

Girişimsel Venöz İşlemlerde Radyoloji Kılavuzluğunun Önemi: Tüm Uzunluğuyla Port Kateteri İçeren Beklenmedik Bir Malpozisyon Vakası

The Importance of Radiology in Interventional Venous Procedures: An Unexpected Malposition Including Full-Length of Port Catheter
Radyoloji

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Özet

Port kateterler özellikle onkolojik hasta grubunda aralıklı, uzun vadeli santral yol ihtiyacını karşılamak için uzun süredir kullanılmaktadır. Radyolojik görüntüleme eşliğinde takılması son zamanlarda tercih edilmeye başlanmıştır. Cerrahi yöntemle, SV yoluyla, 5 ay önce venöz port kateter takılma öyküsü olan 59 yaşında erkek hasta, boyunda şişlik yakınmasıyla polikliniğe başvurmuş. Yapılan yüzeysel ultrasonda sağ internal juguler veni dolduran tübüler yapılar izlenmiş, çekilen ön-arka ve servikal grafide kateterin tüm uzunluğu boyunca sağ internal juguler ven lümeninde defalarca dönerek, orbita inferior düzeyine kadar yükseldiği gözlenmişti. Girişimsel radyoloji ünitesinde kateterin ucu serbestleştirilemediği için hasta kardiyovasküler cerrahi tarafından operasyona alınarak port çıkartıldı. Bu vaka 60 cm. uzunluğundaki port kateterin hiç kısaltılmaksızın ve yeri kontrol edilmeksizin takılması nedeniyle beklenmeyen bir komplikasyon örneğidir. Port kateterlerin US ve floroskopi eşliğinde takılması bu komplikasyonların sıklığını azaltacaktır.

Anahtar kelimeler: venöz port, internal jugular ven malpozisyon

Abstract

Port catheters are widely utilized for long-term intermittent vascular access, especially in oncology patients. Recently imaging guided port catheter insertion has gained interest, and seems to be most preferable method. A 59 year-old male patient with the complaint of swelling in the neck was referred to our clinic. The patient had a history of port catheter placement by landmark method 5 months ago. Superficial ultrasonography revealed tubular structures within right internal jugular vein, antero-posterior and cervical X-rays demonstrated full-length venous catheter that circled many times in the venous lumen and ascended up to orbital level. Port catheter could not be freed within our interventional radiology unit therefore, the patient underwent surgery in order to remove port catheter. This patient is an interesting example of an unexpected complication, demonstrating malposition of 60 cm full-length port catheter. Ultrasonography and fluoroscopy guided port catheter placement would decrease these complications.

Keywords: venous ports, internal jugular vein malposition

Introduction

Port catheters entered medicine to facilitate vascular access in 1980s. Since venous port catheters have lower risk of infection, increased durability and patient comfort than tunneled venous catheters, they are increasingly preferred. Even though port catheter placement was performed surgically for a long time, recently radiology assisted placement has also gained attention¹. Utilization of imaging guidance during port catheter placement decreases complications and shortens duration and success of the procedure^{2,3}. Moreover, fluoroscopy helps to assure correct positioning of the catheter tip. We, hereby report an interesting patient demonstrating malposition who underwent surgical port insertion without imaging guidance and shortening of the catheter tip that ascended up to orbital level in internal jugular vein lumen.

Case Report

A 59-year old male patient with the diagnosis of rectal carcinoma was referred to our clinic because of pain and swelling in the right side of the neck. He had a history of port catheter placement surgically using right internal jugular vein due to planned chemotherapy, 5 months ago. Superficial ultrasonography (US) revealed tubular structures that filled and expanded right internal jugular vein (IJV). Postero-anterior cranial and cervical X-rays demonstrated full-length venous port catheter twisting within IJV with the catheter tip in inferior orbital level (Figure 1).



Figure 1

Full-length post catheter within right internal jugular vein

The patient was admitted to our interventional radiology unit in order to remove port catheter. Following local anesthesia and sterile draping, the port area was incised. Upon mobilization of port body, catheter was pulled applying mild pressure. However, only the initial 10-15 cm of catheter could be freed. Keeping the risk of vascular injury and catheter embolism in mind, we avoided higher tension. Afterwards, the patient was referred to cardiovascular surgery where the port catheter was removed under general anesthesia.

Since the patient still required long-term central access for chemotherapy, he was referred to our clinic for venous port catheter placement from the opposite site. A venous port catheter was placed successfully under local anesthesia, using US and fluoroscopy guidance via left internal jugular vein in our interventional radiology unit. During 4-months follow-up the patient remained asymptomatic without complications.

Discussion

Venous port catheters are currently placed by both surgeons and radiologists. The technique of surgical and radiological intervention is similar. Puncture is based on anatomical landmarks in the surgical technique; catheter position is assessed using chest X-ray after insertion. The radiologic method utilizes US and fluoroscopy; puncture is performed with visual assessment. Moreover, the orientation and exact localization of catheter tip may be evaluated in interventional radiology unit using fluoroscopy. Ideal positioning of the catheter tip may not be possible without fluoroscopy⁴. Imaging guidance increases success and significantly decreases procedure duration and complications like pneumothorax, hemothorax, artery puncture, nerve damage, arrhythmia and catheter malposition^{2,3,5}.

Common routes of port insertion are internal jugular and subclavian veins. Right IJV is most commonly utilized

due to straight course, higher rates of success and lower risk of thrombosis⁶. Assessment of right IJV just prior to port insertion increases the likelihood of successful puncture and decreases complications⁷.

Malposition is one of the most common complications after catheter placement. Catheter tip may lie in IJV, contralateral jugular, axillary, or azygos vein. If the catheter is too long, the tip may coil in right atrium or inferior vena cava. Usually, fluoroscopic guidance prevents this complication. Even if catheter is placed at bedside catheter tip must be checked by chest X-ray³. Malposition increases the risk of thrombosis and perforation. Therefore, an incorrect tip position must be amended as soon as possible. Besides simply exchanging the malpositioned catheter, there are interventional methods which may facilitate correct catheter positioning⁸.

Here, we reported an interesting malposition case including full-length of port catheter without any shortening. To our knowledge, there is not any case like ours in current medical literature. Utilization of radiologic guidance and placement of port catheters in interventional radiology unit may decrease these complications.

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