

Urethral diverticulum due to use of penile clamp

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Abstract: Post prostatectomy urinary incontinence is managed by conservative treatment, implantation of artificial sphincter, drainage or absorbent devices or a penile compression device. However, these devices have paramount hazards of pain, urethral erosion, obstruction, oedema and urethral diverticulum with prolonged use. We report a case of acquired urethral diverticulum which presented as a penoscrotal swelling after long term use of penile clamp.

Keywords: Urethral diverticulum, Post prostatectomy incontinence, penile clamp.

INTRODUCTION:

A Urethral diverticulum (UD) is a saccular dilatation extending from and contiguous with the true urethral lumen. While 67% to 90% of UD's are acquired, up to a third may be congenital [1]. Acquired UD's often result from stricture, infection or trauma [2]. Often UD in a male leads to inadequate drainage and it acts as a nidus for urinary stasis, recurrent UTIs, stone formation, urinary leakage, incontinence or a palpable penoscrotal mass [3]. Urinary incontinence is encountered rarely after prostatectomy. Despite conservative management, patients are left with a choice of implantation of artificial sphincter, drainage or absorbent devices, or a penile compression device. However, in patients who are not fit for surgical procedure or cost is an issue, penile compression devices is as an alternative. Use of these devices has been shown to cause a significant reduction in Incontinence Impact Questionnaire scores in different studies [4]. However; these devices have paramount hazards of pain, urethral erosion, obstruction and oedema, with prolonged use. De-clamping of these devices at a regular interval of 4 hours is advised, [5] to avoid any potential hazards from it prolonged use.

CASE REPORT:

A 60-years-old male presented with complains of painless progressively increasing swelling at penoscrotal region for the last 1 year. He had undergone open prostatectomy four years back in a peripheral hospital and was on a penile compression device since then due to postprostatectomy incontinence. Physical examination revealed a soft, cystic swelling (size 4 cmx5cm), compressible located at the penoscrotal

region (Fig-1). On manual pressing on the swelling urine was found to be coming out per urethra.



Fig 1: A swelling in the penoscrotal region proximal to the penile clamp

Urine culture was sterile. He was normoglycemic. Haematological and renal biochemical parameters were within normal limits. Retrograde urethrogram (Fig-2) and micturating cystogram (Fig-3) suggested a large bulbar urethral diverticulum.

Cystoscopy confirmed the diverticulum with a wide mouth communication with the floor of the proximal bulbar urethra. Under regional anaesthesia the diverticulum was excised on a 16 F catheter and the mouth of the diverticulum closed in a watertight fashion on the catheter. After closure of the diverticulum a urethral sling was placed for continence of the patient. Catheter removed after a pericatheter urethrogram done after 3 weeks which showed no leakage. The patient

was continent. Till six months of follow up the patient is continent with good urinary flow.



Fig 2: RGU showing bulbar urethral diverticulum



Fig 3: MCU showing bulbar urethral diverticulum

DISCUSSION:

An external urethral compression device, or clamp, has existed in some form since the 18th century. There are many variations in the design. These devices, in general, are relatively inexpensive, non-invasive, and reusable. The mechanisms of these devices are quite simple, resulting compression of the urethra and minimises the urine leakage. They also compress the penile vasculature leading to the potential hazards like discomfort, urethral erosion, oedema and finally urethral diverticulum. However commercially available devices are designed to minimize excess pressure and provide a reasonable amount of comfort. There is one randomized trial comparing the use of these devices showing all the clamps were effective in reducing the amount of urine leakage [5]. Urinary incontinence is encountered rarely after prostatectomy. Conservative managements such as pelvic floor exercise, pharmacotherapy, and urethral bulking agents may fail to yield optimum results, leaving the patients with a

choice of implantation of artificial sphincter, drainage or absorbent devices, or a penile compression device.

The possible etiopathogenesis for the diverticulum, in this case, could be prolonged application of a penile clamp resulting in urinary stasis and increased urethral pressure. Increased urethral pressure can lead to infection and eventual suppuration of the periurethral glands. An alternative reason suggested for such an occurrence is necrosis of the urethral epithelium and subsequent urinary extravasations leading to a periurethral abscess and diverticulum formation. Also, a history of instrumentation and previous catheterisation are risk factors for acquiring urethral diverticulum [6].

While there are reports of magnetic resonance imaging used to evaluate male urethral diverticulum, fluoroscopic modalities in conjunction with urethral ultrasonography provide excellent details of the UD [7]. These studies demonstrate UD location, volume, neck size and other urethral pathology. Patients with urological hardware should be evaluated with cystoscopy to rule out urethral obstruction and erosion. In female MRI is considered the gold standard for evaluation of UD [8].

The treatment armamentarium includes non-operative and surgical options. Patients without urethral obstruction who can manually decompress the UD without subsequent UTI can successfully undergo conservative treatment with close follow up [9]. Surgical intervention is appropriate for symptomatic or larger UDs and those with significant urinary stasis, infection or urethral calculi [10]. Our patient had a significantly large UD necessitating diverticulectomy with an implantation of urethral sling to prevent further incontinence. Through this case report we highlight the rarest yet possible potential complications of UD following application of penile clamp. We also emphasize on the need of regular de-clamping to avoid such disaster.

CONCLUSION:

Although artificial urinary sphincters the gold standard for management of post prostatectomy incontinence penile compression device comes in handy for those who fail to undergo surgical fitness or cost bearing. But these devices are associated with potential risks of complications like stricture or diverticulum. Regular de-clamping at short intervals can be used as precautionary measures to avoid such hazards.

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