

Radial artery: Analysis and complications.

Kangting Ji *

Department of Cardiology, The Second Affiliated Hospital, Wenzhou Medical University, Zhejiang, People's Republic of China

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Description

The radial artery is an extension of the brachial artery and is one of the most important blood vessels for the structure of the forearm. The brachial artery ends at the cubital fossa, where it branches into the ulnar artery and the small radial artery. The radial artery in the forearm supplies oxygen-rich blood to the hands and fingers. Health care providers have access to the radial artery for cardiac catheterization, angioplasty, and stent placement. The radial artery can also be part of Coronary Artery Bypass Grafting (CABG). The pulse is measured at the wrist where the radial artery is closest to the surface. The radial artery is also often used to collect arterial blood for the measurement of Arterial Blood Gas (ABG). This happens for three reasons: 1. It is not the only blood supply to the arm. When the radial artery is damaged, the ulnar artery takes over. 2. It is easy to access. 3. The radial artery is the superficial temporal artery which easily repairs the damage of an injury and rarely puts the patient at risk.

The radial artery is part of a network of blood vessels that circulate blood to the heart and the rest of the body. As a part of the circulatory system, the radial artery supplies blood from the heart to the forearm. The radial artery has many branches. They supply oxygen-rich blood to the elbow joints, forearm muscles, index fingers and thumbs, radial nerves (which control the movement and sensation of the arms and hands), wrist bones and joints.

The radial artery runs inside the forearm from the elbow to the thumb. The arteries are just below the surface of the skin. On the wrist, you may see blue or purple veins, which are branches of the radial artery that carry blood to the thumb. The radial artery is a branch of the brachial artery, which is a large blood vessel in the brachial arm. At the elbow joint, the brachial artery branches into the radial and ulnar arteries. The radial and ulnar arteries run parallel to the hand beyond the forearm. They supply blood to the forearms, hands and fingers.

Complications

Radial artery spasm: Radial artery spasm has been shown to be responsible for 38% of all trans-radial intervention errors. Once severe, the catheter can be difficult to operate leading to excessive treatment delays and patient discomfort, which can

lead to crossings and treatment errors. Therefore, prevention rather than treatment can minimize complications of bleeding at the access site. Access site hematoma: Localized hematoma can occur as a result of improper use of a hemo-static device or failure of the device. Forelimb hematoma: In rare cases, bleeding may occur at a location in the radial artery away from the puncture site. This can occur if the small lateral branch of the radial artery is perforated with a guide wire, and radial artery occlusion.

Conclusion

The Trans-Radial Approach (TRA) has a lower risk of bleeding and vascular complications than the Trans-Femoral Approach (TFA), making it a suitable approach for coronary angiography and Percutaneous Coronary Intervention (PCI). The incidence of complications from trans-radial surgery is low, and most of them can be prevented with proper training, technique, and hardware selection. Planning helps in reducing the radial artery spasm, lock discrepancies, minimize arterial, radial artery occlusion, and prevent vascular trauma / extravasation when manipulating complex cubital loops or abnormalities. In appropriate case alternative approaches such as the ipsilateral ulnar or the contralateral radial artery can be selected. TRA is safe and can be used in most of the cases and may not be necessary to regularly assess the circulation of both hands prior to TRA.

*Correspondence to

Kangting Ji,
Department of Cardiology,
The Second Affiliated Hospital,
Wenzhou Medical University,
Zhejiang,
People's Republic of China
E-mail: jikt@wzmc.edu.cn

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