

CLINICAL PERSPECTIVE

Iatrogenic hypospadias: a penile mucosal pressure injury

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Abstract

Iatrogenic hypospadias is a common cause of iatrogenic complications in the elderly male patient with a long-term urethral catheter (IDC) device; however, there is limited research to support its prevalence. This complication is not widely recognised or documented, and the risk is not discussed with the family or patient prior to IDC insertion. There is also minimal research and evidence on the prevention of iatrogenic hypospadias, therefore further research will benefit the nursing care of these patients.

Keywords iatrogenic hypospadias, urethral catheter injury, urethral catheter injury, penile mucosal pressure injury, penile pressure injury

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Introduction

International consensus on the staging of pressure injuries has been in place for many decades. However, it was only in 2016 that the US National Pressure Ulcer Advisory Panel (NPUAP) updated its definition of mucosal pressure injuries and noted that they could not be staged using the same classification system as skin due to the different histological characteristics of mucosal tissue¹. Mucosal pressure injuries are essentially caused by pressure from medical devices.

While there is a significant amount of literature on pressure injury recognition, prevention and treatment research, there is limited research on medical device pressure-related injuries (MDPRIs), and even less on medical devices specifically causing mucosal injury. MDPRIs have been repeatedly recognised as “underreported and underestimated”¹⁻⁹, despite having a high prevalence and incidence. Within the body of research that has been undertaken, it is well recognised that the very young and the elderly are the most susceptible to MDPRIs^{1,3,4,8,10,11}. Additionally, those who are sedated or confused are recognised at higher risk⁴.

By far the majority of research into MDPRIs and specifically mucosal pressure injuries has been undertaken in the acute inpatient situation, primarily in intensive care units. In adults,

this research has identified endotracheal tubes, nasogastric tubes, oxygen tubing, and oxygen delivery face masks as the most common causes of MDPRIs^{4,6,7,12}.

While urethral catheters are identified as causing MDPRIs, the incidence has not been considered high. Research focused on complications associated with the use of urethral catheters has been primarily targeted at catheter-associated urinary tract infection (CAUTI) and increased bladder and urethral pain. Penile mucosal pressure injuries in spinal injury patients with long-term urethral catheters have been reported from time to time¹³⁻¹⁵. There has been a very small number of cases reported of elderly men living in residential aged care facilities (RACFs) having mucosal pressure injuries as a result of their long-term urethral catheters^{9,13}. Again, the incidence of this has been considered “rare”^{8,13,16}.

Methods

The Comprehensive Aged Residents Emergency – Partners in Assessment, Care & Treatment (CAREPACT) mobile emergency team (MET) operates in the Metro South Health area which encompasses southern Brisbane, Bayside and Logan areas. The team can be mobilised to attend any of the RACFs within Metro South, currently numbering 93, with the aim of assessing and delivering an emergency department

level of care at the right time in the right place to residents. The team is frequently requested to troubleshoot or replace urethral catheters for residents in order to prevent transfer to an emergency department for such procedures and predominantly review residents with more complex issues in relation to their catheter. The team are therefore in a position to frequently observe and assess urethral mucosal pressure injuries.

Anecdotally, all team members have reported high numbers of penile mucosal pressure injuries in men with long-term urethral catheters. These injuries range from a mucosal pressure injury that is relatively confined to the urethral meatus area through to pressure injuries that have cleaved the entire ventral surface of the penis down to the scrotum. Patients can experience significant pain from this type of injury, are at increased risk of urinary tract infection, and can also experience a significant negative impact on their sexual self-esteem, body image and mental health^{8,9}. This cohort of patients are also at risk of being unable to advocate for themselves with regard to such injuries.

The CAREPACT MET revised their documentation to include the extent of any penile mucosal pressure injury that was evident in any male patients that they were requested to see for urethral catheter troubleshooting or change. The team utilised the iatrogenic hypospadias classification (IHC)¹¹. This internationally recognised classification system outlines four grades of iatrogenic hypospadias as follows (Figure 1):

- Grade 1: cleavage is from the meatus and does not extend beyond the corona glans penis.
- Grade 2: cleavage extends from meatus to the subcoronal shaft area of the penis.
- Grade 3: cleavage is from the urinary meatus to the scrotum.
- Grade 4: meatus is not affected, but pressure necrosis is seen along the penile shaft.

The documentation of the degree of penile injury has allowed auditing on the incidence and grade of penile mucosal pressure injuries in this cohort of patients so as to better

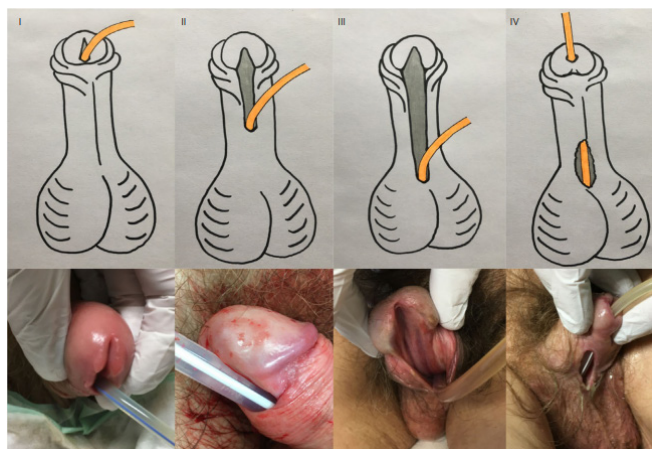


Figure 1. Examples of iatrogenic hypospadias classification

highlight what is believed to be a previously unreported high incidence of occurrence.

Results

An audit of patients seen in a 2-month period was undertaken. A total of 51 male patients with urethral catheters were seen during this period (for either catheter troubleshooting or catheter changes). The patients were spread across 33 different RACFs, with 22 RACFs having residents with penile mucosal injuries. Of the 51 residents who were seen, 30 (58.8%) had some degree of penile injury. These were as follows:

- Grade 1 = 10 patients (19.6% of total patients).
- Grade 2 = 13 patients (25.5% of total patients).
- Grade 3 = 7 patients (13.7% of total patients).
- Grade 4 = 0 patients.

Discussion

These figures would appear to support the hypothesis that such injuries in this cohort of patients are being significantly both under-reported and underestimated. Becker et al¹¹ report that iatrogenic hypospadias is virtually unknown to a high number of medical staff. They outline that urological referral diagnosis has often been one of the following examples: “cleft of penis”, “unknown penile condition”, “broken urethra” or “surgery required – penis looks weird”¹¹. Evidence indicates that nurses also have a less than ideal knowledge of prevention and management of such pressure injuries^{5,14}.

It is also postulated in the literature that since the change of nomenclature by NPUAP to differentiate between the staging of pressure injuries as opposed to mucosal- and device-related pressure injuries there has been confusion around these diagnoses¹. In addition, as most clinicians consider IDCs as low risk procedure, the risk of penile mucosal injury is not usually discussed with the patient or their family.

Conclusions

This initial audit would support what has been anecdotal evidence to date that the incidence of penile mucosal pressure injury is a significant problem in the elderly, catheterised male patient. Given that the spread of patients with penile mucosal pressure injury was across 22 RACFs, this would indicate that the problem is certainly not related to just an isolated facility, but that it is widespread. To begin to understand how this problem is best addressed with preventative measures¹⁷, further research needs to be undertaken to determine the factors that contribute to the development of iatrogenic hypospadias. It is through this determination that preventative measures can be adopted with a body of evidence to support their use.

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Conflict of interest

The authors declare no conflicts of interest.

Ethics statement

An ethics statement is not applicable.

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