

PICC broke into body and taken out by snare: case report and literature review.

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Abstract

The catheter breaking into the body is a rare complication. In this report, we described one case in which the Peripherally Inserted Central Catheter (PICC) broke and fell into the body, and then removed by a snare. A 32 year old female suffering from cervical cancer was enrolled in this study. She was catheterized with 4 Fr PICC in the left median vein on April 21, 2014. She fell on the ground by external force at 10:00, June 21, 2014, and felt that the PICC in her left arm moved. She was emergently hospitalized at 16:04, June 21, 2014. Digital subtraction angiography showed that, the PICC fell off and entered the central vein, while its end did not reach the right pulmonary artery. The right femoral vein was punctured and 8F sheath was placed, through which the single bent adapter and guide wire were ascended. The PICC was caught, and then was pulled out of the pulmonary artery, letting its end located inside the right ventricle. EV3 Goose-Neck snare was used to trap the end of PICC. The PICC was slowly dragged out of the sheath. Finally, the sheath was removed. The patients had no intraoperative and postoperative discomfort. This study indicates that, once the PICC breaks and falls off into the patient body, the appropriate medical means should be performed timely to remove the catheter promptly. Meanwhile, the health education should be performed towards the patient.

Keywords: Peripherally inserted central catheter, Breaking, Remove, Snare.

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Introduction

The peripherally inserted central catheter (PICC) is one central catheter that is punctured through the peripheral veins (basilic vein, median cubital vein, cephalic vein, etc.). The catheter tip is located in the superior vena cava or subclavian vein, and the indwelling period of PICC is usually recommended as one year [1-3]. This can alleviate the suffering of patients with long-term infusion, but may result in the occurrence of complications such as catheter breaking [4]. The catheter breaking into the body is a rare complication [1,2]. We reported one case in which the PICC broke and fell into the body, and then removed by a snare. This study was approved by the ethics committee of Hunan Cancer Hospital.

Case Report

A 32 year old female (kindergarten teacher, married, case number 287831) was enrolled in this study. The patient suffered from cervical cancer (moderately differentiated phase IIA2 cervical squamous cell carcinoma) for more than 3 months. She was catheterized with 4Fr PICC (Bard Medical Devices (Beijing) Co., Ltd., Beijing, China) in the left median vein on April 21, 2014. She fell on the ground by external

force when waking on road at 10:00, June 21, 2014. At that time she felt the PICC in her left arm moved.

The patient was emergently hospitalized at 16:04, June 21, 2014. Physical examination results were as follows: body temperature, 36°C; average heart rate, 80 beats/min; blood pressure, 116/67 mmHg; no swelled lymph node was touched in bilateral supraclavicle and inguen; no superficial lymph node was touch in other places. The examination revealed that, the PICC fell off the connector. The X-ray examination was immediately performed to understand the catheter position. It showed that, the PICC moved along the right atrium and the right ventricle, with its tip reaching to the upper right pulmonary area, approximately equalled to the lower level of spinal right 6th rib. The interventional radiology doctor was consulted. It was recommended that, one snare should be applied to take out of the PICC. The patient was informed with the situations, and the informed consent was signed, then the intervention was performed to remove the catheter.

At 17:30, June 21, 2014, the patient was sent into the intervention operation room. After routinely disinfecting, paving towels, the local anaesthesia was performed at the skin and subcutaneous sites 1 cm under the right inguinal ligament.

The digital subtraction angiography showed that, the PICC fell off and entered the central vein, while its end did not reach the right pulmonary artery. The right femoral vein was then punctured and 8F sheath was placed, through which the single bent adapter and guide wire were ascended into the right ventricle. The PICC was caught, and then was pulled out of the pulmonary artery, letting its end located inside the right ventricle. EV3 Goose-Neck snare (Shanghai CIIC Medical Instrument Co., Ltd., Shanghai, China) was used to trap the end of PICC. The PICC was slowly dragged out of the right femoral vein sheath. The integrity of PICC was checked, and the re-counting film showed that the chest and abdomen had no foreign bodies. The right femoral vein sheath was removed, and the wound was then pressure-bandaged. The surgery was completed at 20:30, June 21, 2014. The patients had no intraoperative and postoperative discomfort. She was safely sent back to her ward, and asked to stay in bed for 8 h before removing the bandage. The patient exhibited no local bleeding tendency as bruise or others. She was discharged on June 26, 2014 and left the hospital all by herself.

Discussion

PICC fracture is a rare complication of PICC catheterization. It usually occurs in conditions such as the external force damages the catheter, the adhesive tape pastes the catheter and leads to the catheter ruptured, or the sharp instrument damages the catheter [1,4,5]. Therefore, in order to prevent the occurrence of PICC breaking, the patient should be instructed to avoid using the catheterized arm to do heavy manual labors, avoid the violent injuries, and avoid the catheter damaged by sharp instrument [5,6].

In this study, the PICC breaks and falls off into the patient body when the patient falls down, so the falling-caused external force may break the catheter. It may also be possible that, the catheter is broken during the maintenance, in which the catheter outside the body has no S-bend. When the patient falls, the catheter has no buffering, so it is broken by the direct impact. Therefore, the health education should be well performed for patients with PICC. The catheterized-side arm should avoid heavy lifting and heavy impacts, and the PICC maintenance training should be performed for nursing [1].

Once the catheter breaks, the patient should be comforted firstly, and informed with the methods of removing the catheter. So the tension and anxiety of patient can be avoided.

Meanwhile, the vascular channel technology is a multidisciplinary project, which needs the joint cooperation of medicine, nursing, radiology and other personnel. In this study, the case is also under the joint collaboration of medicine, nursing and interventional radiology, so the fallen catheter was removed promptly.

In conclusion, once the PICC breaks and falls off into the patient body, the appropriate medical means should be performed timely to remove the catheter promptly. Meanwhile, the health education should be performed towards the patient.

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