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Author: Benjamin Aghoghovwia Reviewer: Ryan Sixtus, MPhEdLast reviewed: November 28, 2022Reading time: 14 minutes The venous system of the upper limb functions to drain deoxygenated blood from the hand, forearm and arm back towards the heart. Veins of the upper limb are divided into superficial and deep veins. The main superficial veins of the upper limb include the cephalic and basilic veins. These veins originate from the dorsal venous plexus within the subcutaneous tissue of the hand. Deep veins of the upper limb lie deep to the brachial fascia (deep fascia of the arm) and accompany the major arteries of the upper limb. As a result they usually have the same name as their arterial counterparts. While arteries are described based on how they course from the heart to the upper limbs, the veins are described in an opposite fashion, from the periphery towards the heart. This article will discuss the anatomy and function of the veins of the upper limb. Key point about the veins of the upper limb Classification Superficial and deep veins Veins of the arm and axilla Superficial veins: Basilic vein, cephalic vein Deep veins: Brachial veins, axillary vein, subclavian vein Veins of the forearm Superficial veins: Basilic vein, cephalic veinDeep veins: Anterior and posterior interosseous veins, ulnar veins, radial veins Veins of the hand Superficial veins: Dorsal digital veins, palmar digital veins, dorsal venous networkDeep veins: Superficial venous palmar arch, deep venous palmar arch, dorsal metacarpal veins, palmar metacarpal veins Veins of the hand are largely divided into superficial and deep venous systems. Superficial veins of the hand include the dorsal and palmar digital veins and the dorsal venous network. Deep veins of the hand typically follow the arteries of the hand and include the dorsal and palmar metacarpal veins as well as the superficial and deep palmar arches. Dorsal and palmar digital veins extend along the sides of the phalanges and function to drain the most distal portion of the upper extremity. Palmar digital veins drain the palmar aspect of the fingers. They empty into both the superficial venous palmar arch and the dorsal digital veins via oblique veins that pass between the metacarpal heads. Dorsal digital veins extend along the sides of the dorsal surface of the phalanges of the hands and unite at the base of the proximal phalanges to form three dorsal metacarpal veins (deep veins). The deep dorsal metacarpal veins lead to the formation of the primary venous drainage structure of the hand, the dorsal venous network. The dorsal venous network is formed just superficial to the dorsal metacarpus and receives venous blood from the dorsal metacarpal veins, along with dorsal digital veins of the first and fourth digits. The palmar venous system of the hand is generally insufficient and therefore blood from the palm of the hand is primarily drained by the dorsal venous network via intercapitular veins. The superficial venous network of the hand further drains into the superficial veins of the forearm, namely the cephalic and basilic veins. Would you like to learn more about the anatomical structure and function of the blood vessels of the human body? Check out our diagrams and quizzes on the arteries and veins of the human body. The deep veins of the hand follow and are named after their arterial counterparts. Palmar metacarpal veins extend along either side of the metacarpals 2-4 and drain into both the dorsal metacarpal veins and into the deep venous palmar arch. Dorsal metacarpal veins, as previously mentioned, are formed by the union of the dorsal digital veins and receive venous blood from the fingers. The dorsal metacarpal veins empty into the radial veins and/or the dorsal venous network over the metacarpus. The superficial and deep venous palmar arches accompany their arterial counterparts and function to drain the palmar regions of the hand. The superficial venous palmar arch receives the palmar digital veins and drains partly to the median antebrachial vein, but mainly functions to shunt palmar blood towards the dorsal venous network via oblique intercapitular veins. The deep venous palmar arch receives the palmar metacarpal veins and drains predominantly into the radial veins of the lateral forearm. The deep venous palmar arch gives rise to the main deep veins of the forearm, namely the radial and ulnar veins. Much like the veins of the hand, venous drainage of the forearm is achieved through a system of superficial and deep veins. Superficial veins of the forearm include the cephalic and basilic veins, which also ascend into the arm. Deep veins of the forearm include the radial and ulnar veins as well as the anterior and posterior interosseous veins. The cephalic and basilic veins are the primary superficial veins which drain the upper limb. The cephalic vein arises from the radial aspect of the dorsal venous network within the anatomical snuff box of the hand. It ascends along the anterolateral surface of the forearm and arm and terminates by draining into the first part of the axillary vein in the clavipectoral triangle of the axilla. In the forearm region, the cephalic vein receives the accessory cephalic vein just distal to the elbow. Similarly, the basilic vein arises from the dorsal venous network of the hand but from the ulnar aspect, ascending posteromedially within the forearm. In the forearm region, the basilic vein receives the median antebrachial vein which arises from the palmar venous plexuses of the hand. Occasionally, the median antebrachial vein splits in two and drains into both the basilic and cephalic veins. The basilic vein continues into the arm and unites with the brachial veins to form the axillary vein. The radial and ulnar veins are the main deep veins of the forearm. They are typically made up of two veins each which accompany the radial and ulnar arteries (venae comitants) and function to return blood from the forearm with little contribution (little blood volume) from the hand. These deep veins of the forearm anastomose freely with each other as they ascend through the forearm. Arising from the dorsal and palmar veins of the hand are the anterior and posterior interosseous veins. These veins accompany their corresponding arteries and travel within the interosseous space between the radius and ulna. They terminate by forming an anastomosis at the upper margin of the interosseous membrane that empties into the ulnar vein. Within the cubital fossa, the ulnar and radial veins unite to form the brachial vein of the arm. Find out more about the vessels of the upper limb in the study units below: Veins of the arm and axilla include superficial veins (cephalic and basilic veins) and deep veins (brachial and axillary veins). Superficial veins of the arm represent a continuation of the superficial veins of the forearm and include the cephalic and basilic veins. The cephalic vein ascends along the forearm and communicates with the median cubital vein on the anterior surface of the elbow joint. The cephalic vein continues to ascend through the arm anterolaterally and courses between the deltoid and pectoralis major muscles within the deltopectoral groove. It then drains into the axillary vein within the clavipectoral triangle on the anterior wall of the axilla. The basilic vein similarly ascends within the subcutaneous tissue of the medial aspect of the forearm and inferior portion of the arm. The median cubital vein empties into the basilic vein on the anteromedial side of the arm. Within the arm, the basilic vein begins as a superficial vessel. However, halfway between the elbow and shoulder, it takes a deeper course by piercing the brachial fascia at the basilic hiatus to travel alongside the brachial vessels. At the inferior border of the teres major muscle, the basilic vein unites with the brachial veins to form the axillary vein. The brachial vein is formed by the union of the radial and ulnar veins within the cubital fossa. It ascends superiorly through the arm in close proximity to the brachial artery. At the inferior border of the teres major muscle, the brachial vein unites with the basilic vein to form the axillary vein. The axillary vein courses alongside the axillary artery in the axilla and contributes to the drainage of the upper limb, axilla and superolateral chest wall. The axillary vein terminates at the lateral border of the first rib where it becomes the subclavian vein. The venous blood from the subclavian vein is ultimately returned to the heart to be reoxygenated via the brachiocephalic vein and superior vena cava. Solidify your knowledge on the main veins of the lower extremity with this quiz. The cubital fossa is a common site for the transfusion and sampling of blood, as well as for intravenous injections, due to the prominence and accessibility of veins. Usually, the median cubital vein or the basilic vein are most commonly selected for these procedures. A tourniquet is placed around the mid-arm to distend the veins around the cubital fossa. Once the vein is punctured, the tourniquet is removed so that when the needle is removed the vein will not bleed extensively. The cubital veins are also a site for the insertion of cardiac catheters to secure blood samples from the great vessels and chambers of the heart. These veins may also be used for cardioangiography. Median cubital vein (anterior view)The pattern of veins in the cubital fossa varies greatly. In approximately 20% of people, the median antebrachial vein (median vein of the forearm) divides into a median basilic vein, which joins the basilic vein, and a median cephalic vein, which joins the cephalic vein. In these cases, a clear M formation is produced by the cubital veins. It is important to observe and remember that whichever pattern of veins is present, either the median cubital vein or the median basilic vein, it passes superficially to the brachial artery, from which it is separated by the bicipital aponeurosis. These veins are good sites for drawing blood but are not ideal for injecting an irritating drug because of the danger of injecting it into the brachial artery. In obese people, a considerable amount of fatty tissue may overlie the vein. All content published on Kenhub is reviewed by medical and anatomy experts. The information we provide is grounded on academic literature and peer-reviewed research. Kenhub does not provide medical advice. You can learn more about our content creation and review standards by reading our content quality guidelines. References: Moore KL, Dalley AF, Agur AMR. Clinically oriented anatomy. 7th ed. 2014. p. 689-692. Lambert SM, Biant LC, Ross AC. Pectoral girdle and upper limb. In: Grays Anatomy: The Anatomical Basis of Clinical Practice. 41st ed. Elsevier; 2016. p. 794862. Illustrators: Median cubital vein (anterior view) -Yousun Koh Superficial veins of the upper limb (cadaver dissection) - Prof. Carlos Surez-Quian Veins of the upper limb: want to learn more about it?Our engaging videos, interactive quizzes, in-depth articles and HD atlas are here to get you top results faster.What do you prefer to learn with?I would honestly say that Kenhub cut my study time in half.Read more.Kim Bengochea, Regis University, Denver Unless stated otherwise, all content, including illustrations are exclusive property of Kenhub GmbH, and are protected by German and international copyright laws. All rights reserved.The superficial veins lie within the subcutaneous tissue of the upper limb. These veins arise from small veins of the hand, which form a venous network on the dorsal surface of the wrist. This group of veins includes the basilic, cephalic, median antebrachial and median cubital veins.Media placeholderThe major superficial veins that drain blood from the upper limb are the basilic vein and the cephalic vein. Both veins begin from the dorsal venous network of the hand. The basilic vein travels mostly along the medial side of the upper limb, while the cephalic vein passes along the lateral side. The basilic vein typically flows into the brachial vein, but the cephalic vein joins the axillary vein.Another important superficial vein of the upper limb is the median antebrachial vein, which is highly variable. It ascends in the middle of the anterior aspect of the forearm between the basilic and cephalic veins. At the cubital fossa (on the anterior aspect of the elbow joint), this vein flows into the median cubital vein. Sometimes it divides into two veins, which join the cephalic and basilic veins.The venous system of the upper limb drains deoxygenated blood from the arm, forearm and hand. It can be subdivided into the superficial system and the deep system.In this article, we shall look at the anatomy of the upper limb veins their anatomical course, structure, and their clinical relevance. The major superficial veins of the upper limb are the cephalic and basilic veins. They are located within the subcutaneous tissue of the upper limb.Basilic VeinThebasilic veinoriginates from the dorsal venous network of the hand and ascends the medial aspect of the upper limb.At the border of theteres major, the vein moves deep into the arm. Here, it combines with thebrachial veins from the deep venous system to form the axillary vein.Cephalic VeinThe cephalic veinalso arises from the dorsal venous network of the hand. It ascends the antero-lateral aspect of the upper limb, passing anteriorly at the elbow.At the shoulder, the cephalic vein travels between the deltoid and pectoralis major muscles(known as the deltopectoral groove), and enters the axilla region via the clavipectoral triangle. Within the axilla, the cephalic vein empties into axillary vein.Thecephalic and basilic veins are connected at the elbow by the median cubital vein.Fig 1The superficial veins of the upper limb. Prosection of the upper limb, demonstrating the superficial venous system. Prosection of the upper limb, demonstrating the superficial venous system. The deep venous systemof the upper limb is situated underneath the deep fascia. It is formed bypaired veins, which accompany and lie either side of an artery.In the upper extremity, the deep veins share the name of the artery they accompany.The brachial veins are the largest in size, and are situated either side of the brachial artery. The pulsations of the brachial artery assist the venous return. Veins that are structured in this way are known as vena comitantes.Perforating veins run between the deep and superficial veins of the upper limb, connecting the two systems.Fig 2The major deep veins of the upper limb. Venepuncture is the practice of obtaining intravenous access. This is usually for the purpose of providing intravenous therapy (e.g. fluids, medications) or for obtaining a blood sample.The median cubital vein is a common site of venepuncture.It is a superficial vein that is located anteriorly to the cubital fossa region. It is thought to be fixed in place by perforating veins, which arise from the deep venous system and pierce the bicipital aponeurosis.Its ease of access, fixed position and superficial position make the median cubital vein a good site for venepuncture in many individuals.

The major superficial veins of the upper limb originate from the. Superficial veins of the upper limb. Major deep veins of the upper limb. Major veins of upper limb. Superficial veins lower limb.