<u>VEINS</u>

Pulmonary Veins

Veins	Tributaries	Tributaries	Drainage
Right Pulmonary Veins	Superior, Middle, Inferior	Vein for each lobule	Oxygenated Blood from
	Trunks. One for each lobe		each lungs
Left Pulmonary Vein	Superior and Inferior	Vein for each lobule	Oxygenated Blood from
	Trunks. For each lobe		each lungs

Systemic Veins

Systemic Veins are arranged into three groups

- 1. The Veins of the Heart
- 2. The Veins of **Upper Extremities**, **Head**, **Neck** and **Thorax** which end in Superior Vena Cava
- 3. The Veins of the **Lower extremities, abdomen,** and **pelvis,** which end in the Inferior Vena Cava

Veins	Tributaries	Tributaries	Drainage
Coronary Sinus	Great Cardiac Vein	Left Marginal Vein	from left atrium and
(2.25cm), Located in		Tributaries from left	both ventricles
Posterior portion of		atrium and both	
Cornary Sulcus, open		ventricles	
into right atrium.	Small Cardiac Vein	Right Marginal Vein	Blood from back of
Opening guarded by			Right Atrium & Right
Semilunar Valve			Ventricle
	Middle Cardiac Vein		
	Posterior Vein of Left		
	Ventricle		
	Oblique Vein of Left		
	Atrium		
Anterior Cardiac Vein		collect blood from the from	nt of the right ventricle
Smallest Cardiac Veins			
(Veins of Thebesius)			

Veins of Heart

Veins of Head & Neck

Veins of Head and Neck are divided into three groups

- 1. The veins of the exterior of the head and face
- 2. The veins of the neck
- 3. The diploic veins, the veins of the brain, and the venous sinuses of the dura mater
- 1. Veins of Exterior of Head and Face

Frontal	•	Superficial Temporal Vein
Supraorbital	•	Internal Maxillary Vein
• Angular	•	Posterior Facial Vein
Anterior Facial	•	Posterior Auricular

Veins	Formation	Tributaries	Drainage
	Posterior division of	Occipital Vein	
	posterior facial Vein	Posterior External Jugular	
		Transverse Cervical	Exterior of Cranium and
External Jugular Vein	Posterior Auricular Vein	Transverse Scapular	the deep part of face
		Anterior Jugular Vein	
		Internal Jugular Vein	
Posterior External Jugular		Blood from the skin and sup	erficial muscles in the upper
Vein		and back part of the neck	
Anterior Jugular Vein	Superficial veins from the	Laryngeal Veins	
	submaxillary region	Small Thyroid Vein	
		Inferior Petrosal Sinus	Collects blood from brain,
	Continuous with	The Common facial vein	from superficial parts of
	transverse sinus, and	The Lingual Vein	face, from neck
Internal Jugular Vein	begins in posterior	The pharyngeal Vein	
	compartment of Jugular	Superior thyroid Vein	
	foramen	Middle Thyroid Vein	
		Thoracic duct on left side	Open into union of internal
		Right lymphatic duct on	Jugular and Subclavian
		right side	Veins. Drain lymph
The Pharyngeal Veins	Begins in pharyngeal	Posterior Meningeal Veins	
	plexus on outer surface of	Vein of Pterygoid Canal	
	pharynx		
		Branches from the	Drains occipital region and
		occipital vein	deep muscles of back of
The Vertebral Vein	Formed in the suboccipital	Internal and External	neck
	triangle	vertebral venous plexuses	
		Anterior vertebral	
		Deep cervical veins	

2. Veins of the Neck

3. The diploic veins, the veins of the brain, and the venous sinuses of the dura mater

Diploic Veins:

- Frontal
- Anterior Temporal
- Posterior Temporal
- Occipital

The Veins of Brain:

1. Cerebral Veins

- External Group
 - i. Superior Cerebral Veins
 - ii. Middle Cerebral Veins
 - iii. Inferior Cerebral Veins
 - iv. Basal Vein
- Internal Group
 - i. Terminal Veins
 - ii. Choroid Veins
- Great Cerebral Veins
- 2. Cerebellar Veins
 - Superior Cerebellar Veins
 - Inferior Cerebellar Veins

Sinus	Location	Vessels Received
		I.
	Postero-Superior Group	
		Superior Cerebral Vein
Superior Saggital Sinus	Occupies the attached or convex	Veins from diploe
1 22	margin of falx cerebri	Vein from dura mater
		Vein from pericranium
Inferior Saggital Sinus	Contained in posterior half or two-	Several Veins from falx Cerebri
	third of free margin of falx cerebri	Few medial surface of hemisphere
	Situated at line of junction of falx	Inferior Sagittal Sinus
The Straight Sinus	cerebri with the tentorium cerebelli	Great Crerbral Vein (Vein of Galen)
č		Superior Cerebellar Veins
	Begin at Internal occipital	Superior Petrosal Sinuses
	Protuberance, right, being the direct	Veins of the Pericranium
	continuation of the superior sagittal	Inferior Cerebral Veins
Transverse Sinus	sinus, the other of the straight sinus.	Inferior Cerebellar Veins
	it then leaves the tentorium to reach	Petrosquamous Sinus
	the jugular foramen where it ends in	1
	the internal jugular vein	
Occipital Sinus	It is situated in the attached margin	Posterior Internal Vertebral Venous
	of the falx cerebella. Ends in the	plexus
	confluence of the sinuses	
Confluence of Sinuses	Dilated extremity of Superior	Occipital Sinus
	Saggital Sinus	
	Antero-Inferior Group	
		Superior Ophthalmic Vein through
		Superior Orbital Fissure
		Transverse Sinus by Superior
		Petrosal Sinus
Cavernous Sinuses	Placed on either side of body of	Internal Jugular Vein through
	Sphenoid bone	Inferior Petrosal Sinus
		With Pterygoid Venous Plexus
		through Foramen Vesalii, Foramen
		Ovale and Foramen Lacerum
		With Angular Vein through
		ophthalmic Vein
Ophthalmic Vein		
Superior Ophthalmic	Communicates with Angular vein	
	and drain into Cavernous Sinus	
Inferior Ophthalmic	Two Branches. One drains Inferior	
	Petrosal Sinus. Other into Cavernous	
Lateración de Cierco	Sinus True in number and connect true	
Intercavernous Sinus	I wo in number and connect two	
Superior Detrocal Sinus	Corrects the severnous with the	
Superior Petrosal Silius	tronguerge ginug	
Inferior Detrosel Sinus		
Basilar playus	Connects two netrosal playus	
Emissary Vains	Establish Communication between	
	sinusus inside skull and veins	
	external to it	
	external to it.	

Veins of Upper Extremity are divided into two sets

- Superficial
- Deep

Veins	Formation	Tributaries	Drainage	
Superficial Veins				
Digital Veins				
Dorsal Digital Veins	Pass along sides of fingers and unite to form three dorsal metacarpal veins		Dorsal Venous Network	
Palmar(Volar) digital Veins	Connected to dorsal digital veins by intercapitular veins		Venous plexus situated on thenar and hypothenar eminence	
Cephalic Vein	Begins in radial part of dorsal venous network	Receiving tributaries from both surfaces. Gives Median Cubital Vein below elbow which joins basilica vein	Ends in the axillary vein just below the clavicle	
Accessory Cephalic Vein	Arises from small tributary plexus on back of forearm		Drains into cephalic Vein	
The Basilic Vein	Begins in ulnar part of dorsal venous network	Joined by Median Cubital Vein	Drains into axillary Vein	
Median Antibrachial Vein		Drains the venous plexus on the volar surface of the hand	Ends in basilica Vein	
Median Cubital Vein	From cephalic to basilic vein	Unites with median antebrachial vein	Basilic vein	
	Deep	Veins		
Deep Veins of Hand	^			
Superficial and deep palmar (Volar) venous arches		Common volar digital veins	Volar (Palmar) metacarpal veins	
Common volar digital veins		Proper volar digital veins		
Deep Veins of Forearm	Upward continuations of the deep and superficial volar venous arches	Volar and dorsal introsseous veins	Brachial Vein	
Brachial Vein	Plced on either side of brachial artery		Join axillary vein	
Axillary Vein	Begins at lower border of Teres Major as continuation of Basilic Vein	Brachial Vein Cephalic Vein near its termination	Ends at the outer border of the first rib as the subclavian vein	
The Subclavian Vein	Continuation of Axillary Vein. Extends from the outer border of the first rib to the sternal end of the clavicle	External Jugular Vein Anterior Jugular Vein Left subclavian receives Thoracic duct Right subclavian receives right lymphatic duct	Brachiocephalic Trunk	

Veins	Formation	Tributaries	Drainage
Brachiocephalic Trunk			
Right	Formed by the union of	Right Vertebral Vein	Joins Left
	the internal jugular and	Right Internal Mammary	Brachiocephalic Trunk to
	subclavian veins of right	Right Inferior Thyroid	form Superior Vena Cava
	side	Veins	
Left	Formed by the union of	Left Vertebral Vein	Joins Right
	the internal jugular and	Left Internal Mammary	Brachiocephalic Trunk to
	subclavian veins of right	Left Inferior Thyroid	form Superior Vena Cava
	side	Vein	
		Left Highest Intercostal	
		Vein	
Internal Mammary Veins			Ends up in
			brachiocephalic trunk
T.C. ' 771 ' 1 XZ '	Arise in the venous	Esophageal Veins	Left vein jons the left
Inferior Thyroid Vein	plexus on the thyroid	Tracheal Veins	Brachiocephalic and right
	gland, communicating	Inferior Laryngeal Veins	Joins the right
	thuroid voins		Brachiocephane trunk
Highest Intercestal Vains		Laft bronchial Vain	Drain blood from uppor 4
Tingliest Intercostar Venis		Left bronemar vem	intercostal spaces Right
			open into azygos vein
			and left open into left
			brachiocephalic trunk
Superior Vena Cava	Formed by junction of	Azygos Vein	Drains blood from upper
	two brachiocephalic	Small Veins from	half of body
	trunks	Pericardium	-
The Azygos Vein	Continuation of Right	Right Costal and	Ends in the superior vena
	Ascending Lumbar Vein,	Intercostal Veins	cava
	passes along right side of	Hemiazygos Veins	
	vertebrae	Esophageal Veins	
		Mediastinal Vein	
		Pericrdial Veins	
		Lower four or five	End in the azygos vein
The Hemiazygos Vein	Begins in left ascending	intercostals veins	
	lumbar or renal veins and	Subcostal vein of left side	
	end in azygos vein	Esophageal Veins	
		Mediastinal Veins	
Accessory Hemiazygos	Descends on left side of	Receives veins from four	End in the azygos vein
Vein	vertebral coloumn	intercostals spaces	
Bronchial Veins			Return the blood from the
			larger bronchi, opens into
			the azygos vein

Veins of Thorax

Veins of Vertebral Column

The Veins of Vertebral Column are divided into

- External vertebral venous plexus
 - 1. <u>Anterior External Plexus</u>: Communicates with Basivertebral and Intervertebral Veins and receive tributaries from the vertebral bodies.
 - 2. <u>Posterior External Plexus</u>:
- Internal vertebral venous plexus
 - 1. <u>Anterior Internal Plexus:</u>
 - 2. <u>Posterior Internal Plexus:</u>

Veins	Formation	Tributaries	Drainage
Basivertebral Veins	Emerge from formina on	Communicate with	
	posterior surface of	anterior external vertebral	
	vertebral bodies	plexus	
	Accompany spinal nerves		Drain internal and external
Intervertebral Veins	along with their foramina		vertebral plexus, and end
			in the vertebral,
			intercostal, lumbar, and
			lateral sacral veins
		Two median longitudinal	
Veins of Spinal Cord		veins	
		Four lateral longitudinal	
		veins	

Veins of Foot

Veins	Formation	Tributaries	Drainage
	Dorsum	e of Foot	
Dorsal Digital Veins	Form short common digital veins	Receive the intercapitular veins from the plantar cutaneous venous arch	Dorsal Venous Arch
Medial Marginal Vein			
Lateral Marginal Vein			
	Sole of	of Foot	
Planter Cutaneous Venous Arch	Formed by superficial veins on sole of foot		Lateral and Marginal Veins
Planter Digital Veins	Arise from plexus on planter surface of the digits		They unite to form metatarsal veins
Deep planter Venous Arch	Metatarsal Veins unite to form Deep planter Venous Arch	They communicate with great and small saphenous Vein	At medial malleolus they form Posterior Tibial Vein

Veins of Lower Limb are divided into two sets

- Superficial Group
- Deep Group

Veins	Formation	Tributaries	Drainage
	Superficial Veins of	of Lower Extremity	
Great Saphenous Vein	Longest Vein in body	At Ankle: Medial marginal	Ends in femoral vein 3 cm
	begins in medial marginal	Vein	below inguinal ligament
	vein of dorsum of foot	In Fossa Ovalis:	
		Superficial Epigastric Vein	
		Superficial iliac	
		circumflex	
		Superficial external	
		Pudendal Vein	
		Superficial Lateral	
		Femoral Vein	
		Superficial Medial	
		Femoral Vein	
Small Saphenous Vein	From lateral border as	Numerous tributeries from	Ends in Popliteal vein
	continuation of Lateral	back of leg	between heads of
	Marginal Vein		Gastrocenemius
	Deep Veins of I	Lower Extremity	
Posterior Tibial Vein	Accompany posterior		
	tibial artery		
Anterior Tibial Vein	Leave leg by passing	Unite with posterior tibial	Popliteal Vein
	between tibia and fibula	Vein	
Popliteal Vein	Junction of anterior and	Lesser saphenous Vein	Femoral Vein
	posterior tibial vein.		
Femoral Vein		Muscular tributeries	
		Deep femoral Vein	
		Saphenous Vein	
Deep Femoral Vein		Medial femoral circumflex	
		vein	
		Lateral femoral circumflex	
		vein	

Veins of Pelvis & Abdomen

Veins	Formation	Tributaries	Drainage
External Iliac Vein	Continuation of femoral	Inferior Epigastric Vein	Collects blood from the
	vein behind inguinal	Deep Iliac Circumflex	superficial and deep veins
	ligament and ends by	Vein	of lower limb and lower
	uniting with Internal Iliac t	Pubic Vein	portion of abdominal wall
	form Common Iliac Vein		
Internal Iliac Vein	Begins near upper part of	Gluteal Veins	Origin outside pelvis
	greater sciatic foramen and	Internal Pudendal Vein	
	joins external Iliac to form	Obturator Vein	
	Common Iliac Vein	Lateral Sacral Veins	Infront of Sacrum
		Middle Hemorrhoidal	These veins are connected
		Vein	with pelvic viscera
		Vesical Vein	
		Uterine Veins]
		Vaginal Veins]

Superior Gluteal Vein	Enter pelvis through greater sciatic foramen	Tributeries from Buttock	Ending in Internal Iliac Vein
Inferior Gluteal Vein	Enter pelvis through greater sciatic foramen		Ending in Internal Iliac Vein
Internal Pudendal Vein	Begins in the deep veins of Penis, issue from corpus cavernosum	Veins from Uretheral bulb Perineal Veins Inferior Hemorrhoidal Veins	End in the Internal Iliac Vein
Obturator Vein	Begins in the upper portion of the adductor region of the thigh and enters the pelvis through the upper part of the obturator foramen		End in the Internal Iliac Vein
Lateral Sacral Veins			End in the Internal Iliac Vein
Middle Hemorhoidal Vein	Origin from hemorrhoidal plexus	Receives tributaries from bladder, prostate and seminal vesicles	End in the Internal Iliac Vein
Common Iliac Vein	Union of External iliac and Internal Iliac Vessels	Iliolumbar Veins Lateral Sacral Veins	
Inferior Vena Cava	Formed by junction of two common iliac veins, placed on left side of aorta		
	Tributari	es of IVC	•
Lumbar Vein (4)	Origin of corresponding azygos or hemiazygos vein	dorsal tributaries	Collect the blood from the muscles and integument of the loins
		Abdominal tributaries	The walls of the abdomen
Spermatic Vein	Emerge from back of testis, they unite and form convoluted plexus, the pampiniform plexus	Receive tributaries from epididymis	Collect blood from testes
Ovarian Veins	Correspond with spermatic veins in males, form plexus in broad ligament and uterine plexus		Receive blood from ovary and uterus
Renal Veins	Anterior to renal artery. Left is longer than right	Left testicular Vein (Left Ovarian Vein) Left Suprarenal Vein	-
Suprarenal Veins	Two in number	Right	Right opens in IVC
Hepatic Veins	Open directly in the Inferior Vena Cava	Lett Right Hepatic Vein Middle Hepatic Vein	Lett open in left renal vein Collects blood from hepatic portal vein and
		Left Hepatic Vein	proper hepatic artery

The Portal System of Veins

- Short trunk abut 6-8cm.
- Collects blood from abdominal part of digestive canal except anal canal, the pancreas, the spleen, and the gallbladder
- Its venous trunk is between two sets of capillaries, one is capillary of alimentary canal and other is sinusoids of liver

Veins	Formation	Tributaries	Drainage
Portal Vein		Splenic Vein (Lienal Vein)	
		Superior Mesenteric Vein	
		Coronary Vein	
		Pyloric Veins	
		Cystic Veins	
		Paraumblical Veins	
		Short Gastric Veins	Drain the fundus and left part of the
		(4 -5 in No.)	greater curvature of the stomach
	Formed by five to six	Left gastroepiploic Vein	Receives branches from the antero-
	large branches which		superior and postero-inferior
	unite to form lineal		surfaces of the stomach and from
	vein and return blood		the greater omentum
Splenic Vein	from spleen	Pancreatic Vein	Drain the body and tail of the
(Lienal Vein)			pancreas
		Inferior Mesenteric Vein	
	Begins in rectum as	Sigmoid Veins from sigmoid	Returns blood from the rectum and
Inferior Mesenteric	Superior Hemorrhoidal	and iliac colon	the sigmoid, and descending parts
Vein	Veins	Left Colic Vein from	of the colon
		descending colon and left	
		colic flexure	
Superior	It unites with the	Intestinal iliocoli vein	Returns the blood from the small
Mesenteric Vein	Splenic (lineal) vein to	Right Colic Veins	intestine, from the cecum, and from
	form the portal vein	Middle Colic Veins	the ascending and transverse
			portions of the colon
			Receives branches from the greater
		Right gastroepiploic Vein	omentum and from the lower parts
			of the antero-superior and
			posteroinferior surfaces of the
			stomach
	a 11 M .	Pnacreaticoduodenal Vein	
Pyloric Vein	Small Vein		End in portal vein
Cystic Vein			Drains blood from gallbladder and
D 111 177 1			end in right branch of portal vein
Paraumblical Veins	Several Small Veins	Begin in paraumblical	Open into left branch of hepatic
	running along	venous rete	portal vein
	ligamentum teres		