Glossary of Key Terms and Concepts - Chapter 8

Angioblasts - These "vessel-forming cells" may arise from any kind of mesoderm except prechordal plate mesoderm.

Angioblastic cords - Angiocysts coalesce to form short blind-ended angioblastic cords.

Angioblastic plexuses - Angioblastic cords coalesce to form complex interconnected vascular networks or plexuses.

Angiocysts - These vesicles are formed by angioblasts during the process of vasculogenesis.

Angiogenesis - This is the mechanism whereby preexisting vessels lengthen or branch by sprouting.

Aortic arches - These vessels have been modified in humans to form the great vessels of the thorax (also see Ch. 7).

Axis arteries - These central arteries of the limbs are derived from the 7th intersegmental arteries (upper limb) and 5th lumbar intersegmental arteries (lower limb).

Blood islands - Blood islands are cysts of angioblasts containing hemoblasts. These coalesce to form blood vessels in the yolk sac and also form the coronary vasculature.

Branchial arches - These are the gill bars of fish. Homologous structures of humans are more appropriately named "pharyngeal" arches.

Cardinal system of veins - These veins drain the head and neck and body wall and extremities of the embryo. Anterior cardinals drain the head and neck and the trunk and lower extremities are drained by paired posterior cardinals. The posterior cardinal veins are replaced by subcardinal and supracardinal veins during the second month.

Coronary vessels - These vessels of the heart form from epicardium as subepicardial plexuses fuse with sprouts of the aorta and coronary sinus to form the coronary arteries and coronary veins respectively.

Endothelial cells - These cells arise from angioblasts to form the initial vascular network. They provide the endothelial lining for the entire cardiovascular system.

Hemoblasts - Blood stem cells or hemoblasts are initially derived from angioblasts during the process of blood island formation in the wall of the yolk sac. While the origin of embryonic hemoblasts is controversial, it is thought that some may arise from splanchnopleuric mesoderm in the region of the dorsal aorta.

In situ vesicle formation and fusion - (See vasculogenesis, below)
Intersegmental artery - The paired intersegmental arteries are posterolateral sprouts of the dorsal aorta which vascularize all of the derivatives of the somites and the extremities (see axis artery).

Pharyngeal arches - These are human homologs of branchial arches of ancestral fishes. They form the maxilla and mandible, hyoid apparatus and larynx.

Portal system - This specialized system of veins drains the gastrointestinal tract into the liver for processing of nutrients. The entire system arises from right and left vitelline veins and their median anastomoses.

Vasculogenesis - Blood vessels initially form throughout the entire embryo as endoderm induces the overlying splanchnopleuric mesoderm to form networks of vasculature characteristic of each specific region. Initially, angioblasts form angiocysts which coalesce to form angioblastic cords and then angioblastic plexuses.

Vitelline arteries - The complex network of vitelline arteries which initially vascularizes the yolk sac, become the chief arteries of the gastrointestinal tract. Typically about five of these arteries vascularize the thoracic esophagus, while a single celiac artery vascularizes the abdominal foregut. The midgut is vascularized by a single superior mesenteric artery and the hindgut by a single inferior mesenteric artery.