African Journal of Urology (2015) **21**, 157–159

HOSTED BY

Pan African Urological Surgeons' Association

African Journal of Urology

www.ees.elsevier.com/afju
www.sciencedirect.com

Short communication

Urinary catheterization diary – A useful tool in tracking causes of non-deflating Foley catheter

C.O. Okorie *, N.W. Nwigboji , U.N. Nwaedu , N.N. Ekem

Department of Surgery, Federal Teaching Hospital, Abakaliki, Ebonyi State, Nigeria

Received 6 December 2014; received in revised form 19 December 2014; accepted 23 December 2014

KEYWORDS
Catheterization diary/record;
Non-deflating catheter balloon;
Retained catheter;
Urinary catheter brand name;
Catheter manufacturing defect;
Urinary catheter complications

Abstract

Introduction and objective: Most urinary catheters marketed in developing countries are unidentifiable after unpacking. A catheterization diary which is an important tool for the documentation of catheter use is rarely used in medical facilities in these countries. In this paper we report on the introduction of a catheterization diary after an unusually high incidence of non-deflating catheters – three cases in 1 week, where all the involved catheters were not identifiable at the time of consultation.

Material and methods: In August 2013, we started to keep urinary catheterization records in our outpatient urology clinic and prospectively documented the following information for every patient undergoing catheterization or catheter change: patient-related data, the catheter used, the catheterization procedure, problems encountered/solutions and the follow-up plan. The main aim of this study was to determine the cause/source of this unusually high incidence of non-deflating catheter balloons.

Results: During the study period, 337 catheterizations were performed in 109 patients (both new catheterizations and scheduled catheter changes), using eight different brands of silicone-coated latex Foley catheters manufactured in China: Agary ($n = 21$), Zenith ($n = 68$), Newlife ($n = 39$), U-mec ($n = 92$), LifeCare ($n = 46$), Medihel ($n = 38$), Hospibrand ($n = 27$) and Lifesign ($n = 6$). Non-deflating balloons were encountered in 5 out of 21 catheters of the Agary brand. Discontinuing the use of this type of catheter completely solved the problem of non-deflating catheter balloons. On the other hand, catheter balloons which failed to inflate were found in 8 out of 92 cases using the U-mec brand.

Conclusions: Most urinary catheters marketed in developing countries are unidentifiable after unpacking. A catheterization diary is a useful tool for solving catheter-related problems, and its application in healthcare facilities should be encouraged. Companies marketing Foley catheters should print the catheter name on both the catheter packaging and on the catheter itself.

* Corresponding author.
E-mail addresses: okorieco@mail.ru, okorie@paacs.net (C.O. Okorie).

Peer review under responsibility of Pan African Urological Surgeons' Association.

http://dx.doi.org/10.1016/j.afju.2014.12.004

Introduction

Urinary catheterization is commonly performed in hospitals, with a prevalence of 8–15% in the medical and surgical wards and 57–97% in the intensive care units [1]. Urinary catheters are not harmless and can be associated with a number of complications such as a retained urinary catheter. In general, a retained urinary catheter secondary to an inability to deflate the catheter balloon is a rare catheter-related complication, however it may be a very frustrating experience for both the patient and the physician. Even though it may be difficult to identify the actual cause of a non-deflating Foley catheter balloon, the problem may be attributed to malfunction of the inflation valve, intraluminal obstruction of the channel inflating the balloon or to a primary manufacturing defect [2]. Manufacturing defects in urinary catheters abound and have been reported in the literature [3,4]. When a Foley catheter cannot be deflated, the first step in the diagnostic effort to find the cause/source of the non-deflating catheter balloon is to identify the catheter by its brand name. In most developed countries, the brand name of Foley catheters is printed both on the catheter packaging and on the catheter itself so that, after unpacking, the type and brand of the catheter can still be identified. This does not apply to the vast majority of Foley catheters marketed in developing countries, leading to the fact that the catheter is no longer identifiable once it has been unpacked and, thus, cannot be linked to any manufacturing company. In the worst case, it may occur that no brand name or manufacturer-related information is shown at all, neither on the catheter, nor on the package.

An important practice that helps tracking urinary catheter-related complications/problems is that of keeping a catheterization record or diary for the documentation of urinary catheter usage [5–7]. There is no standard format for a urinary catheterization diary, but the information documented should, among others, include those pertaining to the patient, the catheter being used, the catheterization procedure, problems encountered and their solutions and the follow-up plan. However, catheterization diaries are rarely used in medical facilities in most developing countries. In this paper we report on the introduction of a catheterization diary in our urology practice with the aim of identifying the source of an unusually high incidence of non-deflating Foley catheters – three cases in one week, where all the involved catheters were not identifiable at the time of consultation.

Table 1 Urinary catheterization record.

SECTION A: PATIENT'S DATA
Name:
FETHA* Folder Number:
Age:
Sex:
Consent obtained: []Yes Any Latex allergy []Yes [] No

SECTION B: CATHETER DATA
Catheter brand name:
Catheter material:
Catheter batch/lot number and NAFDAC number*
Catheter manufacturer:
Catheter size:
Expiry date:

SECTION C: PROCEDURE
Indication for catheterization:
Site of catheterization: [] suprapubic [] urethral
Date of catheterization/removal:
Sterile water used for balloon inflation: [] Yes
Water-based lubricating gel used: [] Yes
Not more than 10 ml balloon inflation volume: [] Yes if no explain---------
Recommended date of catheter removal/change:
Volume of urine drained on catheterization:
Name and signature of medical personnel:

SECTION D: PROCEDURE-RELATED PROBLEMS
Problem encountered during catheterization or catheter change: For example - []None []
retained catheter [] Non-deflating catheter balloon

SECTION E: METHOD OF RESOLUTION OF PROCEDURE-RELATED PROBLEMS
Please document what was done to resolve the encountered problem during catheterization/catheter change:
FETHA* Federal Teaching Hospital Abakaliki
NAFDAC* National Agency for Food and Drug Administration and Control of Nigeria

Subjects and methods

In August 2013, we started to keep urinary catheterization records in our outpatient urology clinic and prospectively documented the following information for every patient undergoing catheterization or catheter change over a 7-month period: patient-related data, the catheter used, the problems encountered during the catheterization procedure and the solutions offered, the duration of catheterization (which may be up to one week before initial 'trial without catheter' or 2–3 weeks for those needing longer catheterization before definitive treatment), the date of catheter removal or catheter change (Table 1). The main aim of this study was to determine the cause/source of an unusually high incidence of non-deflating catheter balloons. The approval of the Ethic Committee was obtained.

Results

During the study period, 337 catheterizations were performed in 109 patients (both new catheterizations and scheduled catheter changes), using 8 different brands of silicone-coated latex Foley catheters manufactured in China: Agary ($n=21$), Zenith ($n=68$), Newlife ($n=39$), U-mec ($n=92$), LifeCare ($n=46$), Medihel ($n=38$), Hospibrand ($n=27$) and Lifesign ($n=6$).

Non-deflating balloons were encountered in 5 out of 21 catheters of the Agary brand. In two of these cases the problem occurred within 24 hours from the time of catheterization. It was detected during an attempt to remove the catheters for poor drainage. For the eventual deflation of the balloons, cutting the balloon port proximal to the inflation valve was successful in two patients, while it failed in the remaining three patients. However, passage of a stylet through the inflation channel proved successful in one of them and injection of mineral oil into the inflation channel in another. The last patient underwent trans-abdominal ultrasound-guided puncture of the balloon.

Discontinuing the use of this type of catheter completely solved the problem of non-deflating catheter balloons over the study period.

On the other hand, catheter balloons which failed to inflate were found in 8 out of 92 cases using the U-mec brand.

It is noteworthy that none of these various brands of Foley catheters showed the brand name or any other unique feature specific to the manufacturer on the catheter itself.

Discussion

The main aim of this study was to trace the source of an unusually high incidence of retained Foley catheters secondary to non-deflating catheter balloons. At the time of the patients' consultation, none of the catheters was identifiable by its brand name. Introducing a documentation of urinary catheter usage in our practice helped identify the source of the problem.

Keeping a urinary catheterization record/diary is recommended each time catheterization is performed [5–7], but unfortunately this is not widely practiced in health facilities in developing countries. Our study confirms the importance of keeping a urinary catheterization record as a useful tool for tracking and solving catheter-related problems. As such, it should be introduced in all health care facilities.

The documentation of problems will help catheter manufacturers to track the efficacy of their products in the market and to provide further quality improvement. However, to facilitate tracing back a catheter to its manufacturer and to enable communication between the user and the manufacturer with regard to certain catheter-related problems, it is important that the catheter brand name be printed not only on the catheter packaging but also on a part of the catheter itself, so that after usage such a catheter is still identifiable. This will also prove useful in cases where no catheterization record was kept or where it is unavailable. Furthermore, a catheter not showing any manufacturer's name, neither on the catheter itself, nor on the packaging, should be rejected.

There are several ways of removing a retained Foley catheter secondary to a non-deflating Foley catheter balloon [8–11]. The general recommendation is to start from noninvasive methods and progress to more invasive methods [12]. Using this progressive approach, we were able to remove all the retained catheters encountered in this study, achieving a good outcome.

We are aware of the fact that this paper is limited by the lack of a comprehensive data collection on other catheterization-related problems, but the primary objective of this study was to identify the source of an unusually high incidence of non-deflating catheter balloons encountered in our hospital. However, we have updated our catheterization record format.

Conclusions

While generally rare in most developed countries, failure to deflate the balloon of a Foley catheter is more frequent in many developing countries and can be a very frustrating experience for both the patient and the health-care provider. Keeping a urinary catheterization diary is a useful tool for tracing and solving such catheter-related problems. It should therefore be encouraged in health care facilities where it is not yet being done. Urinary catheter brand names should be printed on both the catheter packaging and on the catheter itself. Documented catheter-related problems will help catheter manufacturers to trace the efficacy of their products on the market and to provide quality improvement.

Conflict of interest

None declared.

References

[1] van de Broek PJ, Wille JC, van Bentham BHB, Perenboom RJM, van den Akker-van Marle ME, Niel-Weise BS. Urethral catheters: can we reduce use? Biomed Cent Urol 2011;11:10.
[2] Huang YM, Fu YT, Liu HY, HU P. Undeflatable Foley catheter balloon; caused by a jelly plug? J Urol Repub China 2000;11:105–7.
[3] Bergman B, Sprung J. Unusual cause of intraoperative urinary retention. Anesthesiology 2003;98(4):1030–1.
[4] Gupta B, Kaur M, Singh P, Farooque K, Ramchandani S, Sinha C. Intraoperative anuria: an unusual cause. Saudi J Anesth 2011;5(4):443–4.
[5] Belfield PW. Urinary catheters. Br Med J 1988;296(19):836–7.
[6] Simpson L. Indwelling urethral catheters. Nurs Stand 2001;15(46):47–53.
[7] Doherty W. Male urinary catheterisation. Nurs Stand 2006;20(35):57–63.
[8] Kleeman FJ. Technique for removal of Foley catheter when balloon does not deflate. Urology 1983;21(4):416.
[9] Vandendris M. How to deflate refractory balloon of a bladder catheter. Urology 1985;26(3):300.
[10] Murphy GF, Wood Jr DP. The use of mineral oil to manage the nondeflating Foley catheter. J Urol 1993;149:89–90.
[11] Naunton-Morgan TC, Barrett NK, Boultbeee JE. Simple procedure for the removal of a nondeflating balloon bladder catheter: two cases. Br J Radiol 1986;59:1043–4.
[12] Shapiro AJ, Sodedahl DW, Stack RS, North Jr JH. Managing the nondeflating urethral catheter. J Am Board Fam Pract 2000;13(2):116–9.