Vesicovaginal fistula presenting as a large abdominal pseudocyst: A rare case

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Abstract
We present a rare case of indirect vesicovaginal fistula (VVF) in a patient with small capacity bladder. The fistula was between abdominal pseudocyst (APC) arising from bladder and vagina – and hence, an indirect VVF. A 35-year-old female had a history of emergency obstetric hysterectomy with iatrogenic bladder injury. Postoperatively, the patient developed VVF and large APC. Patient’s micturating cystourethrogram was suggestive of small capacity bladder with bilateral Grade IV vesicoureteral reflux with a well-defined APC arising from superior surface of bladder to L4–L5 lumbar vertebrae. Large APC arising from bladder and associated with an indirect VVF is very rare, and to the best of our knowledge, this is the first case reported in literature. The patient was successfully managed with exploratory laparotomy and excision of fistula tract and pseudocyst, adhesiolysis, and ileal augmentation cystoplasty. Multiple intraoperative adhesions should be suspected in APC. We would like to conclude that ileal augmentation cystoplasty is a safe procedure in a case of VVF with APC and small capacity bladder.

Key Words: Abdominal pseudocyst, augmentation cystoplasty, indirect vesicovaginal fistula, pseudocyst, urinoma, vesicovaginal fistula

INTRODUCTION
Vesicovaginal fistula (VVF) is a major psychosocial problem among females. Most common cause of VVF in developing countries is obstructed labor while intraoperative injury to the bladder during pelvic surgeries such as hysterectomy is the most common cause in developed countries. We present management of a large abdominal pseudocyst (APC) arising from the bladder and communicating with vaginal vault producing an indirect vesicovaginal fistula. Besides this, the patient also had a small capacity bladder and bilateral vesicoureteral reflux. We managed this patient by exploratory laparotomy and adhesiolysis with excision of fistula tract and APC. After closure of vaginal stump, small bladder was managed by augmentation ileocystoplasty. This is very rare case, and to the best of our knowledge, this was the first case to be presented as large 12–15 cm palpable APC communicating with large VVF.

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CASE REPORT

A 35-year-old female from poor socioeconomic status was referred to a tertiary care center for dull aching lower abdominal pain and continuous leakage of urine through the vagina for 2 years. The patient had a history of operated with emergency obstetric hysterectomy 2 years back for postpartum hemorrhage. Intraoperatively, there was an injury to anterior bladder wall which was sutured. The patient had a history of vaginal urine leak 1 month after hysterectomy. The patient was able to void 30–50 ml intermittently. On clinical examination, ill-defined single 13 cm long and 6 cm wide lump was palpable in hypogastric and umbilical region. On percussion, dull note was heard. Patient's serum creatinine was normal. Contrast computed tomography (CT) scan was done which was suggestive of approximately 12 cm × 6 cm well-defined collection behind anterior abdominal wall. This collection was surrounded by well-defined capsule and to which small bowel loops were adherent as shown in Figure 1c and d. It was connected to the superior surface of bladder and vaginal vault. There were multiple collections around both the adnexa. There was moderate dilatation of bilateral pelvicalyceal system and ureters.

Patient’s micturating cystourethrogram (MCU) was done; there was small capacity bladder with bilateral Grade IV vesicoureteral reflux with a well-defined APC present from superior surface of bladder to L4–L5 lumbar vertebrae shown in Figure 1a and b. It had smooth margins with small bowel impressions. Local per vaginal examination and cystoscopy showed fistula between the APC and vaginal vault. Cystoscopy revealed large fistula over dome of the bladder in continuation with the large APC. Scope could be negotiated inside the pseudocyst. The patient was planned for exploratory laparotomy with excision of fistula tract, pseudocyst, and augmentation cystoplasty.

Midline vertical incision was taken. Thick-walled collection was adherent to anterior abdominal wall and multiple small bowel adhesions were present [Figure 2a]. APC was opened and surrounding bowel wall adhesiolysis was done. APC sac was excised and vagina vault edges were freshened and closed with absorbable polyglactin 2-0 sutures [Figure 2b]. There was small capacity thick-walled bladder which was dissected and ileal augmentation cystoplasty was done as shown in Figure 2c and d. Bilateral ureteric orifices were identified. An 18 Fr suprapubic catheter (SPC) was placed. Omentum interposition between vagina and bladder was done. Abdominal drain was placed. Postoperatively, the patient had wound infection. Intermittent bladder saline wash was given. Perurethral catheter was removed on day 21. Postoperative cystogram confirmed no evidence of any leak, but bilateral vesicoureteral reflux persists which is shown in Figure 3. SPC was removed.
DISCUSSION

Posthysterectomy VVF usually develops when there is unrecognized bladder injury, followed by pelvic urinoma formation.\(^3\) It is postulated that urinoma drains into the most dependent part and follows the path of least resistance into the vaginal cuff. For that reason, if intraoperative bladder injury is suspected, then it should be carefully sutured and abdominal drain should be placed to prevent urinoma formation. Pathophysiology – in our case – there was intraoperative bladder injury which led to an abdominal urinoma formation which extended into the pelvis and drained through the vaginal cuff. Over the period, the urinoma was surrounded by a fibrous capsule, forming an APC. This was confirmed with the histopathological examination of wall suggestive of fibrous vascular wall without any epithelial cell lining. As the pseudocyst was communicating with the bladder as well as the vagina, an indirect VVF was formed.\(^3\)

Our case presented with vague abdominal pain and continuous incontinence of urine. The patient was more worried about abdominal pain. On abdominal examination, lump was palpable from pubic symphysis to 2–3 cm above umbilicus. Clinically, over distended bladder with overflow incontinence was another differential diagnosis. Palpable mass above the umbilicus is very rare in VVF because urinoma formation is localized to pelvis. In our case, VVF was indirect; bladder was indirectly connected to the vagina through large APC. This entity was confirmed by MCU, CT scan, and cystoscopy.

If upper tracts are dilated, then involvement of ureters should be suspected. In our case, CT scan did not show any involvement of ureters. Usually, in VVF, if ureters are normal, then upper tract dilatation is rare. In our case, bladder was communicating with the large APC which further communicated with vagina. Hence, high pressure inside the small bladder was not directly decompressed because there was pseudocyst between bladder and decompressing vagina. This led to secondary vesicoureteral reflux. Small capacity bladder could be attributed to iatrogenic bladder injury and disused atrophy of bladder. Extensive small bowel adhesions could be attributed to long-standing APC. Hence, intraoperative adhesions should be expected in a case of long-standing APC.

There are various approaches for VVF repair such as vaginal, abdominal, laparoscopic, and robotic.\(^4\) In the present case, open abdominal approach was chosen because it was associated with large abdominal collection and need for augmenting a bladder. As bladder was small capacity, ileocystoplasty was done to increase bladder capacity. Augmentation cystoplasty can be done as one step procedure in VVF associated with small capacity bladder.\(^3,5,6\) Ileal flap can be used for augmentation of vagina if vaginal narrowing is identified.

We would like to conclude that VVF can presents with large APC after iatrogenic bladder injury. Multiple intraoperative adhesions should be suspected in such cases. Ileal augmentation cystoplasty is a safe procedure in a case of VVF with APC and small capacity bladder.

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