Bladder Stones

Definition

- A primary bladder stone is one that develops in sterile urine; it often originates in a kidney and passes down the ureter to the bladder, where it enlarges.
- A secondary bladder stone occurs in the presence of infection, bladder outflow obstruction, impaired bladder emptying or a foreign body such as nonabsorbable sutures, metal staples or catheter fragments.

Composition

- Oxalate calculus
- Uric acid and urate calculi
- Cystine calculus
- Triple phosphate calculus

A bladder stone is usually free to move in the bladder. It gravitates to the lowest part of the bladder which is the outflow when the patient is erect or sitting. In the recumbent position (and at cystoscopy) the stone occupies a position behind the interureteric ridge.

Clinical features

Males are eight times more often affected than females

Symptoms

1. Asymptomatic
2. Frequency.
3. Sensation of incomplete bladder emptying.
4. Pain (Strangury) is most often found in patients with a spiculated oxalate calculus. It usually occurs at the end of micturition and is referred to the tip of the penis or to the labia majora, more rarely to the perineum or suprapubic region.
5. Haematuria
6. Interruption of the urinary stream
7. Symptoms of urinary infection

Examination

- Rectal or vaginal examination is usually normal; occasionally a large calculus is palpable in the female.
- Examination of the urine usually reveals microscopic haematuria, pus or crystals typical of the calculus.
- Radiography — in most patients, the stone is visible on a plain X-ray. If the stone is radiolucent, a filling defect may be visualised on IVU.
- Cystoscopy is essential and most stones nowadays can be dealt with endoscopically.
- Ultrasound examination

Treatment

- Vesicolitholapaxy
- Vesicolithotomy
- Percutaneous suprapubic litholapaxy
- Extracorporeal shock wave lithotripsy (ESWL)
Removal of a Retained Foley catheter

This is not an uncommon problem and is usually caused by the channel which connects the balloon to the side arm becoming blocked, usually at the very distant end. The best way of dealing with this problem is to further inflate the balloon with 20 ml of water and then burst the balloon percutaneously using a spinal needle under ultrasound screening. The instillation of fluid such as ether to dissolve the balloon is not recommended because fragments of balloon may be left behind. However the balloon is burst, it is important to subsequently cystoscope the patient to ensure that any fragments are removed before they can form a foreign body calculus.

Foreign bodies in the bladder

- The commonest foreign body is a fragment of catheter balloon
- Complications of a foreign body in the bladder
  - Lower urinary tract infection
  - Perforation of the bladder wall
  - Bladder stone
- Treatment
  - A small foreign body can usually be removed per urethra by cystoscope. Occasionally, a suprapubic approach using the percutaneous insertion of a cystoscope is needed.

Diverticulum of the Bladder

- The normal intravesical pressure during voiding is about 35—50 cmH₂O. Pressures as great as 150 cmH₂O may be reached by a hypertrophied bladder endeavouring to force urine past an obstruction. This pressure causes the mucous lining between the inner layers of hypertrophied muscle bundles to protrude, so forming multiple saccules. If one or more, but usually one, saccule is forced through the whole thickness of the bladder wall, it becomes a diverticulum. Congenital diverticula are due to developmental defect.

Etiology of diverticulum

- Congenital diverticulum: This is rare. It may be situated in the mid line anterosuperiorly and represent the unobliterated vesical end of the urachus. It empties with the bladder and is symptomless. Others in the usual situation on the base of the bladder can occur without obstruction, and may require excision because of the risk of chronic infection or stone formation in a young adult
- Pulsion diverticulum: The usual causative obstructive lesion is bladder outflow obstruction.

Complications

- Recurrent urinary infection; squamous cell metaplasia and leucoplakia are infrequent complications.
- Bladder stone
- Hydronephrosis and hydrourereter
- Neoplasm

Clinical features

- An uninfected diverticulum of the bladder usually causes no symptoms. The patient is nearly always male (95 per cent) and over 50 years of age.
- There are no pathognomonic symptoms; they are those of lower urinary tract obstruction, recurrent urinary infection and pyelonephritis. Haematuria (due to infection, stone or tumor).
Diagnosis

- Cystoscopy
- Intravenous urography
- Retrograde cystography
- Ultrasonography

Indications for operation

- Operation is only necessary for the treatment of complications
- Traction diverticulum (hernia of the bladder): A portion of the bladder protruding through the inguinal or femoral hernial orifice occurs in 1.5 per cent of such herniae treated by operation.

Urinary fistulae

- Congenital urinary fistula: Ectopia vesicae in association with imperforate anus
- Traumatic urinary fistula
- Vesicovaginal fistula

Etiology

- Obstetrics: the usual cause is protracted or neglected labour;
- Gynaecological: the operations chiefly causing this complication are total hysterectomy and anterior colporrhaphy
- Radiotherapy
- Direct neoplastic infiltration

Clinical features

- There is leakage of urine from the vagina and as a consequence excoriation of the vulva occurs. Digital examination of the vagina may reveal a localised thickening on its anterior wall, or in the vault in the case of post hysterectomy fistula. On inserting a vaginal speculum, urine will be seen escaping from an opening in the anterior vaginal wall.
- Differential diagnosis between a ureterovaginal and vesicovaginal fistula can be made if a swab is placed in the vagina and a solution of methylene blue is injected through the urethra; the vaginal swab becomes coloured blue if a vesico-vaginal fistula is present.

Treatment

- Usually, operative treatment is required. A urethral & suprapubic catheter should be left in situ for 10-14 days.

Fistula arising as a result of infection: The commonest cause is diverticulitis of the colon. They may also follow Crohn’s disease, appendix abscess or pelvis sepsis in association with acute salpingitis, or may be the result of surgery and radiotherapy within the pelvis.

Fistula due to carcinoma: Primary bladder tumors very rarely fungate through the abdominal wall unless an open cystotomy has been performed .involvement of the bladder by tumours of cervix, uterus, colon and rectum can produce fistulae, as may lymphosarcoma of the small gut. Carcinoma of the prostate rarely produces a rectal fistula. Treatment is palliative