



Figure 11.8 Veins of anterior abdominal wall. (Reprinted from Netter Anatomy Illustration Collection. ©Elsevier Inc. All Rights Reserved.)

below, which can be useful in chest, back or abdominal reconstruction.

THE ANATOMY AND EXPOSURE OF THE CEPHALIC VEIN

In situations where there is an adequate recipient artery but inadequate recipient vein, either the cephalic vein or

external jugular vein can be transposed into a chest position. The cephalic vein is a superficial vein which courses along the anterolateral aspect of the arm and continues into the deltopectoral groove to empty into the subclavian vein (Figs 11.2, 11.8). The cephalic vein can be approached through a direct incision or multiple short transverse incisions anywhere along its course as it begins

on the radial aspect of the wrist and then enters the deltopectoral groove to enter into the axillary vein. The length needed to transpose this vein into the required recipient site determines how much of this vein will need to be dissected.

THE ANATOMY AND EXPOSURE OF THE EXTERNAL JUGULAR VEIN

The external jugular vein is formed by the posterior facial vein and then empties into the subclavian vein (Figs 11.2, 11.8). Either of these two veins can be transposed about their attachment to the subclavian vein and rotated into a chest recipient site. In a similar manner, the external jugular vein can be approached through a direct overlying incision or several shorter transverse incisions. This vein can be divided just underneath the mandible as it exits at the posterior facial vein and can be transposed about its origin on the subclavian vein. The length of vein required is determined by the location of the recipient artery.

NERVE ANATOMY BY REGION

THE CHEST

Nerves available for creating a sensate free flap reconstruction in chest reconstructions include the intercostobrachial nerve, the anterior and posterior branches of the lateral cutaneous nerves, and the parasternal anterior cutaneous nerves off of the intercostal nerves (Figs 11.2, 11.9). The intercostobrachial nerve courses transversely in the superficial portion of the axillary fat and lymphatics, superficial to the thoracodorsal vessels and nerves. There are several branches to this nerve, any one of which can be used for creating a sensate flap. The anterior and posterior branches of the lateral cutaneous nerves exit the chest wall musculature to innervate the overlying skin. These branches can be found following resection and/or exposure of superficial chest wall defects.

Potential motor nerves for creating a functional flap in chest reconstruction include the thoracodorsal, medial or lateral pectoral, and long thoracic nerves. The need for a functional reconstruction should outweigh the potential loss of function in either the latissimus dorsi or serratus anterior muscles, should these motor nerves be used (Fig. 11.1). These motor nerves are within the axilla and are approached as described above. The thoracodorsal nerve travels with the thoracodorsal vessels. The long thoracic nerve courses more medially in the axilla to innervate the serratus anterior muscle.

THE ABDOMEN AND GROIN

Nerves available for creating a sensate reconstruction in abdominal and groin reconstruction include the anterior branches of the lateral cutaneous nerves as well as the anterior cutaneous nerves (branches of the intercostal nerves). Other sensory cutaneous nerves include the iliohypogastric and the ilio-inguinal nerves (Figs 11.9, 11.10). These nerves pierce the internal oblique muscle to travel within the inguinal canal to give innervation to the inguinal region. They can be accessed by making an incision just above the inguinal ligament and then opening the fascia of the lower external oblique to expose the inguinal canal and these nerves.

Potential motor nerves include the motor branches of the intercostals that supply segmental motor function to the rectus abdominis muscle.

THE BACK

Nerves available to create a sensate back reconstruction include the posterior branches of the lateral cutaneous nerves and cutaneous branches of the dorsal rami. Potential motor nerves include the thoracodorsal and long thoracic nerves, as mentioned above in the chest reconstruction section (Figs 11.1, 11.9). The dorsal rami cutaneous nerves pierce the paraspinal musculature to supply sensation to the overlying dorsal skin. Following resection or elevation of the overlying skin and soft tissues, these nerves can be seen exiting from the trapezius or latissimus muscles to enter the skin.

CONCLUSION

In conclusion, the most common recipient vessels for chest reconstruction include the thoracodorsal and internal mammary systems. Less common choices include the circumflex scapular, the lateral thoracic, and the thoracoacromial systems. Veins available for transposition include the cephalic and external jugular. The most common recipient vessels for abdominal and groin reconstruction include the inferior epigastrics and femorals. Less commonly used are the superior epigastrics, and the superficial inferior epigastric and superficial circumflex iliac systems. The most common recipient vessels for back reconstruction include the thoracodorsals. Less commonly used are the circumflex scapular and intercostal systems.

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