Humerus Site Identification

Proper Positioning for Use of the Proximal Humerus (Figure 1):

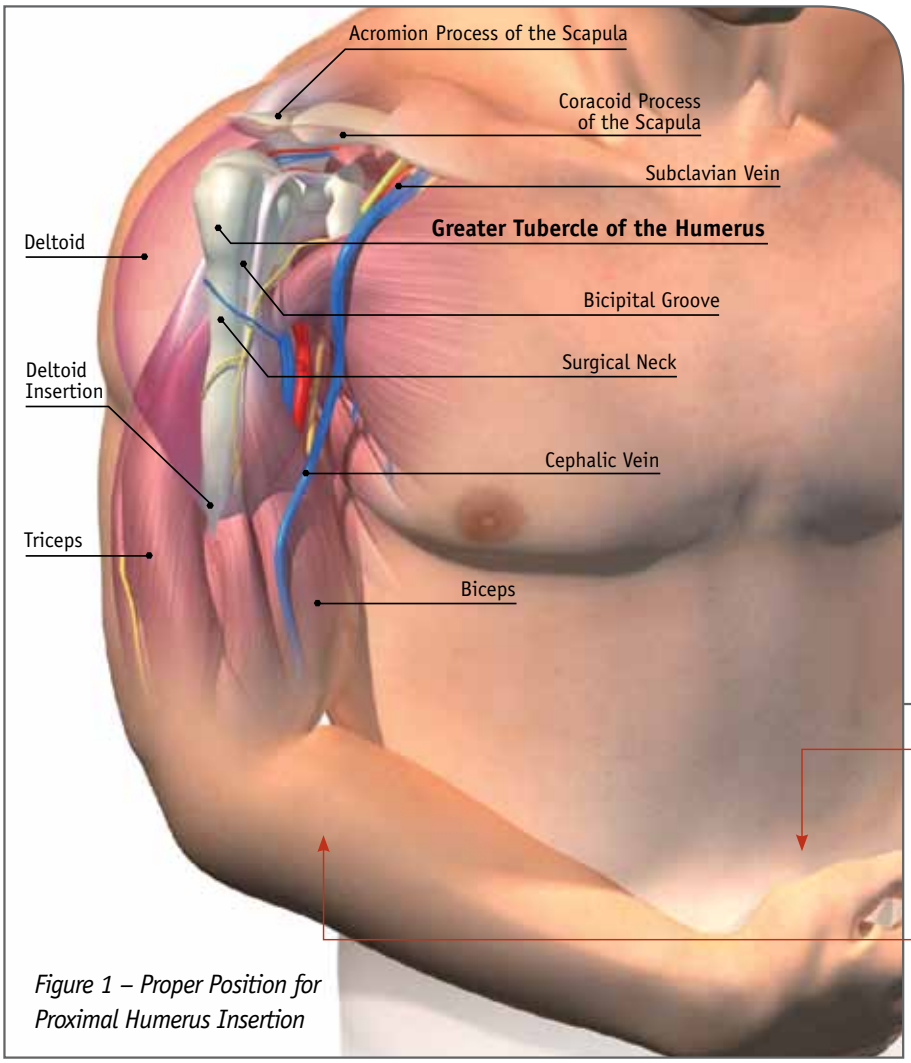


Figure 1 – Proper Position for Proximal Humerus Insertion

The proximal humerus – a relatively new option for intraosseous access – provides additional benefits over the more commonly used tibial locations.†

The close proximity of the greater tubercle of the humerus to the heart ensures rapid infusion of medications into the central circulation.[i] Moreover, at least one human study suggests infusion is better tolerated by patients when compared to the tibial sites.[ii]

Despite these benefits, the anatomy of the proximal humerus region often discourages its use by clinicians. By becoming familiar with the anatomical structures, clinicians can simplify the site identification process and feel more comfortable accessing the site.

NOTE FOR SPECIAL PROCEDURES:

For situations in which the patient's hand cannot be placed over the umbilicus, such as during a surgical procedure, the clinician should ensure the humerus is fully rotated internally. This movement rotates most of the anterior structures of the region toward the axilla and shifts the greater tubercle of the humerus to a more anterior position. Adduction of the arm increases prominence of the humeral head in relation to the surface anatomy.

† This information is provided for illustrative purposes only and does not purport to be medical advice or treatment. The individual clinician is responsible for determining the proper intraosseous procedures, site(s) and technique(s) used with this device.

REFERENCES

i Hoskins S, Kramer G, Stephens C, Zachariah B. Efficacy of epinephrine delivery via the intraosseous humeral head route during CPR. *Circulation*. 2006;114:II_1204.

ii Philbeck TE (Vidacare Corporation, Shavano Park, TX, USA), Miller LJ, Montez D, Powell T. Consecutive volunteer studies of pain management and fluid administration measurement during intraosseous infusion. Poster session presented at: 2010 Scientific Assembly of the American College of Emergency Physicians; 2009 October 5-8; Boston, MA.

Humerus Site Identification (Continued)

Steps to Properly Identify the Insertion Site (Figure 2):

Identify the humerus ❶

The humerus is most easily palpated at the insertion point for the deltoid muscle, between the biceps and triceps muscles. This point is approximately mid-way along the length of the arm (see illustration). Palpation of the bone requires firm pressure due to overlying structures.

Locate surgical neck of the humerus ❷

The surgical neck can be located by palpating up the length of the humerus until the clinician feels a "notch" or "groove."

Identify insertion site ❸

The appropriate insertion site is approximately 1 cm above the surgical neck for most adults.

Insertion and Removal of Device

The insertion and removal procedure for the proximal humerus is identical as for other approved sites.

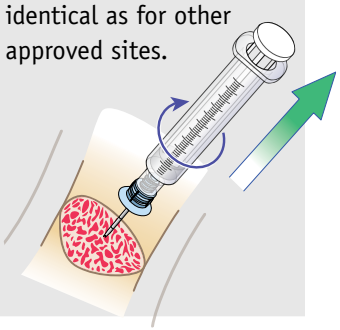
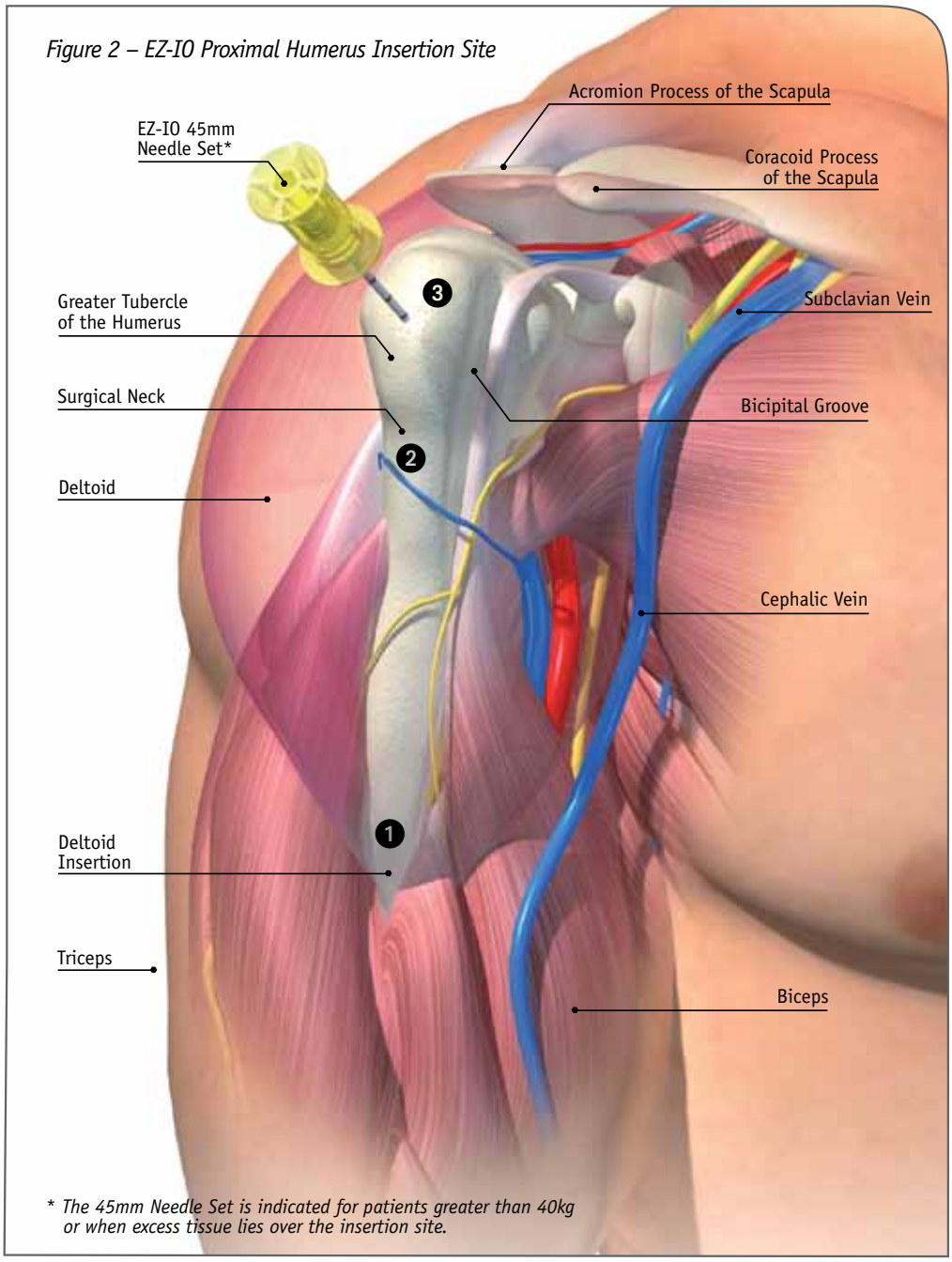


Figure 2 – EZ-IO Proximal Humerus Insertion Site



* *The 45mm Needle Set is indicated for patients greater than 40kg or when excess tissue lies over the insertion site.*

NOTE ON STABILIZATION: *Movement of the arm above the plane of the shoulder can result in needle dislodgement from impingement of the needle set on the acromion process of the scapula. Following insertion of a humeral IO device, the patient's arm should be immobilized to prevent movement above the level of the shoulders. In most cases restraint in the adducted position is preferred. The IO device itself should also be secured to prevent accidental dislodgement (the EZ-Stabilizer is designed for this purpose).*