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Case Report

Pressure ulcers: An unusual complication of indwelling urethral catheter

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Introduction: Pressure ulcers are common among patients with spinal cord disorders (SCD) and occur due to unrelieved pressure on soft tissues.
Case Reports: Two ladies with paraplegia following acute transverse myelitis developed pressure ulcers over medial aspects of thighs due to indwelling urethral catheter. Absence of sensation, weakness of both legs and lack of knowledge about catheter care contributed to ulcer formation.
Conclusion: Indwelling urethral catheter may unusually result in pressure ulcers over the thighs in patients with SCD. Among health professionals involved in the care of these subjects awareness is essential for preventing this complication.
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Introduction

The annual incidence of pressure ulcers among patients with spinal cord disorders (SCD) is between 23% to 30% and 85% of individuals with SCD develop this complication during their lifetime.[1] These ulcers usually occur due to unrelieved pressure on soft tissues between hard surfaces of bed or chair on outer side and bone inside.[2] However, continuous pressure from any source can result in pressure ulcers. This report describes two ladies with acute transverse myelitis (ATM) who acquired pressure ulcers due to improperly positioned indwelling urethral catheters.

Case reports

Case 1
A woman of age 28 years developed paraplegia with retention of urine following ATM. On examination she had flaccid paraplegia with loss of all sensations below 8th thoracic dermatome. The deep tendon reflexes were absent in lower limbs and plantar response was extensor bilaterally. Her upper limbs were normal. Rest of neurological examinations including optic fundi were normal. She had painless complete retention of urine and constipation. She was put on a continuous indwelling urethral catheter on the 3rd day of the illness to relieve retention. On the 5th day she noticed linear ulcers on corresponding areas of medial aspect of thigh extending from genital region to middle one third (Figure 1). On the previous night, her catheter was not properly positioned and was squeezed between her thighs. She denied any past history of neurological and urological problems. She had two linear Stage II pressure ulcers on medial side of both thighs. The ulcers did not show any signs of infection and were confined to the area where urethral catheter was in contact with thighs.

Her urine culture showed *Escheria coli* and *Klebsillea* sensitive to Amikacin and Netilmycin. Swab from pressure ulcers did not show any growth. Blood urea, glucose, serum creatinine, alkaline phosphatase, total proteins and albumin were normal. Cystometry done after control of urinary tract infection showed hyperreflexic detrusor with dysynergia of sphincters. Magnetic resonance imaging revealed hyperintense lesions in T2 weighted images extending from 6th to 8th thoracic spinal segments. Her cerebrospinal fluid examination was normal.

She was treated with intravenous methyl Prednisolone 1 gm per day for 5 days followed by oral Prednisolone 40 mg daily for 2 weeks. Her urinary tract infection was controlled with intravenous Amikacine. Detrusor hyperreflexia was managed with

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Figure 1 Pressure ulcers due to indwelling urethral catheter: Case 1

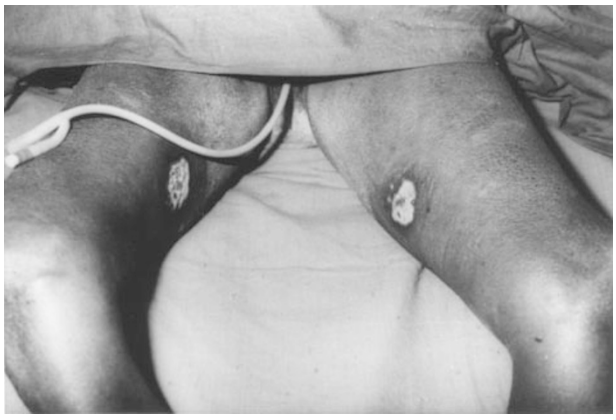

Figure 2 Pressure ulcer with indwelling urethral catheter: Case 2

Propanthaline 15 mg three times a day. Legs were positioned in abduction using a wedge pillow to relieve pressure from the region of ulcers. Continuous urethral catheter was removed and she was put on clean intermittent catheterisation. The pressure ulcers healed in 2 weeks with daily dressing and proper positioning of the limbs. At the time of discharge, on the 60th day of illness she was ambulant with one person's assistance.

Case 2

A 55-year-old lady was admitted with weakness of both lower limbs and urinary retention with overflow incontinence due to ATM. She did not have any past history of neurological or urological problems. Her general physical examination was normal. Neurological examination showed flaccid paraplegia with partial loss of all sensations below 5th thoracic dermatome. Rest of her neurological examinations was normal. She was put on continuous indwelling urethral catheter. On the 22nd day of her illness the catheter was not secured properly to abdominal wall and got displaced in the night. It was trapped between her thighs resulting in two pressure ulcers over the corresponding regions of medial aspects of the thighs. She had two stage II pressure ulcers measuring 5 cm by 4 cm on right side and 4 cm by 3 cm on left side. They did not show any evidence of infection (Figure 2).

Her serum urea, creatinine, sodium, potassium, calcium, phosphorus, alkaline phosphatase, bilirubin, X-rays of the spine, myelogram, ultrasound examination of abdomen and CSF analysis were normal. Urine culture and sensitivity revealed Citrobacter fruendi with significant bacteruria sensitive to Norfloxacin. Culture from the pressure ulcer did not grow any organisms. She received intravenous Dexamethasone 16 mg daily for 2 weeks. The urinary tract infection was treated with oral Norfloxacin 400 mg twice daily for 5 days. Indwelling urethral catheter was removed and she was taught clean intermittent catheterisation. Pressure sores healed with clean saline dressings and proper positioning of legs to avoid pressure. Examination on 63 days after illness showed grade 4 power in all muscle groups of lower limbs. 80 days after onset of ATM, she developed hepatitis and had to be shifted to another hospital for acute care.

Discussion

Patients with SCD are at high risk for pressure ulcers.[3] These ulcers usually occur due to ischemia of soft tissues squeezed between a hard external surface like bed or chair and a bone internally. Hence the common sites for pressure ulcers in this population are skin overlying the sacrum, greater trochanters, ischial tuberosities and heels. However, continuous unrelieved pressure from any source at any site can result in pressure ulcers. Improperly placed splints, catheters, clamps, tubings and bed pans can compress soft tissue resulting in pressure ulcers.[4] The two ladies reported here developed pressure ulcers over medial aspect of thighs due to unremitting pressure from indwelling urethral catheter. Absence of pain, paralysis of legs and improper positioning of the catheter together resulted in these ulcers.

Urinary retention is a common problem during spinal shock and is often managed with continuous indwelling urethral catheter. However, these catheters result in several complications like urinary tract infection, chronic irritation resulting in urethral inflammation and stricture formation, urethral fistula, urolithiasis, squamous metaplasia and carcinoma of bladder.[5] The patients in this report, were put on continuous indwelling catheters for urinary retention during the phase of spinal shock following ATM. The direct pressure from catheter resulted in ulcers on medial aspects of thighs (Figures 1 and 2). This complication could have been prevented by proper

positioning of catheter and early clean intermittent catheterisation.

Conclusion

The aim of this report is to highlight an unusual and potentially preventable complication of indwelling catheter in patients with SCD. An improperly positioned indwelling catheter may result in pressure ulcers over the thighs in patients with SCD. Absence of sensation, weakness of both legs and lack of knowledge about catheter care contributed to formation. Hence it is important to properly position the indwelling urethral catheters in these patients.

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