International Urogynecology Journal (2019) 30:2149–2151
https://doi.org/10.1007/s00192-019-03890-4

ORIGINAL ARTICLE

Urethral diverticulum in pregnancy: a case report

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Received: 22 July 2018 / Accepted: 25 January 2019 / Published online: 16 March 2019

Abstract

Introduction and hypothesis Urethral diverticulum in pregnancy is a rare finding and difficult to diagnose. The classical triad of dysuria, dyspareunia and dribbling of urine is found in a minority of women.

Methods A young woman presented during the first trimester of pregnancy with vaginal and suprapubic pain as well as voiding difficulty. Ultrasound demonstrated a 2-cm hypoechoic lesion to the left of the urethra. She went on to have a cystoscopy that demonstrated a diverticulum. She was found to have chlamydia on PCR.

Results Her pregnancy was complicated by recurrent admissions for pain and also an episode of reactive arthritis. She underwent an uncomplicated surgical excision postpartum.

Conclusions Urethral diverticula should be excluded whenever a patient exhibits unresolved, nonspecific urinary problems. This is an underdiagnosed problem. Pregnancy presents additional challenges, but does not preclude medical or surgical treatment in the patient with significant symptoms.

Keywords Urethral diverticulum · Pregnancy · Reactive arthritis · MRI · Diverticulectomy

Introduction

Urethral diverticula are difficult to diagnose. The classical triad of dysuria, dyspareunia and dribbling of urine is found in a minority of women [1]. A high index of suspicion and careful examination of the anterior vaginal wall in women with unexplained urinary symptoms is key to making a diagnosis. The reported incidence of urethral diverticula is 1.4 to 4.7% of patients presenting with urinary problems [2].

The incidence in pregnancy is unknown [3, 4]. Urinary complaints during pregnancy are common, making recognition more challenging. Complications of urethral diverticula include recurrent urinary tract infections, stone formation and rarely malignancy [1].

The pathogenesis of female urethral diverticula is unknown. They are thought to be a result of obstructed drainage of the periurethral (Skene's) glands, with subsequent cystic dilatation and/or abscess formation. Gonococcus, *Escherichia coli* and Chlamydia trachomatis have been proposed as the infective culprits. High-resolution MR imaging is best for ascertaining anatomical details and the relationship with the urethra [5]. Preoperative treatment of infection and resolution of inflammation are important [4].

The definitive treatment for this condition is complete transvaginal excision, which can be a complex and difficult surgery [4]. The tissues are vascular and the full extent of the lesion can be hard to appreciate. Complications of surgery include incomplete excision, stress incontinence, urethral stenosis and urethero-vaginal fistula [6]. Alternative treatments include endoscopic deroofing to create a wide-mouth diverticulum [6].

Ethical/institutional review board approval

The institutional IRB does not require IRB review/approval for case reports in which three or fewer cases are reported. Consent from the patient was obtained.

Case

A 36-year-old female presented to emergency at 11 weeks gestation with sudden-onset severe vaginal and suprapubic pain. This was associated with voiding difficulty and a "swollen vagina". She was afebrile with

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normal observations. Her past history included three vaginal deliveries. She had no other significant health problems.

An internal examination was poorly tolerated. Vaginal swabs were taken and subsequently demonstrated bacterial vaginosis. Bedside ultrasound confirmed a live intrauterine pregnancy. White cell count and C-reactive protein were normal. A urinary catheter was inserted draining 150 ml of concentrated urine. She was admitted with ongoing pain for analgesia. A transvaginal ultrasound was ordered and demonstrated a 2-cm hypoechoic lesion to the left of the urethra (Fig. 1). Differential diagnoses of a Skene's gland abscess or urethral diverticulum were suggested.

Examination under anaesthetic was performed revealing a tense anterior vaginal wall mass to the left of the midline. Rigid 0-degree cystoscopy demonstrated a diverticulum opening from which sebaceous material could be expressed into the urethra. The diverticulum was located in the mid-portion of the urethra. The pain and voiding improved after the procedure, and the patient was discharged on oral metronidazole and cefalexin with an IDC left in situ. Outpatient pelvic MRI confirmed the presence of a large, thick-walled diverticulum (Fig. 2).

The patient re-presented 2 weeks later with bilateral red swollen ankles, pain on moving and increasing offensive vaginal discharge with no recurrence of urinary symptoms. Endocervical swab on this occasion was chlamydia positive with probably reactive arthritis.

Her subsequent antenatal course was complicated by new-onset incontinence and dysuria. She was taught self-catherisation due to intermittent urinary retention. Her diverticulum would re-accumulate every 3–6 weeks and she was taken to theatre twice more for cystoscopic drainage.

At 22 weeks her baby was diagnosed with a hypoplastic left heart syndrome with mitral and aortic atresia. She was induced at 37 weeks and had a rapid uncomplicated vaginal delivery. The baby unfortunately did not survive her first cardiac surgery.

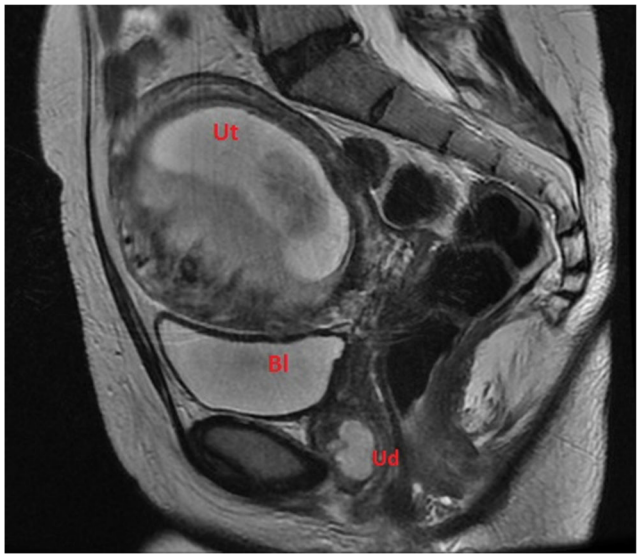

Fig. 2 Magnetic resonance image of the pelvis, T1-weighted. This shows urethral diverticula arising from the mid-portion of the urethra. Ut: uterus and foetus. Bl: bladder, Ud: urethral diverticulum

The patient underwent an uncomplicated diverticulectomy 12 months after her delivery. Her urinary symptoms resolved after surgery.

Discussion

There is no clear guidance on how to manage urethral diverticula in pregnancy. Only six case reports can be found in the literature regarding uretheral diverticiulm in pregnancy. In one of these reports the diverticula were excised during the pregnancy; she then had a caesarean section to avoid fistula

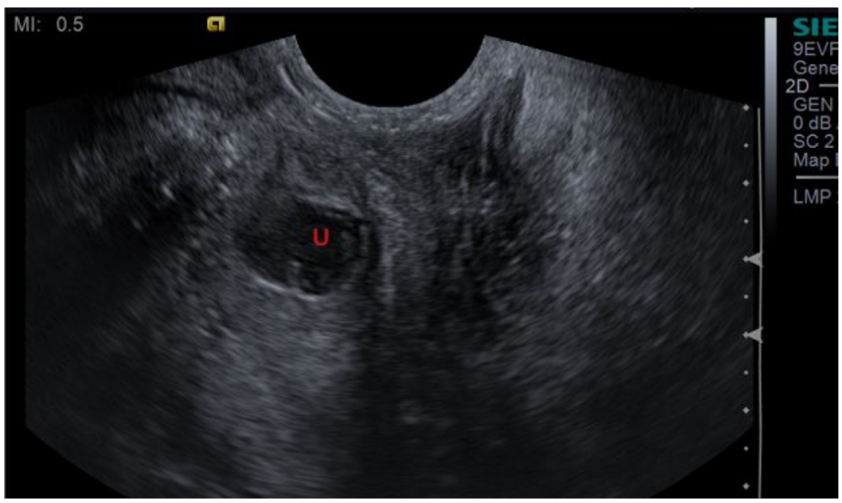

Fig. 1 Trans-vaginal ultrasound image taken at the level of the mid-urethra shows urethral diverticula. U: urethral diverticulum

formation [4]. Another case report describes four women who all had their diverticulectomy postpartum [3]. Their antenatal course was complicated by recurrent incision and drainage or aspiration of the diverticula [3]. In one case this was required this to aid in the second stage of labour. Expert opinion suggests waiting till after pregnancy before performing a diverticulectomy. This is partly because of increased anaesthetic and operative risks such as bleeding. Our case demonstrates that vaginal delivery can be achieved and that waiting to postpartum for definite surgical management is safe. One needs to be aware that complications such as recurrent UTI and the possibility of obstruction in the second stage of labour with a large diverticulum may complicate the course.

Conclusion

Urethral diverticula should be excluded whenever a patient exhibits unresolved, nonspecific urinary problems. This is an underdiagnosed problem. Pregnancy presents additional challenges, but does not preclude medical or surgical treatment in patient with significant symptoms.

Compliance with ethical standards

Conflicts of interest None.

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