

Extrathoracic Subclavian Vein Puncture Without Contrast Venography for Pacemaker and Defibrillator Leads Implantation

Dante Antonelli, Aleksander Feldman, Nahum Adam Freedberg, Yoav Turgeman
Cardiology, Ha Hemek Medical Center, Israel

Background:

Extrathoracic Subclavian Vein Puncture has been demonstrated to be an effective method for pacemaker and defibrillator leads implantation, without the complications encountered with the standard intra-thoracic approach.

Objective:

Different techniques have been adopted for the cannulation of the extra-thoracic subclavian vein. We report our experience using as fluoroscopic land mark the outer edge of the 1st rib below the inferior border of the clavicle.

Method:

A subcutaneous pocket is created 1 cm medially and parallel to the delto-pectoral groove and 2 cm below the clavicle. A 18 gauge needle from the upper border of the pocket is directed perpendicularly to the outer edge of the 1st rib just below the inferior border of the clavicle. If the vein is not entered the needle is withdrawn and the puncture is repeated with slight variation of needle direction for a maximum of 4-5 times, then contrast guided vein puncture is performed. Upon successful vein puncture a guide wire is inserted and positioned in the superior vena cava. The remainder of the implantation is carried out in a routine manner.

Results:

The extrathoracic subclavian vein was successfully cannulated in 172 of 182 consecutive patients (94.5%); the vein could not be found in 10 patients (5.5%): in these patients the vein was successfully cannulated after venography performance. No pneumothorax, hemothorax or brachial plexus injury occurred.

Conclusions:

Our approach of extrathoracic subclavian venipuncture using fluoroscopic landmark, without contrast venography, is simple, safe and effective.