Bladder diverticula

Epithelial lined pouch arising from a hollow viscus

Bladder diverticula represent herniations of bladder mucosa through muscularis propria – therefore only three layers, mucosa, lamina propria, adventitia

Common

Congenital or acquired

Congenital

- Solitary
- Almost exclusively boys vs. girls
- Typically < 10 years old
- Usually lateral and posterior to ureteric orifice – thought to be due to weakness in bladder wall – may be bilateral
- Large diverticula at dome a/w prune belly syndrome. Also more common in Ehlers-Danlos syndrome
- No association with bladder outflow obstruction

Acquired

- Usually a/w BOO or neurogenic LUTD
- Typically multiple
- Variable location within bladder although most common at uterovesical hiatus
- Usually a/w trabeculation and sacculation
- NB. Hutch diverticulum contains UO in base

<u>Presentation</u>

- **Typically asymptomatic**
- UTI
- Incomplete emptying
- Haematuria
- Abdominal pain
- Palpable mass
- Malignant transformation
  - Natural history unknown
  - Surveillance generally recommmended
  - Usually TCC in 70-80% cases; SCC for remainder
  - Theoretical risk of early metastasis in diverticula – MRI recommended in all patients for local staging

<u>Imaging</u>

- USS
- Cystoscopy
- Voiding cystography
  - Very high rate of reflux (> 90%) seen in association with *congenital* bladder diverticula
- CT/MRI
- Urodynamics
  - Define contribution of BOO
- Upper tract
  - Medial deviation of ureters most common
  - Excludes hydroureteronephrosis

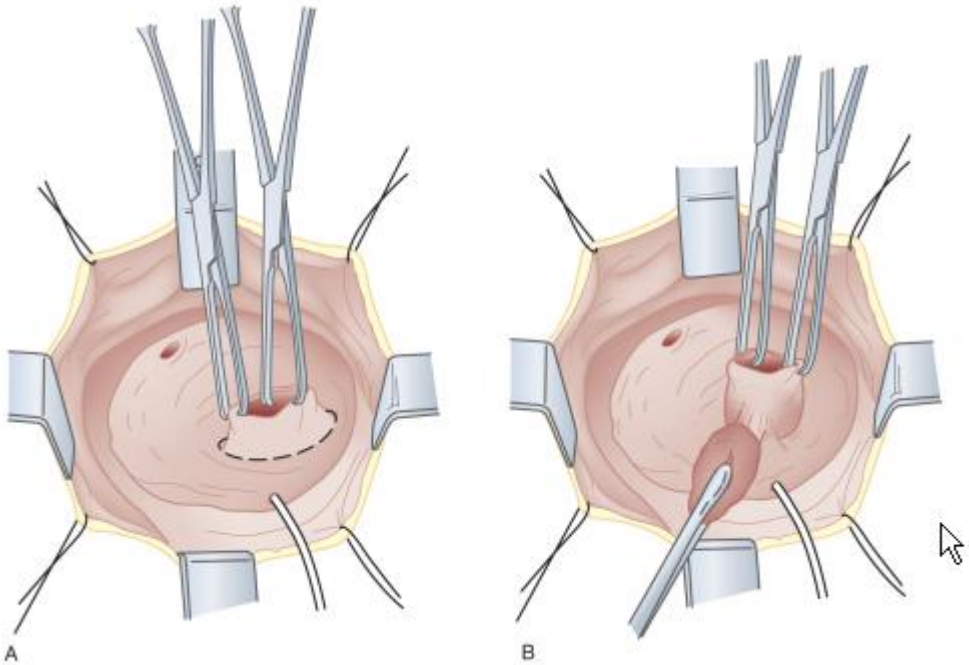
Management

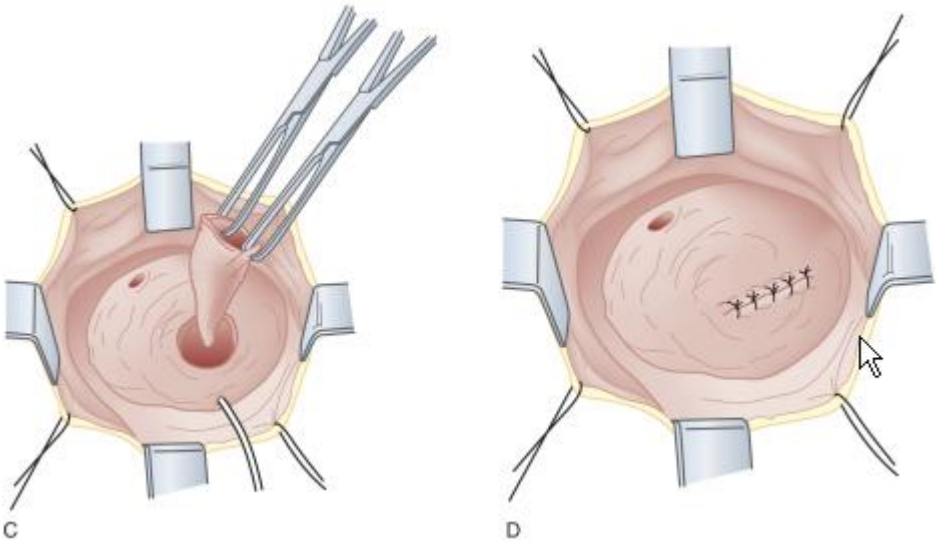
General rationale:

- Exclude malignancy
- Exclude upper tract dilatation
- Identify and treat bladder outflow obstruction
- Survey diverticulum in asymptomatic population*
  - Cystoscopic surveillance
  - CISC for compliant individuals
- Consider diverticulectomy for symptoms* (either at same time of after BOO surgery)
  - Storage symptoms
  - Recurrent UTIs
  - Obstruction
  - Stones
  - ? Ipsilateral VUR

Surgical intervention

- Endoscopic incision
  - Unfit patients
  - Incision/resection of diverticular neck
  - Converts tight-neck to broad-neck
  - Can precipitate acute urinary retention
- Transvesical diverticulectomy
  - Hugh Hampton Young 1906
  - Anterior cystotomy
  - Provided no adhesions, entire diverticulum can be everted into bladder and excised
  - 2 layer closure bladder wall
  - Care must be taken to avoid ureter





Laparoscopic/open diverticulectomy

Combined intravesical/extravesical approach for large or tethered diverticula