Vesicovaginal fistulae

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VVF is the most common urinary tract fistula. In developing countries, obstetric fistula account for the majority of cases. Lack of adequate prenatal care, younger age at first marriage, short stature, low socioeconomic status and illiteracy are risk factors for developing obstetric fistulae. These fistulae are due - to prolonged obstructed labour resulting in ischaemic pressure necrosis to the anterior vaginal wall, bladder and urethra, and large areas of the bladder neck and urethra may be involved. Concomitant rectovaginal fistulae may also be present, making these fistulae very complex to manage. In developed countries, - iatrogenic VVF most commonly occurs after hysterectomy , usually thought to be due to an unrecognised bladder injury . near the vaginal cu ff . Other mechanisms include diathermy injury resulting in delayed tissue necrosis or a suture placed through the bladder and vaginal wall during closure of the vaginal cu ff . Abdominal hysterectomy is three times more likely to result in fistula than vaginal hysterectomy , although the overall rate of VVF after hysterectomy is low at 0.1–4%. Clinical features The most common presenting symptom is constant urinary leak from the vagina. This may be intermittent in cases of very small fistulae, and so other causes of urinary incontinence (SUI, UUI) must be excluded. Post-hysterectomy VVF may be - recognised in the first few days after surgery , or 1–3 weeks later after catheter removal. Post-irradiation VVF may not manifest until years later. Physical examination may demonstrate the fistula site, typically on the anterior vaginal wall at the vaginal cu ff , and leakage of urine may be seen. Instillation of blue dye into the bladder may aid visual identification of the fistula site. Investigation 1 Cross-sectional imaging with CT urogram, MRI with gadolinium contrast or cystogram will aid diagnosis of the fistulous tract and exclude concomitant ureteric injury (Figure 83.23). 2 Cystoscopy , bilateral retrograde ureteropyelography and examination under anaesthesia should be performed to assess the fistula site, location, size, proximity to ure teric orifices, vaginal size, depth and mobility . This will aid surgical planning and help to determine whether an abdominal or vaginal approach will be most suitable. Fur thermore, biopsy of the fistula tract to exclude recurrent malignancy can be performed in cases of prior history of pelvic malignancy . 3 ‘Three-swab’ test . This investigation can be per formed in cases where fistula is suspected but cannot be identified on the investigations above. Three numbered gauze swabs are placed into the vagina, with swab number 1 placed most pro ximally , swab number 2 in the middle and swab number 3 most distal in the vagina. A blue dye is then instilled into the bladder through a catheter, and the catheter removed. Blue staining of swab 1 or 2 suggests VVF whereas blue staining of swab 3 suggests a urethra– /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF /uni25CF - /uni25CF vaginal fistula or SUI. If swab 1 is wet but not stained blue, - this suggests the presence of a ureterovaginal fistula. Treatment Conservative treatment with urethral catheter drainage is - rarely successful, but in certain situations (e.g. very small VVF in the absence of radiotherapy) may be warranted for an initial 2- to 6-week period. If this fails to heal the fistula surgical treatment is required. The approach can be vaginal, trans- abdominal (open or minimally invasive) or a combination of both (Figure 83.24). Principles of surgical repair are shown in Table 83.8 . Vaginal repair relies on adequate exposure of the fistulous opening. The fistula is circumscribed, and the

bladder

Figure 83.23 Computed tomography scan showing a vesicovaginal /f_i stula from the posterior wall of the bladder to the vagina. Figure 83.24 Transabdominal approach showing a vesicovaginal /f_i stula (VVF) on the posterior wall (forceps in VVF). White ureteric catheters have been inserted into the ureteric ori /f_i ces and there is a catheter in the urethra. TABLE 83.8 Principles of surgical repair of a vesicovaginal /f_i stula. Adequate exposure of the /f_i stula tract and debridement of ischaemic tissue Adequate separation of involved organs Watertight closure, multilayer closure, tension-free, non- overlapping suture lines Use of well-vascularised tissue /f_l aps (omentum, peritoneum, Martius labial fat pad) Adequate postoperative urinary drainage Treatment and prevention of infection Meticulous haemostasis

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Mechanism Men Anatomical bladder outlet Benign prostatic obstruction obstruction Malignant enlargement of prostate Bladder neck obstruction Urethral stricture Urethral rupture (e.g. following pelvic fracture) Functional bladder outlet Idiopathic high-tone non-relaxing external obstruction urethral sphincter Detrusor underactivity Pelvic surgery Peripheral neuropathy Diabetic cystopathy Secondary to longstanding bladder outlet obstruction Neurological disease Detrusor–sphincter dyssynergia (any cause of suprasacral spinal cord disease) causing obstructed voiding Sacral nerve lesion or cauda equina causing detrusor underactivity Drugs Antimuscarinics or -agonists 3 Sympathomimetic drugs Anaesthetic agents Opioids Transient causes Following spinal or general anaesthesia Pain Faecal impaction due to constipation Blood clot secondary to haematuria

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