

Continuously Injection with Diluted Heparin Solution via Catheter for Implantation of Totally Implantable Access Ports (TIAP)

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ABSTRACT

Background: Totally implantable access ports (TIAP) could be done in two methods: puncture of subclavian vein and cephalic vein cutdown. Cephalic vein cutdown method has fewer complications but has higher failure rates. We present a method to decrease the failure rates. **Methods:** We use the continuously injection with diluted heparin solution via catheter while introducing the TIAP catheter into the cephalic vein. **Results:** From January 2005 to January 2009, 20 patients were performed. This method was successfully applied in 11 patients with no complications. The other 9 patients were unsuccessfully and further underwent guidewire assisted. **Conclusions:** Continuously injection with diluted heparin solution via catheter while inserting TIAP catheter into the cephalic vein is safe and simple. It could be used for difficulties of insertion of TIAP and increased the successful rates of cephalic vein cut-down method.

Keywords: Totally Implantable Access Ports (TIAP); Arrhythmia; Port-A

1. Introduction

Totally implantable access ports (TIAP) are often used for the administration of chemotherapy or parental nutrition. TIAP are usually inserted in the subclavian region, and could be completed by two methods: cutdown and percutaneous [1]. We often use cutdown method via cephalic vein because of fewer complications than percutaneous method. However, the cutdown method is dependent of technique and has higher failure rates with range of 6% - 30% [2]. In the past, we used the guidewire assisted method to deal with the difficulty. Recently, we attempt a new technique of cutdown method of TIAP to increase the successful rate.

2. Patients and Methods

The method is similar to cutdown method of TIAP. Patient was put in supine position and underwent intravenous sedation. A 2 cm incision of infra-clavicular region was made. Identify the cephalic vein, the distal end was ligated and the proximal end was lift. Then introduce the TIAP catheter after a tiny hole over cephalic vein was made.

Once resistance was found while inserting the TIAP catheter, the assistant would take a syringe of diluted

heparin solution (5000 u in 500 mL normal saline) and continuously injection via catheter while insertion (**Figure 1**).

From January 2005 to January 2009, this method was applied in 20 patients; successfully applied in 11 patients with no complications, but unsuccessfully in 9 patients. These 9 patients were further underwent guidewire assisted.

3. Discussion

Although cutdown method via cephalic vein has fewer complications than percutaneous method, this method has limitation and higher failure rate. The causes of failure may include absence of the cephalic vein, the vein is too small or too difficult for insertion of catheter [2-5].

Several years ago, we used the guidewire assisted method to deal with this difficulty [5]. Recently, we attempt an easier technique of cutdown method of TIAP to increase the successful rate. This method is maybe more safe than guidewire assisted method. Because using guidewire may have the risk of vascular wall injury [5].

Continuously injection with diluted heparin solution via catheter may dilate the strict or small cephalic vein and let the catheter pass through easier. The diluted heparin solution would make the vascular wall "smooth"

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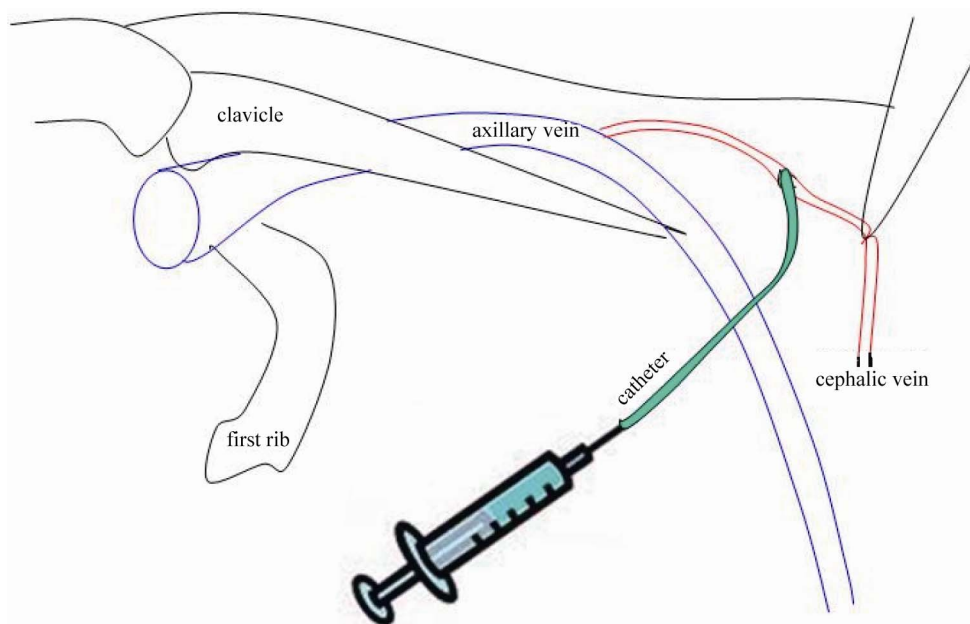


Figure 1. Identify the cephalic vein, then traction of distal part of vein. Make a hole in the proximal part and preparing introducing the catheter. The assistant take a syringe of diluted heparin solution (5000 u in 500 mL normal saline) and continuously injection via catheter while insertion of catheter.

and further prevent from blood clots formation in the lumen of vessel or catheter.

In conclusion, TIAP with cephalic vein cutdown is a safe method but has higher failure rates. We provide an easier method to deal with difficulty insertion of TIAP catheter. When difficulty insertion of TIAP catheter via cephalic vein happened, you can try continuously injection with diluted heparin solution via catheter while inserting the TIAP catheter. If it didn't work, you can further try guidewire assisted.

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