

Offer onabotulinumtoxinA external sphincter injections before more-invasive techniques as long as patients are informed that the evidence to support this treatment is of low quality.	Weak
Offer sacral nerve stimulation to women with UAB refractory to conservative management.	Strong
Do not routinely offer detrusor myoplasty as a treatment for detrusor underactivity.	Weak

4.4.5 **Follow-up**

Natural history and clinical evolution at long-term follow-up of women with DU is not well known. No longitudinal cohort studies are described in the literature. The interval between follow-up visits depends on patient characteristics, treatments given and the frequency of urinary complications.

4.5 **Bladder outlet obstruction**

4.5.1 **Introduction**

Bladder outlet obstruction is defined by the ICS as: “obstruction during voiding, characterised by increased detrusor pressure and reduced urine flow rate” [1]. Its precise diagnosis requires urodynamic evaluation including an assessment of pressure and flow.

Voiding dysfunction has previously been defined in Section 4.4. In women, voiding dysfunction can be caused by BOO or DU [1]. There are also non-obstructive causes and therefore voiding dysfunction, and BOO should not be used interchangeably. Another term that must be differentiated from BOO and voiding dysfunction is dysfunctional voiding, which is a specific and discrete form of voiding dysfunction characterised by an intermittent and/or fluctuating flow rate due to involuntary intermittent contractions of the pelvic floor or periurethral striated muscles during voiding in neurologically normal individuals [110].

4.5.2 **Epidemiology, aetiology, pathophysiology**

4.5.2.1 **Epidemiology**

Estimates of prevalence of BOO among women vary from 2.7-29% [493]. One large series of women undergoing urodynamic evaluation for LUTS found that ~20% are diagnosed with BOO. The wide variance is due to several factors, including differences in definitions and diagnostic criteria for female BOO, differences in study populations, and variation in study methods. The estimated prevalence rates of LUTS due to BOO in women are lower than those reported in men (18.7-18.9% vs. 24.3-24.7%) [494].

Prevalence of voiding LUTS is associated with age [47, 495, 496], parity [47, 497], prolapse [47, 497] and prior continence surgery [47, 497]. Bladder outlet obstruction has long been postulated to cause mainly voiding symptoms [498] but recent data from a series of 1,142 women referred for evaluation of LUTS suggest that storage symptoms may be predominant in women diagnosed with BOO, and excess daytime urinary frequency was the most common symptom reported by 69% [493].

4.5.2.2 **Pathophysiology and aetiology**

Bladder outlet obstruction can be either anatomical (mechanical) or functional. In anatomical BOO, there is a physical or mechanical obstruction to the outflow of urine, whereas in functional BOO there is a non-anatomical, non-neurogenic obstruction of the outlet usually resulting from non-relaxation of the bladder neck, sphincter or PFM. Other causes of functional BOO would include increased urethral sphincter tone or PFM contraction during voiding, as observed in patients with dysfunctional voiding [498]. The exact causes of this lack of relaxation, or contraction, are often elusive but might be due to sympathetic hyperactivity or hypertrophy of the bladder neck smooth muscle for primary bladder neck obstruction [499] or maybe behavioural for dysfunctional voiding [500].

Mechanisms for anatomical (mechanical) obstruction include external compression, fibrosis, stricture or injury to the urethra and kinking of the urethra due to POP. Progressive fibroblastic reaction around the urethra induced by mesh tapes or slings used in incontinence surgery may also cause anatomical (mechanical) obstruction [450]. In a retrospective review of 192 women diagnosed with BOO, 64% had mechanical obstruction [493].

In primary bladder neck obstruction, the bladder neck fails to open adequately during voiding, in the absence of an anatomical obstruction [501]. It is estimated that 4.6-16% of women presenting with voiding symptoms have primary bladder neck obstruction [499].

Dysfunctional voiding is due to involuntary intermittent contractions of the periurethral striated or PFM during voiding in neurologically normal women and is thought to be caused by faulty learned toileting behaviour [450]. There is also some evidence of a link between dysfunctional voiding and a history of sexual abuse [502].