (2022), and Ali et al. (2016) reported the beneficial effects of phlebotomy on the minor saphenous vein using a 20 G bore needle with regard to reducing pain intensity in patients with Sciatica [14-16]. Hence, the choice of a particular vein for phlebotomy, guided by the principles of Iranian Traditional Medicine, may carry greater significance than the bloodletting procedure itself.

In this case report, we presented a successful intervention for managing prolonged bleeding following traditional phlebotomy. The bleeding was ultimately arrested through the application of burnt cotton dressing. In Iranian Traditional Medicine, certain materials, such as ash and burnt cotton, have been historically recommended for staunch bleeding [17]. Furthermore, notably, certain traditional medicine practitioners utilize burnt cotton dressing as a method to achieve hemostasis following bloodletting procedures, including phlebotomy and leech therapy. In accordance with Iranian Traditional Medicine sources, the ability of burnt cotton to aid blood homeostasis is attributed to its astringent and drying properties [17].

The hemostatic process of cotton gauze relies on platelet activation upon contact with cotton fibers, facilitating rapid absorption of blood fluid. This results in the aggregation of blood cells and platelets, ultimately leading to the formation of blood clots. Nevertheless, the porous nature and high absorbency of cotton gauze may contribute to blood loss, while a denser structure could enhance the efficacy of cotton in preventing bleeding [18]. Hence, the superior efficacy of burnt cotton over cotton gauze can be attributed to the increased density of burnt cotton. Given the absence of existing clinical studies on this subject, we recommend the design and execution of a study to rigorously assess the effectiveness of burnt cotton dressing in managing blood hemostasis.

The utilization of burnt cotton dressing, an economical and readily available option for bleeding control, represented a notable aspect of strength in this case report. It is acknowledged that employing advanced dressings could have facilitated patient management [19].

## CONCLUSION

Traditional phlebotomy, while a longstanding therapeutic practice, is not without its risks, particularly the potential for severe bleeding. This necessitates heightened awareness among traditional practitioners regarding potential complications associated with fasd. Additionally, traditional medicine clinics should be equipped with the necessary resources for handling emergency situations. Moreover, thorough supervision and assessment of the training of non-professional practitioners are essential. In cases of severe and prolonged bleeding resulting from fasd, the application of burnt cotton dressing appears to be a promising solution. However, comprehensive research comparing traditional fasd to modern phlebotomy is warranted to enhance our understanding and improve patient outcomes.

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## ETHICAL APPROVAL

This study was approved by the local ethics committee of Shahid Beheshti University of Medical Sciences, Tehran, Iran (approval code: IR.SBMU.RETECH.REC.1402.519).

## CONFLICTS OF INTEREST

The author declares no conflicts of interest in this work.

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