Case Report

Bilateral retrograde ureteric passage of contrast medium during hysterosalpingography: A case report

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Abstract

A 30-year-old patient, has not been conceived for fifteen years, was evaluating for infertility via hysterosalpingography. In the course of examination after inserting the canulla to the external cervical ostium, medium performed gently through cervical canal. Cervical canal, uterine cavity and bilaterally fallopian tubes distended by medium, respectively. Contrast medium poured onto peritoneum and as soon as pouring, suddenly, ascended bilaterally and synchronously, enlarged and branched at the level of second lumbar vertebral silhouette which is indicating the kidneys. Bilateral linear, thin and sharp contoured images were ureters. We reported this unusual case whom intravenous-pyelogram, magnetic resonance imaging and intraoperative findings were inefficient for explaining of this retrograde passage of medium.

Key Words:
Retrograde, ureter, hysterosalpingography

Introduction

Hysterosalpingography (HSG) is the most commonly used technique for evaluating infertility and used to assess the anatomy of the uterus and the patency of the fallopian tubes [1]. Occasionally, during performing HSG contrast medium transudes into the venous and lymphatic canals and thereby to the systemic circulation and known as intravasation. The presence of contrast within the bladder and ureters after a time later, indicates the clearance of medium from the vascular circulation [2]. Here we report an extraordinary passage of contrast into ureters and thereby kidneys, a retrograde cruise, in an infertile patient and has not associated with intravasation or vascular clearance.

Case Presentation

A 30-year-old, gravida 0, para 0 patient admitted to clinic for infertility for fifteen years. There was only tiroidectomy operation, and any other operation or instrumentation was not notable at her medical history. Uterus was found enlarged at pelvic examination. Transvaginal ultrasonography showed 60x55 mm sized hypoechochogenity suggesting an intramural leiomyoma arising from posterolateral portio of uterus and normally ovaries with 6-7 antral follicles. There was not ascites or fluid at posterior cul de sac. She had regular menstruation periods and serum follicle stimulating hormone (FSH), luteinising hormone (LH) and estradiol (E2) levels were with normal range at third day of cycle. A cervical Papanicolaou test taken and revealed normally. HSG was planned at early proliferative period of menstrual cycle. In the course of procedure at dorsal lithotomy position, after inserting sterile speculum, cervix hold by one
teeth tenaculum. The canulla inserted to the external cervical ostium then contrast medium performed gently through the cervical canal. Hydrosoluble iodized contrast medium (Omnipaque; Nycomed, Amersham, UK) 20 mL was slowly administered with fluoroscopic guidance. Cervical canal and uterine cavity distended respectively at the scopy. Minimal filling defect at fundus was suggesting subseptus. Irregular, reticular, round like contour appeared at right posterolateral side of uterus, due to intravasation, pointed out the leiomyoma demonstrated by ultrasonography before simultaneously passage of medium through the fallopian tubes bilaterally, slowly at left side, and pouring into the peritoneum. As soon as pouring, the hypoechoic image of contrast medium, ascended as a thin line originating from the lateral borders of fallopian tubes bilaterally, curved to the medial and became closer to the lumbal vertebras symmetrically, than enlarged and branched synchronously and terminated at the level of first-second lumbal vertebra silhouette in few seconds. The hypoechogenity of contrast medium was distending cervical canal, uterus, fallopian tubes and was pointing out the leiomyoma, peritoneum and the unusual bilateral ascending image at the sametime (Figure 1).

Patient turned side to right decubitis position and scopy studied again. The echogenity was beginning from posterior cul de sac, curving and ascending at anterior of uterus in the pelvis minor, and became closer to the silhouette of vertebras on pelvis major (Figure 2).

Total duration up to this moment starting from performing the medium though the cervical canal was approximately ten seconds. Half an hour later the hypoechoegenity of medium demonstrated at the distending bladder compatible with vascular clearence (Figure 3). The procedure was terminated and further investigation planned electively. Intravenous-pyelogram and voiding cystography performed for evaluating the urinary system and graphies showed kidneys at their well-known location, ureters and bladder, without duplication or leakage of medium (Figure 4). Reflux was not determined at
voiding cystography. There was only 6x6x7 cm heterogeneous hypointence mass as pathologic finding at right posterolateral side of uterus at Magnetic Resonance Imaging. Endometrial sampling revealed proliferative endometrium.

Diagnostic hysteroscopy and myomectomy via laparotomy planned for assessment of endometrial cavity and suspicious filling defect of subseptus and enucleation of the posterolateral located leiomyoma causing enlargement and distortion of uterus and for restoration of the uterine anatomy but patient was lost for follow-up. Approximately two years later, patient prepared for operation. During hysteroscopy cervical canal and left tubal ostium seemed normally, right tubal ostium was displaced and endometrial cavity was distortioned by external compression. Intramural leiomyoma, 8x8cm sized at posterolateral side of uterus, found at laparotomy. Fallopian tubes were adherent to posterior cul de sac but ovaries were normally. There was not any visible endometriotic implants or ascitic fluid.

Figure 3.

*Distending bladder 30 minutes after performing medium compatible with retardation of vascular clearance mechanism*

Figure 4.

*Normally Intravenous-pyelogram of patient*
Methilene blue was applied from cervix, for chromo-per-tubation, but it was inefficacious. Although myomectomy, adhesiolyis and distal salpingoplasry established, minimal dye hardly passed through fallopian tubes. Biopsy has been taken from peritoneum for pathological examination. A drain with negative pressure placed at posterior cul de sac and operation was terminated. Postoperative at third hour the color of urine was bluish-green. There was 130 mililiter serous liquid in drain at morning after. Creatinine level of incoming analised and it was similar with blood serum. Any medical or surgical complication has occured and patient discharged at postoperative third day. Final pathologic examination revealed endosalpingiosis and degenerating leiomyoma.

Discussion

HSG is the only radiologic procedure routinely performed in the initial evaluation of the infertile woman and used to assess the anatomy of the uterus and the patency of the fallopian tubes [1]. The venous and lymphatic intravasation in uterine and adnexal vessels is a complicated disorder which occurs due to progressive destruction and ulceration of endometrium. The most important cause of intravasation is the transudation of contrast medium into the venous and lymphatic canals through unprotected vessels. The presence of contrast within the bladder and ureters indicates the clearance of contrast from the vascular circulation so it get times after the process [2]. In this unusual case contrast medium distended and pointed out cervical canal, uterine cavity, leiomyoma, fallopian tubes respectively. Meanwhile the medium poured into the posterior cul de sac and ascended, branched and terminated at the level of kidneys. The medium was presented at uterine cavity, leiomyoma, fallopian tubes, posterior cul de sac, ascending thin line ‘ureters’ and kidneys at the sametime. The duration was only few seconds up to this moment. The retrograde cruise of contrast, which is not compatible with pelvic veins, and occurrence in a few seconds rules out the vascular clearence mechanism and confirms the passage of medium into the ureters directly from peritoneum. The hypoechochogenity of medium was seen as distending the bladder half an hour later which was compatible with retardation of the vas-
cular clearence mechanism. This unusual periton-ureteral passage may be a cause of infertility via discomposing the peritoneal habitus and may misdiagnosed as intravasation. Patient was given doksisiklin medication for infection profilaxis due to intravasation via leiomyoma [3]. Although embolism due to oil soluble contrast medium has been reported there was not any reports about embolism due to water soluble media so anticoagulant use for such indication is not clear [4]. Patient was not given anticoagulant medication with subsequent data. Deep infiltrating endometriosis (DIE) usually involves the uterosacral ligaments, the rectovaginal space, the upper third of the posterior vaginal wall, the bowel, and the urinary tract. Chapron et al. reported ureteric DIE at 2.1% of their 426 patients suffering from pelvic pain [5]. There was not narrowing segments at ureteric image at intravenous-pyelogram and visible endometriotic implants on peritoneum at laparatomy. Also peritoneal biopsies did not revealed histological proved endometriosis. Endosalpingiosis refers to the presence of ectopic tubal-type ciliated glandular epithelium which resembles the normal endosalpinx [6]. Lesions of endosalpingiosis have been found to involve pelvic parietal and visceral peritoneum, omentum, pelvic lymph nodes, the appendix, intestine, uterine corpus skin and urinary bladder [7,8]. Li et al. reported ureteric involvement of endosalpingiosis [9]. Clement et al. reported transmural involvement of the uterine cervix and lower uterine segment and contiguous corpus in the two cases with uterine involvement [10]. The capability of transmural involvement at endosalpingiosis lesions suggests potential role at passage of medium but unilateral passage, confirmed by patency of ureters at IVP and analysis of incoming of abdominal drain, refutes this suggestion. Lymphatic stomata are small openings of lymphatic capillaries on the free surface of the mesothelium. The peritoneal cavity is connected with lymphatic system via these small openings, which have the function of active absorption. The ultrastructure of the lymphatic stomata and their absorption from the body cavities are important clinically, such as ascites elimination, neoplasm metastasis, and inflammatory reaction [11]. Lymphatic stomata may be associated with peritoneal absorption but it is insufficient for explanation of passage of medium into the ureters.
The location, origin and course of contrast medium suggests the ureteric association, enlarging and branching at terminal, like renal pelvis supported this suggestion. There was not abnormality at imaging studies about urinary system and any pathologic findings except leiomyoma at laparotomy. Creatinine level of drain incoming rules out fistulas. As a result we suggest the contrast medium passed through peritoneum into ureters and thereby kidneys via retrograde course but we couldn’t explain the occurrence of this situation with our knowledge.

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Conflict of Interest Statement
The authors declare no conflict of interest

References