

Minilaparotomy for Excision of a Functioning Noncommunicating Rudimentary Horn and Endometrioma in a Patient with Solitary Kidney: A case report

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Abstract

Müllerian duct anomalies result from abnormal formation, fusion, or reabsorption of the Müllerian ducts during fetal life. A close embryologic relation exists between the development of the urinary and reproductive organs. Hence, renal tract defects are likely to be found in women with congenital uterine malformation. This report describes the technique of minilaparotomy for the removal of a noncommunicating rudimentary horn together with an associated endometrioma in a patient with absent one kidney.

Keywords: Müllerian duct malformation, noncommunicating horn, renal anomalies, rudimentary horn, unicornuate uterus

INTRODUCTION

Normal development of the Müllerian ducts depends on the completion of three phases: organogenesis, fusion, and septal resorption. Unicornuate uterus, classified as Group II according to the American Fertility Society (AFS), results from complete or near-complete arrested development of one of the Müllerian ducts.^[1] It constitutes approximately 20% of all Müllerian duct anomalies (MDA), and most patients are asymptomatic till menarche or when they become pregnant.^[2]

This group of anomalies can be further subdivided into four variants, according to the AFS, as following: unicornuate uterus with communicating rudimentary horn with functional endometrium (IIa) (10%), unicornuate uterus with rudimentary horn but not communicated with functional endometrium (IIb) (22%), unicornuate uterus with nonfunctioning rudimentary horn (IIc) (33%), and unicornuate uterus (IId) (most common 35%).^[2-4]

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The ESHRE/ESGE classification system for this anomaly: Class U4 or hemi-uterus. It is further divided into two subclasses, namely Class U4a: hemi-uterus with a rudimentary cavity (communicating or not horn) and Class U4b: hemi-uterus without rudimentary cavity (horn without cavity/no horn).^[5]

Congenital renal defects are the most frequently associated malformation in patients with MDA.^[6] They occur in 29% of patients with MDA and are more commonly associated with unicornuate uteri than with other anomalies, being reported in 40% of patients and are ipsilateral to the rudimentary horn.^[7] Renal agenesis is the most common abnormality.^[2] Other anomalies include ectopic kidney, horseshoe kidney, renal dysplasia, and duplicated collecting systems.^[7]

CASE REPORT

A 22-year-old female who has been married for 4 years presents with dysmenorrhea and chronic pelvic pain for

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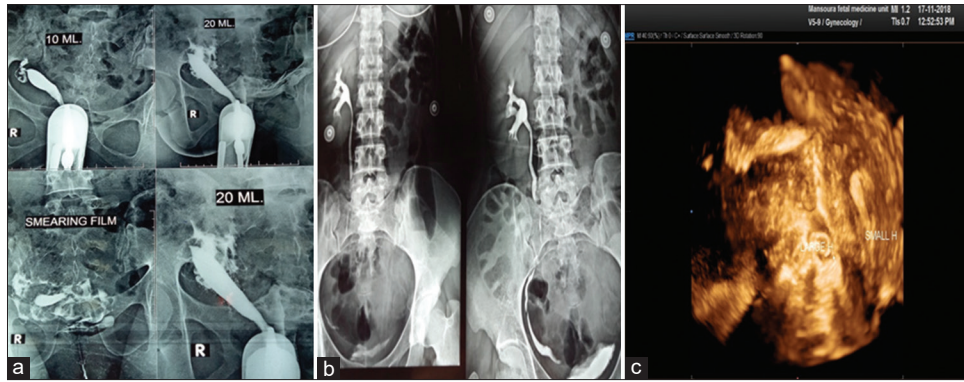


Figure 1: (a) Hysterosalpingography revealed right unicornuate shaped uterus with the patent tube. (b) Intravenous pyelogram revealed absent left kidney and ureter. (c) Three-dimensional ultrasound showed left noncommunicating functioning horn attached with left fallopian tube showing hematosalpinx \times 8 cm \times 6 cm and left ovarian endometriotic cyst 6 cm \times 5 cm. On the right side, the unicornuate uterus with normal endometrial cavity and visualized normal right ovary but right tube not visualized

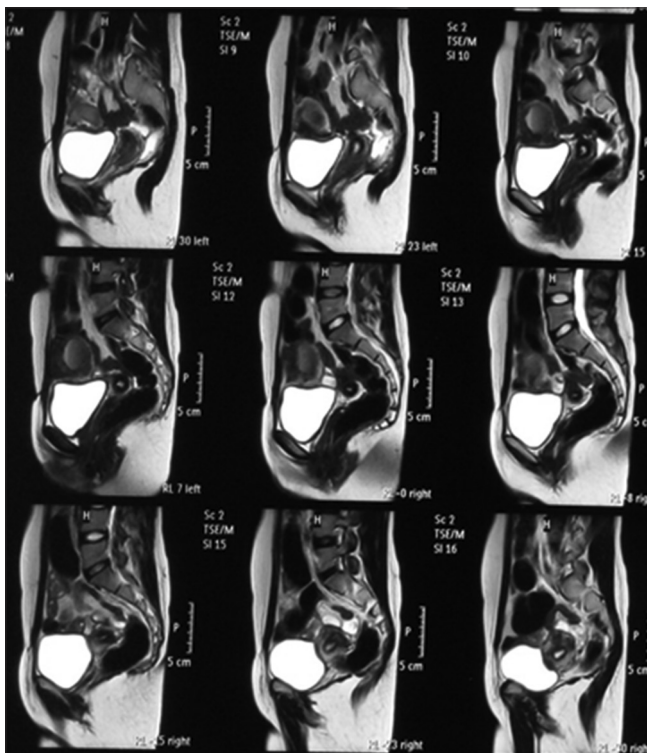


Figure 2: Magnetic resonance imaging: Evidence of the right unicornuate uterus with noncommunicating left rudimentary horn containing endometrium (IIB). The left rudimentary horn is seen dilated, its cavity is seen filled with blood signal together with dilated serpiginous tubular left adnexal structure containing blood signal inside hematometra and hematosalpinx. Left endometriotic cyst

1 year. Menarche was at 13 years, and she was regularly menstruating with no other complaints. After marriage, she got pregnant two times. In her first pregnancy, at 31 weeks gestational age, intrauterine fetal death occurred and it was unexplained. Failure of induction for the termination of pregnancy leads to the decision of termination by the cesarean section and that was the time when she was first discovered to have unicornuate uterus. After 1 year, she had

experienced first trimester abortion which was terminated medically.

After that, the patient started seeking medical advice for desiring children. She has done hysterosalpingography, which showed the right unicornuate shaped uterus [Figure 1]. After that, four-dimensional ultrasound (US) was done and revealed right unicornuate uterus associated with noncommunicating contralateral rudimentary horn containing endometrium. Trans-abdominal Sonography (TAS) revealed the absence of left kidney. Then, the patient has done two laparoscopies which confirmed the diagnosis of collection of blood in the rudimentary horn and the related tube for which evacuation was done (as the patient said no available reports).

Later on, the patient started to develop chronic pelvic pain, increasing in intensity around the time of menstruation. The complaint lasts for 1 year when she presents to our clinic.

She had pelvic ultrasound revealing right unicornuate uterus and noncommunicating left cornue filled with blood and marked left hematosalpinx.

An abdominal examination of the patient revealed Pfannenstiel incision scar of previous C.S. Local examination revealed normal vagina and one normal cervix. Bimanual examination revealed mobile mass felt on the left side 7 cm \times 7 cm. More imaging was done before the decision of doing laparotomy. Intravenous pyelogram confirmed the absence of the left kidney and ureter [Figure 1]. Three-dimensional US showed left noncommunicating functioning horn attached with the left fallopian tube showing hematosalpinx and left ovarian endometriotic cyst. Unicornuate uterus with normal endometrium and normal right ovary were observed [Figure 1]. Magnetic resonance imaging confirmed the finding as follows: evidence of right unicornuate uterus with noncommunicating left rudimentary horn containing

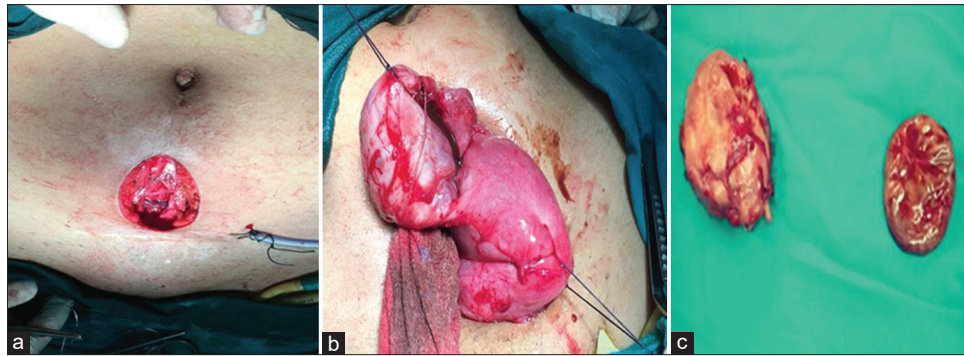


Figure 3: (a) Midline subumbilical incision (minilaparotomy). (b) The rudimentary left horn (hematometra), hematosalpinx, and left ovary with endometriotic cyst were released through the abdominal incision. (c) The excised rudimentary horn and endometriotic cyst

endometrium (IIB) [Figure 2]. Anti-Müllerian hormone for the patient = 3.58.

After counseling the patient, the decision to do surgical excision was taken. Midline subumbilical minilaparotomy was done [Figure 3]. The right unicornuate uterus is seen normal with normal right tube and ovary. Injection of dye (methylene blue) through transcervical catheter revealed the patency of the right tube. The rudimentary left horn, tube, and ovary were seen adherent to anterior abdominal wall, completely separated from the normal horn [Figure 3]. Chocolate material (altered blood) was revealed on opening the blind horn and the related tube and ovary. Dissection from the anterior abdominal wall, cystectomy of endometriotic cyst, and excision of the rudimentary horn were done [Figure 3]. The operative time was about 40 min. The postoperative pain was tolerable, relieved by simple analgesics. Early ambulation of the patient was achieved, and hospital stay was for 36 h only.

Signed informed consent was obtained from the patient for doing the operation and using the information to be published in this article. The acceptance of ethical committee was obtained. The Institutional Review Board code is R.19.08.593.

DISCUSSION

Unicornuate uterus results from complete or near-complete arrested development of one of the Müllerian ducts.^[1] When it is associated with a rudimentary horn, this results from the defective fusion of the malformed duct with the contralateral duct. A fibrous or fibromuscular band usually connects the two horns of the ducts, but in 80%–90% of cases, there is no communication.^[8]

Patients who have a functioning rudimentary noncommunicating horn have an increased incidence of gynecologic problems consisting of dysmenorrhea and chronic pelvic pain.^[2] The resulting obstruction of the menstrual flow may cause hematometra and hematosalpinx, leading to endometriosis and infertility^[7] and subsequently may require surgical

intervention.^[11] This is achieved either laparoscopically or by laparotomy.^[9,10]

The unilateral renal agenesis provides a unique and rare case; however, it does not bring great importance to this case. This case had a disturbance in the normal structural anatomy due to malformation of the Müllerian ducts and associated disorders in the renal system. In addition, previous cesarean delivery, previous two failed laparoscopies, and associated endometrioma added the risk of pelvic adhesions.

In our case, minilaparotomy for excision of the rudimentary horn and associated endometrioma provided a good surgical option for the management of this condition as it combined the advantages of traditional laparotomy and the benefits of laparoscopy as less postoperative pain and early recovery and short hospitalization. The decision of doing minilaparotomy was the result of failed previous two laparoscopies because of adhesions and endometriosis and also the possibility to pass to exploratory laparotomy was kept in mind if failed minilaparotomy.

The patient having unicornuate uterus of any subtype should be managed carefully because they can be asymptomatic or suffer from various symptoms such as dysmenorrhea, abdominal lump, chronic pelvic pain, infertility, endometriosis, hematometra, acute abdomen, and ectopic pregnancy.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that name and initial will not be published, and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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