

## A Blocked Urinary Catheter on Day 2 of its Placement Found by Ultrasound Causing Overtreatment in Patient of ICU

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### Introduction

Urinary catheter blockage is a common occurrence in ICU patients as is acute kidney disease causing low urine output. It is advised to change the urinary catheter every 2 weeks, but sometimes the catheter might get blocked in a few days of its placement and if not suspected may be thought of as an episode of reduced urine output and the patient might be over treated increasing the unnecessary cost burden on patient.

### Case Report

A 45 year old, female was admitted to ICU for post-operative monitoring following VATS for oesophageal carcinoma. Her weight was 65 Kg and she had no history of any co morbidity. She had an epidural inserted for pain relief. Surgery lasted around 6 h and was uneventful with intraoperative blood loss of approximately 500 ml and urine output of 500 ml. Keeping in mind the duration of surgery and since it was a thoracic procedure, she was shifted to ICU with endotracheal tube in situ for elective ventilation and extubation. She was extubated without any complication after 12 h of elective ventilation. During these 12 h her urine output had reduced to 200 ml for 12 h. Her Foley's catheter was flushed with normal saline to rule out any blockage. Reduced urine output was indicative of the possibility of acute kidney injury. Her central venous pressure was measured and was found to be 5 cm of water. She was then given 0.5 L of fluid challenge. During next 6 h urine output of the patient had further reduced to 50 ml. Her CVP had also increased to 10. Her foleys were flushed again but was of no benefit. Her intravenous fluids were stopped to avoid any volume overload and ultrasound of kidneys was advised to see for any renal changes. During ultrasound, kidneys were normal but her urinary bladder was seen distended with Foleys in situ. It was surprising that with such full bladder this patient was comfortable without any pain in abdomen or any urge to urinate. Immediately catheter was changed and 900 ml of clear urine was drained.

Patient remained in ICU for 2 more days and had an uneventful stay. Urinary catheter was working well and draining urine freely and was removed on day 5.

### Discussion

It is rare to see blocked Foley's catheters on 2nd day of its placement, when it was draining freely on day 1, that to when there were no

precipitates in urine in urobag. Generally urinary catheter are blocked by formation of urease producing bacterial colonies which degrade urea into ammonia thus increasing the pH of urine and protecting the bacteria of the acidic action of urine [1,2]. This alkalinity of urine causes precipitation of crystals of calcium and magnesium phosphates in the urine and a crystalline biofilm develops on the catheter [3]. The urease producing bacteria is generally *Proteus mirabilis* which can form a crystalline biofilm in catheter in 18 h [4].

Hence it is important to take care of the catheter and keep a differential of blocked catheter when the urine output reduces irrespective of the day of catheter. Flushing of catheter may not be useful every time to remove any blocking. Since epidural analgesia may cause urinary retention [5,6] and our patient was continuously being given epidural analgesia might be the reason for her not having any urge of full bladder and caused us to falsely over manage the patient for acute kidney injury.

The cause of such reduction in urine output need to be identified quickly and managed accordingly. Urgent ultrasonography should be done to ascertain any changes in renal parenchyma. Blindly assuming such episodes to be acute kidney injury and then depriving the patient of fluids can cause dehydration of the patient and can increase the chances of hypovolemic acute kidney injury. This can cause increase in hospital stay of the patient and increases the cost burden to the patient and society.

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