Valve Dysfunction of Injection Port Causing the Leaking Intravenous Cannula

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ABSTRACT

We report a situation of leaking peripheral intravenous cannula (PIVC) due to dysfunction of the injection port valve. After shifting the patient to the operating room, anesthesia monitors were attached. The patient was having a 20-G peripheral intravenous cannula (Vygonule V, Vygon Haryana India Pvt. Ltd.) *in situ* over the dorsum of the right hand. We noticed that fluid is coming out freely through the injection port (Fig. 1). The PIVC was removed and the puncture site was properly dressed. Another PIVC was secured over the dorsum of the left hand. However, we did not have a suitable guidewire to replace it and had to place it afresh. Also, using such a set to replace the PIVC would involve significant costs which might be more than the cost of the cannula. The quality control unit of the manufacturing company should be notified of such an incident as was done in our case.

Keywords: Guidewire, Hypovolemic shock, Peripheral intravenous cannula.

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We report a situation of leaking peripheral intravenous cannula (PIVC) due to dysfunction of the injection port valve. After shifting the patient to the operating room, anesthesia monitors were attached. The patient was having a 20-G peripheral intravenous cannula (Vygonule V, Vygon Haryana India Pvt. Ltd.) *in situ* over the dorsum of the right hand. An intravenous (IV) set with Ringer's lactate was then attached and the roller flow controller was opened. As fluid was not going through the IV set, the cannula was flushed with 2 mL of normal saline through the injection port. We noticed that fluid is coming out freely through the injection port (Fig. 1). The PIVC was removed and the puncture site was properly dressed. Another PIVC was secured over the dorsum of the left hand. Up to 40% of peripheral PIVCs may be complicated by kinking, blockage, dislodgement, or infection.¹ However, the leaking injection port of a PIVC is an infrequent complication necessitating its replacement.

Fig. 1: Leaking intravenous cannula through an injection port

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Cannula failure and its replacement is often time-consuming and painful, especially in patients with difficult access and younger age.

Very few cases of leaking PIVC are reported due to the dysfunction of injection port valves in the literature.² Many a time securing a PIVC can often be difficult and time-consuming and if not inserted promptly may result in hypovolemia. The cause of the leaking PIVC in our case was presumably due to damage of the one-way valve present inside the injection port during the flushing of the IV cannula. Repeated withdrawal and reinsertion of the needle inside the cannula may damage the valve (elastomeric sleeve) and is not recommended by the manufacturer.³ Another option for the management of this complication can be the replacement of the leaking PIVC over a guidewire, especially in difficult situations. A report of an 18-month-old Holt–Oram syndrome child described the use of a 23-G arterial catheter (LeaderCath®) guidewire to exchange a leaking PIVC with a fresh one.⁴ In that case, the cannula was leaking at the junction of the shaft with the hub. However, we did not have a suitable guidewire to replace it and had to place

it afresh. Also, using such a set to replace the PIVC would involve significant costs which might be more than the cost of the cannula. The quality control unit of the manufacturing company should be notified of such an incident as was done in our case.

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