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Case Report

Endourologic Diagnosis and Treatment of Ureterouterine Fistula

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Abstract: A rare case of ureterouterine fistula following a dilatation and evacuation for elective abortion is presented. According to the literature, most cases are related to elective abortion. A 42-year-old woman, 1–0–5–1, presented with copious watery vaginal discharge from the cervical os. She had had an elective abortion followed by a laparotomy for a suspected uterine perforation with peritonitis 1 months prior to presentation. She underwent another laparotomy, which revealed only adhesion of the terminal ileum, appendix and adnexae based on the hysterogram, which suggested an enterouterine fistula. The right ureterouterine fistula was not diagnosed until an antegrade pyelogram was undertaken. She was subsequently treated with temporary percutaneous nephrostomy drainage followed by ureteroneocystostomy. It was concluded that the ureterouterine fistula was most likely caused by the lateral path of abortion instruments into the retroperitoneal space, with trauma to the right ureter.

Keywords: Antegrade pyelogram; Percutaneous nephrostomy; Ureterouterine fistula

Introduction

Ureterouterine fistula represents a rare disease entity in the group of ureterogenital fistulas [1], though it could happen as a complication of elective abortion [2,3], cesarean section [4] or ureteric calculus [5]. Herein we report a case following dilatation and evacuation for an unexpected pregnancy that once was misdiagnosed as enterouterine fistula. The patient was subsequently treated with temporary percutaneous nephrostomy and antegrade stenting, followed by a Boari bladder flap and ureteroneocystostomy with antireflux procedure.

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Case Report

A 42-year-old woman, 1–0–5–1, with copious watery vaginal discharge, was referred to one of the authors (ACW) for consultation. One month prior to presentation she had had an unexpected pregnancy which was estimated at about 16 weeks in gestational size, though she was amenorrheic for 15 months. The pregnancy was terminated by induction of labor followed by dilatation and evacuation. The patient experienced several episodes of chills and fever after the procedures, and later developed lower abdominal pain. She came to the emergency service of our hospital for further management. On admission the laboratory data revealed leukocytosis with a marked shift to the left. Because of a suspected uterine perforation with peritonitis, exploratory laparotomy was performed the same day. The operative findings included a 16-week gestational size uterus with no perforation on the surface, no evidence of perforation or iatrogenic injury of hollow organs, and no ascites in the pelvic cavity, but there were foul-smelling exudates in the pelvis. Irrigation of the abdominal cavity with normal saline, bilateral tubal sterilization and endometrial curettage were performed during the operation. Culture of the irrigation fluid subsequently grew rare *Escherichia coli*, and the pathology of the curettings revealed myometrium with gestational change. The patient was discharged home 7 days after the operation.

She returned with the complaint of profuse vaginal discharge 15 days after she was dismissed. On vaginal inspection, crystal-clear mucinous efflux from the cervical os was noted. Bacterial culture of the efflux

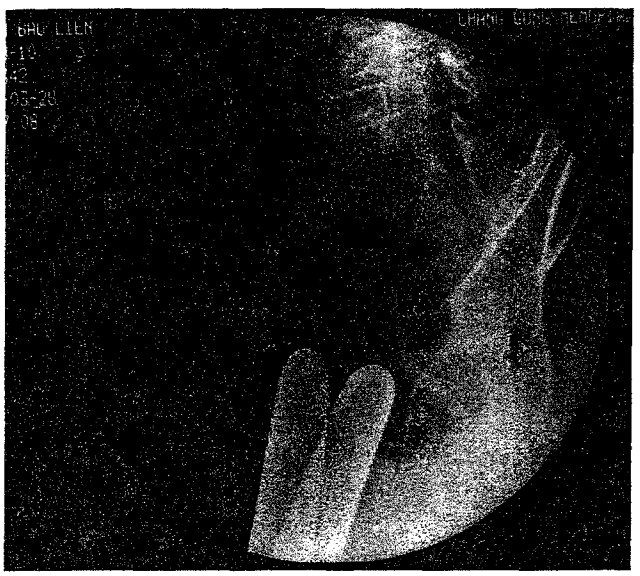

Fig. 1. Hysterogram showing leakage of contrast medium through the fundus uteri to a segment of small intestine (arrow).

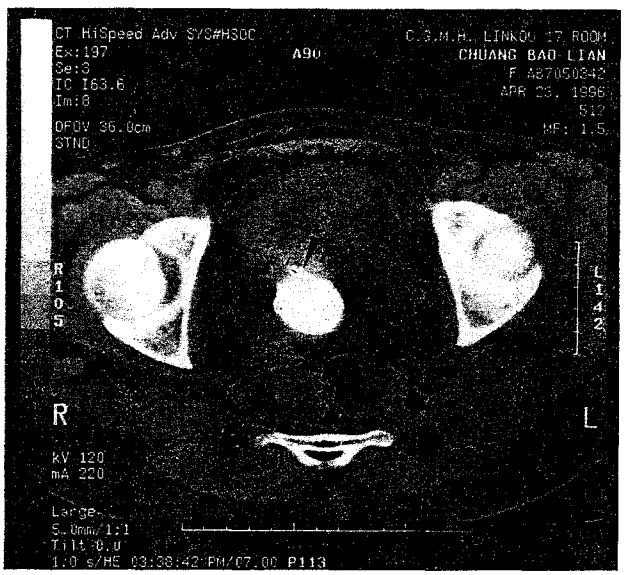

Fig. 2. CT scan of pelvis with contrast medium injected via uterine cavity showing a longitudinal tract (arrow) through the left anterior aspect of the fundus uteri, communicating with the terminal ileum.

grew *E. coli*. Retrograde infusion of methylene blue into the bladder did not result in the drainage of blue-stained fluid from the cervical os. After excluding the possibility of vesicouterine fistula, a hysterogram with abdominal computerized tomography (CT) was performed. The roentgenogram demonstrated the contrast material appearing in the terminal ileum and a fistula tract arising from the uterine fundus (Figs 1,2). In the belief that this was an enterouterine fistula, laparotomy was performed. The operative findings revealed that the terminal ileum and appendix were adherent to the right fallopian tube (Fig. 3) and the bilateral ovaries were atrophic. No fistula could be found on the uterine surface after adhesiolysis. Subsequently, a bilateral salpingectomy and prophylactic appendectomy was performed, but the copious vaginal discharge persisted after the operation.

The origin of the watery vaginal discharge was not discovered until an excretory urogram was undertaken 2 weeks later, demonstrating hydroureteronephrosis with a ureteral stricture in the right excretory system. After attempts to cannulate the right ureter retrogradely failed, a percutaneous nephrostomy was undertaken (Figs 4,5). The pyelogram, followed by CT, confirmed a right ureterouterine fisulta (Fig. 6). A nephrostomy tube was

Fig. 3. The operative findings revealed that the terminal ileum (large arrow) and appendix (small arrow) were adherent to the right fallopian tube (middle arrow). There was no evidence of enterouterine fisutla.

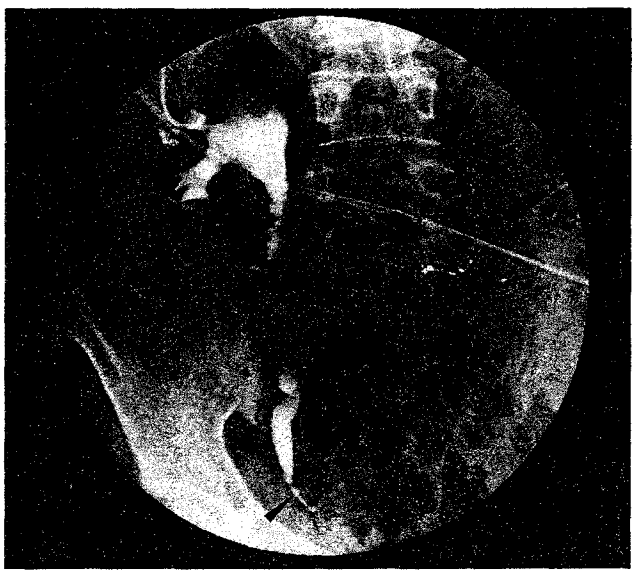

Fig. 4. Percutaneous nephrostomy and antegrade stenting showed hydrourteronephrosis of the right excretory system with stricture of the distal ureter (arrow).

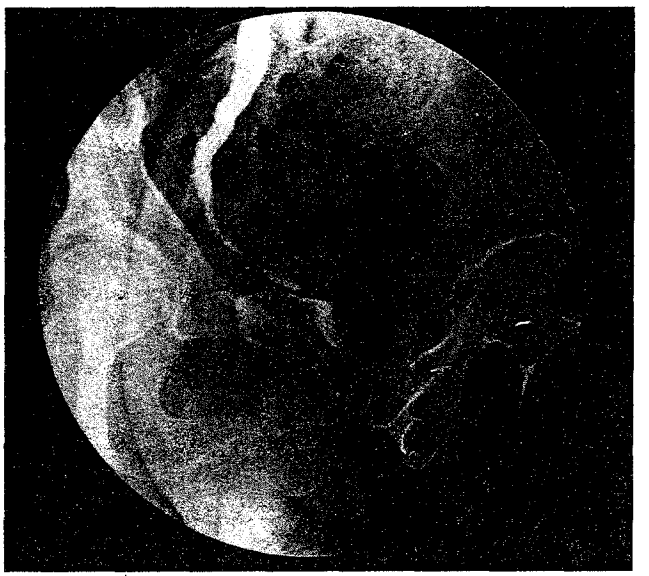

Fig. 5. Antegrade pyelogram demonstrates the narrowed distal ureter, uterine cavity (small arows) and vagina (large arrow).

placed in the renal pelvis for external urinary diversion, and the patient has been dry since. However, the water vaginal discharge resumed when the nephrostomy tube was clamped to test the patency of the right ureter 6 weeks later. Finally a laparotomy was performed to repair the ureterouterine fistula. The surgical findings included extensive adhesions of the small and large intestine, and hydroureter with periureteral fibrosis along the right middle and distal segments. A Boari bladder flap and ureteroneocystostomy with antireflux procedure to bridge the gap of the ureter to the bladder was carried out, and the patient was discharged from the hospital uneventfully 7 days after the operation. Postoperative intravenous pyelography revealed no evidence of contrast medium leakage.

Discussion

This case illustrates the use of different radiologic techniques in reaching a correct diagnosis. Instead of a hysterogram with CT, an antegrade pyelogram via percutaneous nephrostomy was able to demonstrate the fistula between the right ureter and the uterus. Apparently the contrast medium for hysterography was

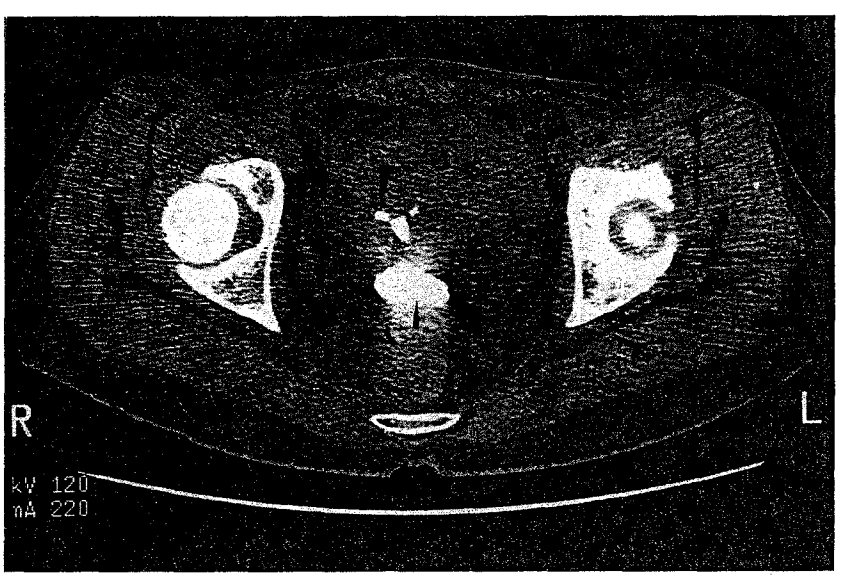

Fig. 6. CT scan of pelvis after antegrade pyelogram, showing the fistula tract (large arrow), uterine cavity (small arrow) and vagina (middle arrow).

unable to enter the right excretory system owing to the greater pressure in the latter. It therefore spilled into the space between the broad ligaments, mimicking a mucosal pattern of terminal ileum. The authors believe the fistula was most likely related to ureteral injury caused by a lateral path of the abortion instruments into the retroperitoneal space, rather than the peritoneal cavity. For this reason there was no uterine perforation evidenced in the first laparotomy.

The principles of management of this rare complication are the same as those for ureterovaginal fistula. With regard to the treatment, the surgical management options include retrograde ureteral catheterization [2], ureteroureterostomy [1,6], ureteroneocystostomy [1,3,4], and insertion of a percutaneous nephrostomy tube. However, including this woman, most reported cases are finally treated by ureteroneocystostomy. Therefore, from a surgical point of view, this should be considered as a first choice, and percutaneous nephrostomy is necessary provided there is no evidence of sepsis or obstruction.

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