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12

Clinical Anatomy and Recipient Vessel Selection in the Upper Extremity

Karim Bakri

INTRODUCTION

Reconstructive microsurgery of the upper extremity requires detailed knowledge of the regional anatomy of the arm, forearm and hand. Specific familiarity with the anatomy of the neurovascular structures allows safer, more expeditious flap elevation and recipient vessel exposure. This chapter reviews anatomy pertinent to upper extremity reconstruction, and describes the anatomy of common recipient vessel approaches.

ANATOMY OF THE ARM

The arm is divided into anterior and posterior compartments by the medial and lateral intermuscular septa (Fig. 12.1). The anterior compartment contains the biceps, brachialis and coracobrachialis muscles, the brachial artery and veins, and the median and musculocutaneous nerves (Fig. 12.2). The posterior compartment contains the three heads of the triceps and profunda brachii (Fig. 12.3). The ulnar and radial nerves traverse both compartments.

A line drawn from the lateral epicondyle of the humerus, to the insertion of the deltoid corresponds with the lateral intermuscular septum. This landmark is useful when marking the axis of the lateral arm flap, or for exposing the radial collateral artery.

The medial intermuscular septum runs along the medial epicondylar ridge, beginning at the medial epicondyle of the humerus distally and blending with the coracobrachialis fascia proximally. The anterior and posterior compartments in the arm are enveloped by a layer of deep fascia, and the only notable structures found superficial to this layer are the cutaneous nerves and superficial veins.

VASCULAR ANATOMY OF THE ARM

THE BRACHIAL ARTERY

The brachial artery is the continuation of the axillary artery, beginning at the distal edge of the teres major and ending approximately 2–3 cm distal to the elbow where it

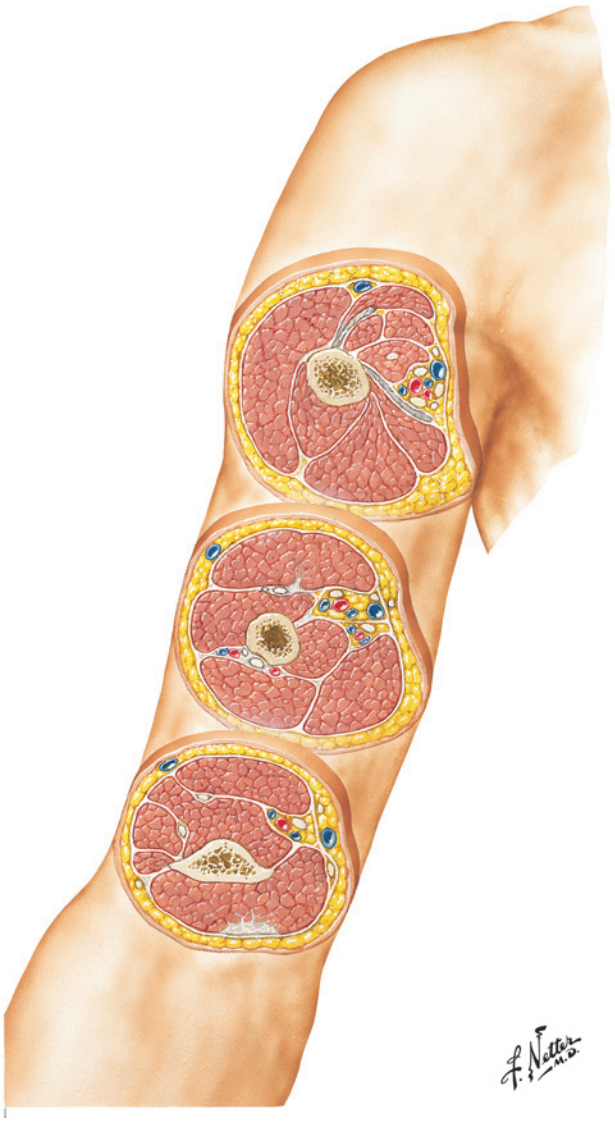

Figure 12.1 Cross-sectional anatomy of the arm. (Reprinted from Netter Anatomy Illustration Collection. ©Elsevier Inc. All Rights Reserved.)