

Case Report

Pyosalpinx presenting as intestinal obstruction in a patient of OHVIRA syndrome

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Abstract



Obstructed hemivagina and ipsilateral renal anomaly (OHVIRA), or Herlyn-Werner-Wunderlich syndrome, is a rare Mullerian duct anomaly with uterus didelphys, unilateral obstructed hemivagina, and ipsilateral renal agenesis. Usually these cases present after menarche with pelvic pain and/or a mass and rarely, in later years, with primary infertility. Strong suspicion and knowledge of this anomaly are essential for a precise diagnosis. A 20 year old patient presented with acute abdomen & features of sepsis, USG & CT abdomen showed left pyosalpinx, uterus didelphys, intestinal obstruction (dilated bowel loops), ipsilateral renal agenesis & collection as noted in pelvis, RIF. Patient underwent emergency surgery for drainage of pyosalpinx & pus contaminated collection. Sloughed off ovary was sent for HPE & biopsy report confirmed present of acute inflammatory cells. OHVIRA syndrome may present with acute abdomen and is usually treated with vaginal septum resection and drainage of the hematometrocolpos



Keywords: OHVIRA syndrome, Herlyn-Werner-Wunderlich syndrome, Pyosalpinx, Uterus didelphys, Renal agenesis

Case report

Patient aged 20years presented to the emergency department with chief complaints of pain abdomen since 20days, burning micturition since 8 days and fever since 5 days. She was first attended by general surgeon, on examination it was found that patient was febrile (101.5° F) with a tender abdomen with maximum tenderness in right iliac fossa, on further questioning it was found that patient also had complaints of constipation & had not passed stools since 1 day, she was advised USG abdomen and other routine investigations. Her WBC counts at admission were 40, 000, pregnancy test was negative and urinalaysis were normal. USG abdomen examination revealed a bicornuate uterus, collection in right lower half of abdomen & left kidney was not visualized; presumptive diagnosis of pyoperitoneum was made. She was further advised CECT abdomen for further evaluation. Gynecology reference was done; patient was married with no history of pregnancy. She had a regular menstrual cycle. On PV examination no evidence of bleeding was noted. No lump was palpable in pelvis. Next day she underwent CECT abdomen scan; findings of CT scan were



- left kidney was absent,
- multiple dilated small bowel loops were seen with maximum diameter 3.7 cm, no transition point was seen.
- Approximately 15x10x7 cm (500-600cc) peripherally enhancing collection was seen in pelvis with extension to right iliac fossa and pouch of Douglas. Additionally Minimal fluid seen along liver surface.
- Uterine didelphys with widely separated horns, distended left half of vagina
- Tubular structure was noted in left adnexa with high attenuation consistent with pyosalpinx. Left ovary was not identified separately



Hence considering the clinical feature and constellation of CT & USG findings final diagnosis of SAIO, pyoperitoneum secondary to pyosalpinx with features of OHVIRA syndrome (as patient had ipsilateral renal agenesis & obstructed hemivagina).

After initial resuscitation (IV fluids and antibiotics), the patient was taken for emergency surgery. Under general anesthesia after painting & draping, a classical vertical midline incision was made, wound developed in layers. Approximately 500 cc pus contaminated fluid was drained. Complete small & large bowel loops were examined, they were found dilated due to adhesions; adhesiolysis was done. Left fallopian tube was found dilated & filled with pus, left ovary was found partially sloughed out. The sloughed ovarian tissue was sent for HP examination. Peritoneal lavage was done with peritoneal drain placed in pelvic cavity. Wound was closed back in layers. Early postoperative period was uncomplicated. There was significant decrease in the WBC counts. On post operative day 5, patient was afebrile; clinical condition was satisfactory with normal WBC counts on discharge. She was advised to attend gynecology OPD for further definitive management. Biopsy report confirmed the presence acute inflammatory infiltrate with no granuloma.

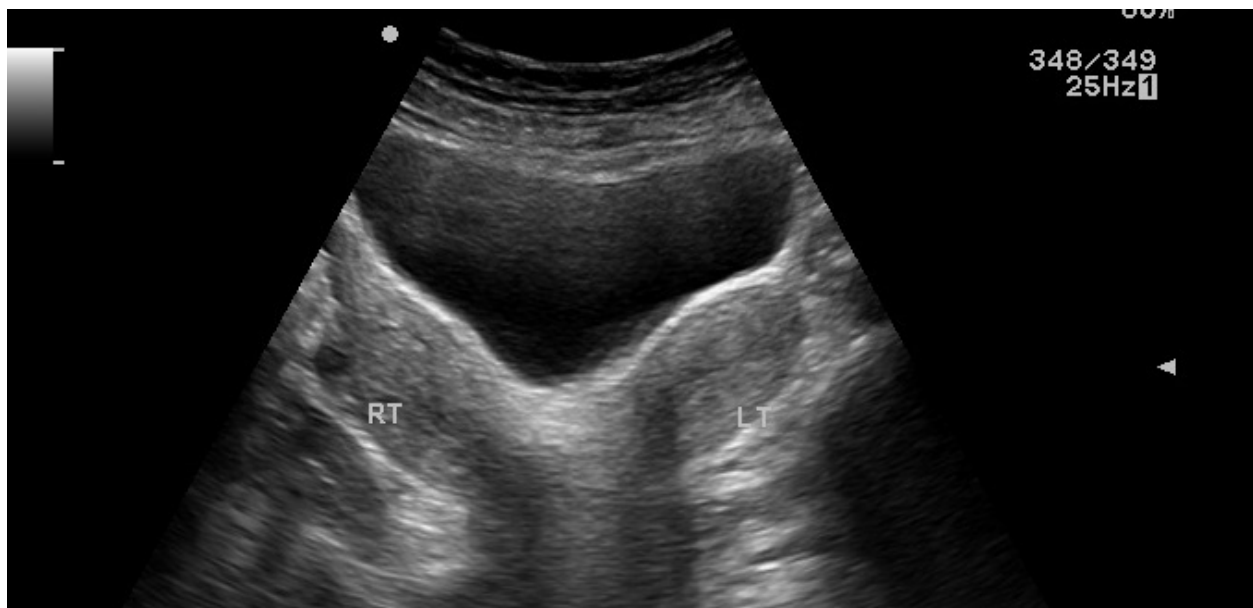


Figure 1: USG images two separate uterine horns, additional findings noted on USG were absent left kidney and collection in pelvis & RIF.

Figure 2 :
coronal CT
image
demonstrate



Figure 3: Left
renal agenesis
is clearly
demonstrate



Figure 4:
axial CT
sections
demonstrate



Figure 5:
peripherally
enhancing
collection is

Figure 6:
Intraoperativ
e image



Figure 7:
Image shows
left

Discussion



Didelphys uterus with obstructed hemivagina and ipsilateral renalagenesis is named as Herlyn–Werner Wunderlich (HWW) syndrome or OHVIRA syndrome [1]. In 1971 the association of renal agenesis with ipsilateral blind hemivagina was reported as Herlyn–Werner syndrome, and the association of renal aplasia, bicornuate uterus with isolated hematocervix, and a normal vagina were reported by Wunderlich in 1976 [2]. The incidence of uterus didelphys, related to OHVIRA syndrome, is approximately 1/2,000 to 1/28,000, and it is associated with ipsilateral renal agenesis in 43% of cases [3].

The precise pathogenesis and etiology of OHVIRA syndrome is still unknown. OHVIRA syndrome has been considered due to the anomalous development of mesonephric (Wolffian) and paramesonephric (Mullerian) ducts. The Wolffian ducts, are inductor elements for adequate Mullerian duct fusion and also give origin to the kidneys. Therefore, a developmental abnormality of the caudal portion of one of the mesonephric ducts may be the cause of Unilateral kidney agenesis associated with imperforate hemivagina [1]. On the side where the Wolffian duct is absent, the paramesonephric duct is displaced laterally and cannot fuse with the contralateral duct, resulting in a uterus didelphys.



The displaced Mullerian duct which cannot come into contact with the urogenital sinus centrally forms a blind sac, leading to an imperforate or obstructed hemivagina and the contralateral Mullerian duct gives rise to a vagina. An obstructing longitudinal vaginal septum, which was also present in this case, is associated with 75% of these anomalies [4]. Renal agenesis is the most common associated nongenital anomaly and is always seen on the side with the obstructed hemivagina as seen in our case on the left side.

The most common clinical presentation of OHVIRA syndrome is that of pelvic pain shortly after menarche but with normal regular menstrual cycles because of the normal menstrual flow from patent unobstructed hemivagina, generally a pelvic or vaginal mass is also palpable at examination due to the hematocolpos secondary to longstanding, retained, partially clotted menstrual blood in the obstructed hemivagina.

There are only a few reported cases presenting with acute abdominal pain as in our case or abnormal vaginal discharge, or even acute retention of urine [5,6,7]. Other etiologies causing acute abdomen such as ectopic pregnancy, acute appendicitis or ovarian torsion should be ruled out. Our case attained menarche at the age of 13 but was never diagnosed until she presented as acute abdomen, possibly she had superadded infection which led to pyosalpinx & tubal rupture and ultimately led to the development of Pyoperitoneum. Early diagnosis and surgery are imperative to relieve the presenting symptoms and prevent complications such as endometriosis and infertility. Ultrasonography, CT and MRI are used for diagnosis. Ultrasonography can diagnose presence of hematocolpos and can accurately identify the type of Mullerian anomaly [3]. MRI is the gold standard for diagnosis with higher sensitivity in detecting the uterine morphology and the continuity of the vagina when compared to ultrasonography [8]. However, three-dimensional ultrasonography may also be used with high sensitivity and specificity. laparoscopy is generally not needed for the diagnosis of most of the cases, since the diagnosis can be done adequately by ultrasonography and sectional imaging. In our case since we had presumptive diagnosis of Pyoperitoneum secondary to pyosalpinx after USG, we had CT scan of the patient done because of lack of time since patient had sepsis. CT scan correctly determined the extent of infected pelvic & peritoneal collection, renal agenesis and uterine didelphys. The management of choice for OHVIRA syndrome is resection of the vaginal septum in order to relieve the obstructed hemivagina to prevent complications such as hematocolpos. As our case had developed septicemic shock it was imperative to drain the septic foci so the drainage of pus contaminated fluid was done and sloughed off ovary was sent for HPE. Most patients with OHVIRA syndrome can be treated solely with single-stage vaginoplasty and routine laparoscopy is not essential for management. In order to preserve the hymenal **integrity** hysteroscopic resection of the septum under **Transabdominal** guidance has also been reported as a treatment option.

In conclusion, OHVIRA or HWW syndrome is a rare congenital urogenital anomaly that may present with acute abdominal pain. Diagnosis of OHVIRA requires high clinical suspicion as patients usually have normal menstrual cycle but should be kept as a differential diagnosis in patients complaining of recurrent severe dysmenorrhea. We would like to highlight that although rarely encountered, uterus didelphys with obstructed hemivagina should be in the differential diagnosis of adolescent girls/young adults presenting with acute abdomen.

DECLARATIONS

Authors' contributions

Made substantial contributions to conception and design of the study and performed data acquisition analysis and interpretation: Dr. Paridhi Sharma

Provided with data on internal examinations: Dr. Abhishek Kaushik

Provided insights on gynecological aspects and implications: Dr. Bushra Majeed

Provided administrative, technical, and material support: Dr. Ganpat Choudhary

Availability of Data and Materials

Not Applicable

Financial support and sponsorship

None

Conflicts of interest

All authors declared that there are no conflicts of interest.

Ethical approval and consent to participate

Ethical approval for this manuscript was obtained from Dr SN medical college Ethical Approval Committee.

Informed consent has been obtained from the patient for publication of the case report and accompanying images.

Consent for publication

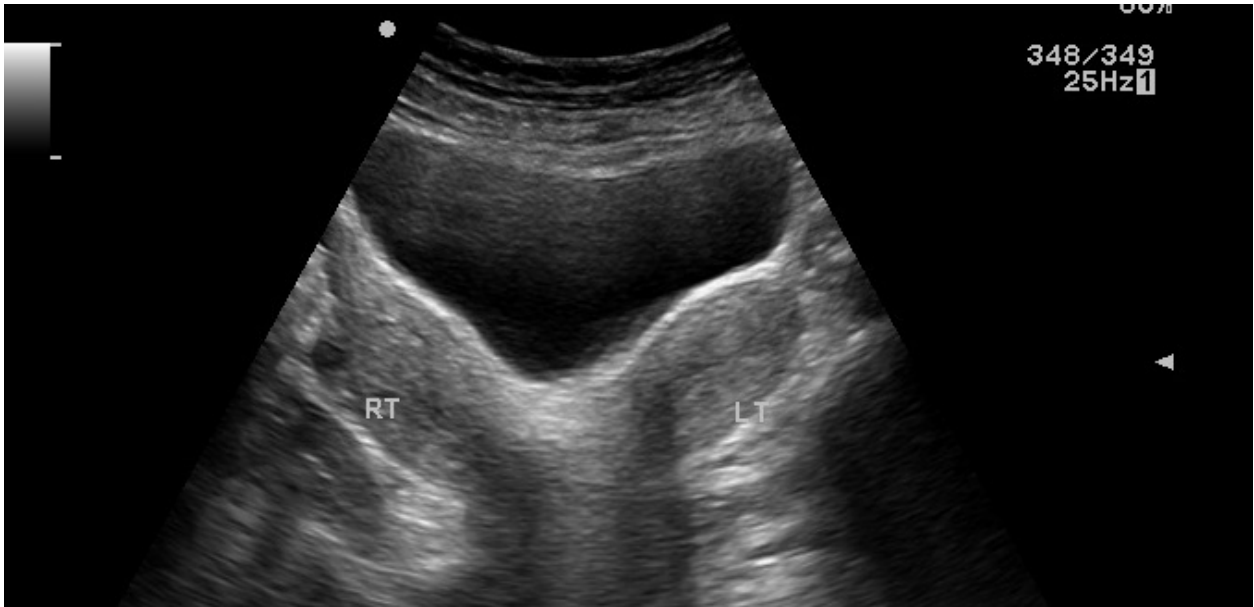
Not Applicable

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Figure Legend

Figure 1: USG images two separate uterine horns, additional findings noted on USG were absent, left kidney and collection in pelvis & RIF.




 **Figure 2:** Coronal CT image demonstrates uterine **didelphys** and tubular structure in left adnexa (**pyosalpix**)



Figure 3: Left renal agenesis is clearly demonstrated.

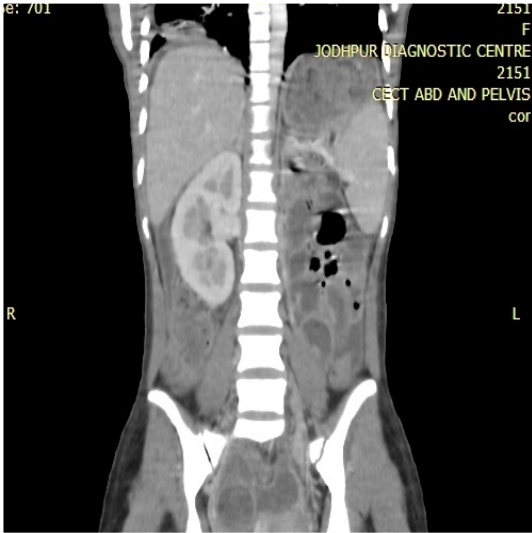


Figure 4: Axial CT sections demonstrates two widely spaced uterine horns.



Figure 5: Peripherally enhancing collection is noted in pelvic cavity, RIF and right paracolic gutter.



Figure 6: Intraoperative image showing pus in pelvic cavity



Figure 7: Image shows left pyosalpinx with partially sloughed off left ovary

