

SHORT COMMUNICATION

The Application of Venesection (*FASD*) in Medical and Surgical Practice by *Ibn al-Quff* in the Islamic Era (1233-1286)

Abstract

Venesection (*FASD*) (or the practice of drawing blood from a vein as a medical therapy) was first introduced by *Ibn al-Quff* in the 12th century, described in his book, *al Omdaa* (Arabic version). He explained in details how venesection (*FASD*) or bloodletting would help to relieve different infectious and dermatological diseases as well as some tumours.

A comprehensive literature review was done using PubMed and Google Scholar. Papers written on *Ibn al-Quff's* work and his contribution to medical knowledge, including those on venesection were selected. Chapter 10 of *Ibn al-Quff's* (in Arabic) manuscript describes extensively the reasons and procedures for venesection.

Ibn al-Quff discussed the efficacy of venesection in multiple medical conditions such as inflammatory, infectious, and haematological tumours and other cases. The vast use of venesection raises the concern, especially regarding its inefficiency in some current medical treatments. *Ibn al-Quff* talked about venesection in a way not suitable for his time. Venesection, in comparison to hemodilution, has a role in medical practice. Multiple applications of *Ibn al-Quff's* venesection require more studies in current medical practices.

Key words: *Ibn al-Quff*, Venesection, Hemodilution, Hemofiltration, *Fasd*, Islam

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Venesection at ancient time

Venesection is one of the oldest therapeutic controls practiced by our ancestors. It was done 150 years prior to the beginning of the scientific way to deal with medicinal practices and the presentation of therapeutic insights.

Herodotus, in 400 BC, reported that the effective blood drainage was first done by Egyptians. Venesection was utilized on the spot to diminish the aggravation of inflammation and to check blood discharge. Phlebotomy was consistently utilized in the treatment of fever and blood vessel breakage as well. Conditions like menorrhagia, epistaxis, orchitis, metritis, scabies, and blisters were then recuperated by phlebotomy, as it is done nowadays, too.

Galen was likewise in favour of blood drainage, and this type of treatment was amazingly prominent in the Roman Territories later for a long time.

The use of such treatment in Islamic medicine was one of the clear restorative practices, which was even acknowledged till last century¹⁻⁷. Phlebotomy was considered as a treatment for fever until the middle of eighteenth century although it was not utilized for curing more severe fevers such as that of typhus (typhoid fever). Normally, it was significant in the treatment of hypertension, cases of debilitated blood vessel breakage when the patients had minor cerebral pains, with an asthenia to stoop down or to turn round without feeling dizzy.

Venesection over the last two centuries

The practice of venesection, accordingly had some dissidents as well as supporters. It went through a time of negligence between Roman dominance and the renaissance eras. Allison (1864) stated that it continued until the end of the eighteenth century⁸. Using the numerical techniques, he turned into the first to relate ulceration of the Peyer's patches to typhoid fever and showed that constant peritonitis was connected to tuberculosis. Louis (1835) reported the results of his observations on 78 instances of pneumonia, 28 of which demonstrated to be lethal⁹. He concluded that venesection affected the duration of the disease. In serious cases when bloodletting was not controlled, especially in case of the elderly, there was a great risk of mortality. Moreover, phlebotomy had little impact on the clinical symptoms, and its possible side effects had never been studied. Additionally, he observed 11 instances of erysipelas of the face, five of which were drained, and six of which did not bleed. Compared to phlebotomy, it was concluded that venesection likewise had a limited application in this case.

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1. Parapia, 2008: 490-5.
2. Sherwani, 2004: 6.
3. Turk, 1983: 128.
4. Davidson, 1931: 141.
5. Alanamu, 2008: 341-6.
6. Nagamia, 2003: 19-30.
7. Nasir, 2018: 213-218.
8. Turk, 1983:128.
9. Ibid.



Venesection by *Ibn al-Quff*

Ibn al-Quff, in his paper, described the two types of (FASD), arterial bloodletting, where oxygenated blood is withdrawn from peripheral arteries. The present paper, in contrast, will focus on another type, in which the venous bloodletting, (venesection) happens through peripheral veins.

Veins are spread through the whole body, and the head, neck, anterior body wall, upper and lower limb, are targeted in relieving symptoms of many diseases, or even for therapeutic purposes. *Ibn al-Quff* described the therapeutic indications of each venesection location, which reflect how this science advanced at that time (Table 1).

The veins of the head and neck include anterior fontanelle, supra trochlear, occipital, posterior auricular, alar, angular, sublingual, mental, and external jugular veins. They all control various diseases, some of which are not directly located in the head. This reflects the outstanding knowledge in medical practices at that time. Mental vein venesection was useful, according to *Ibn al-Quff*, in treating vena cava thrombosis,

Table 1: Anatomic locations of venesection and its clinical indications

Anatomic Location of Venesection	Indication
اليافوخ (<i>anterior fontanelle</i>)	<ul style="list-style-type: none"> • Chronic Head Sores • Chronic Head warts • Conjunctivitis • Pannus with periosteum • Eyelid chronic scabies
عرق الجبيهه (<i>supra trochlear / supra orbital vein</i>)	<ul style="list-style-type: none"> • Chronic headache • Eyelid fatigue
عرق مؤخر الرأس (<i>occipital vein</i>)	<ul style="list-style-type: none"> • Tenia • Pimples in the head
عرق خلف الأذنين (<i>posterior auricular vein</i>)	<ul style="list-style-type: none"> • Tenia • Pimples in the head
عرق الأرنبة (<i>alar vein</i>)	<ul style="list-style-type: none"> • Eye pain • Yellow pimple of face • Nasal polyps ,blisters, tumour • Gingivitis, bad breath
عرق الأماق (<i>angular vein</i>)	<ul style="list-style-type: none"> • Chronic scabies • السيل (conjunctivitis) • الكمنة (eyelid scabies) • Haemorrhagic conjunctivitis • ناصور العين (carotid cavernous sinus fistula) • الشعر الزائد (excessive hair)
عرق تحت اللسان (<i>sublingual vein</i>)	<ul style="list-style-type: none"> • الخوانيق (croup) • الذبحة (angina)
عرق العنقفة (<i>mental vein</i>)	<ul style="list-style-type: none"> • البخر (halitosis) • أورام الشفتين (lips swelling/tumour) • إحتباس الدم في العمود (venous thrombosis in vena cava)



Anatomic Location of Venesection	Indication
عرق الوداجان الظاهران (external jugular vein)	<ul style="list-style-type: none"> • Early leprosy • داء الملك (tuberculosis cervical lymphadenitis) • قرحة بالفارسي (ulcer) • داء الحية (pelada) • داء الثعلبية (alopecia) • ضعف الشم (hyposmia) • الصداع الشديد (severe headache) • إنتثار الهدب (Milphosis) • Face scar
عرق القيفال (cephalic vein in the arm)	<ul style="list-style-type: none"> • أوجاع الرأس (head pains) • Classical epistaxis
عرق الأكل (junction of cephalic and baslic veins)	<ul style="list-style-type: none"> • الأوجاع الأعالي والأسافل (malaise)
عرق الباسيلق (baslic vein)	<ul style="list-style-type: none"> • أمراض الأسافل (lower limb diseases)
عرق حبل الزراع (vein between wrest and midarm at lateral side)	<ul style="list-style-type: none"> • Same as cephalic vein of arm
عرق الأسيلم الأيمن (vein between fourth and fifth dorsal aspect of hand)	<ul style="list-style-type: none"> • Liver disease
عرق الأسيلم الأيسر (vein between fourth and fifth dorsal aspect of left hand)	<ul style="list-style-type: none"> • Spleen disease • Haemorrhoids • Back pain
عرق البطن الأيمن (right thoraco-epigastric vein)	<ul style="list-style-type: none"> • Liver complain
عرق البطن الأيسر (left thoraco-epigastric vein)	<ul style="list-style-type: none"> • Spleen complain
عرق مابض الركبة (short saphenous vein-at popliteal fossa)	<ul style="list-style-type: none"> • Urinary bladder masses/tumours • Kidney masses/tumours • Thigh masses /tumours • Amenorrhea • Haemorrhoids • Retained menses • Painful sciatica • Leg ulcers • Typhoid fever
عرق الصافن (great saphenous at ankle joint)	<ul style="list-style-type: none"> • Stimulate menses • Help uterine bloody masses/tumours • Testicular masses/tumour • Thigh masses/tumour • Leg masses/tumour
عرق النسا (lesser saphenous vein at ankle / lateral marginal vein of foot)	<ul style="list-style-type: none"> • Buttock pain • Sciatica pain

and angular vein in treating carotid cavernous sinus thrombosis; other veins have different clinical functions. External jugular vein has some clinical efficacy against early leprosy and cervical tuberculous lymphadenitis. Venesection on upper limb veins is helpful in any kind of inconvenience, in general. The function of abdominal wall thoracic-epigastric vein is used for hepatic and splenic diseases.

The veins of the head and neck include anterior fontanelle,



supra trochlear, occipital, posterior auricular, alar, angular, sublingual, mental, and external jugular veins. They all control various diseases, some of which are not directly located in the head. This reflects the outstanding knowledge in medical practices at that time. Mental vein venesection was useful, according to *Ibn al-Quff*, in treating vena cava thrombosis, and angular vein in treating carotid cavernous sinus thrombosis; other veins have different clinical functions. External jugular vein has some clinical efficacy against early leprosy and cervical tuberculous lymphadenitis. Venesection on upper limb veins is helpful in any kind of inconvenience, in general. The function of abdominal wall thoracic-epigastric vein is used for hepatic and splenic diseases.

Lower limb veins have multiple functions. Venesection on short saphenous vein at popliteal area will be helpful in the treatment of some tumours in urinary bladder, kidneys, haemorrhoids, and typhoid fever. Lesser saphenous vein on legs will be helpful in relieving sciatica pain.

Current venesection clinical application

Since last century, a lot of effort has been made to know the extent to which venesection can help patients. Polycythaemia, polycythaemia vera, secondary polycythaemia, porphyria cutanea tarda, hereditary haemochromatosis, and chronic hypoxic pulmonary disease are currently known to respond well to clinical venesection. The clinical setting and biochemical target has already been established^{10,11}. Many research studies have shown the effectiveness of venesection, or hemofiltration in some cases, to help different clinical conditions. This, of course, requires more confirmatory research in areas such as acute ischemic stroke¹², the reversibility of hepatic fibrosis in treated genetic hemochromatosis¹³, the attenuation of the systemic effects of ischemic-reperfusion injury¹⁴, and migraine treatment¹⁵.

Conclusion

Venesection has the potential to be developed and researched, especially in the areas where it is already practiced. There are, in fact, some thrombotic phenomena or erythrocyte biology interferences which require more extensive work on the topic.

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