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Acute Kidney Injury After Sigmoid Vaginoplasty Procedure In Mullerian Duct Anomalies: A Case Report

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ABSTRACT: Background: Development of female genital tract is a complex process and dependent upon a series of events involving cellular differentiation, migration, fusion, and canalization. Mullerian Duct Anomalies (MDA) are uncommon congenital anomalies, but can vary widely and treatable with surgical procedure. Classification system that have been used are classification from American Society for Reproductive Medicine (ASRM) and European Society of Human Reproduction and Embriology (ESHRE) and European Society for Gynaecological Endoscopy (ESGE). Surgical procedure in MDA patient had a high successful rate, but post-operative complication can arise in form of the need for further surgical requirement and acute kidney injury.
Case report: A 20 year old girl admitted to obstetric gynecologic clinic with complaints of abdominal pain, amenorrhea, and redness voiding. She experienced abdominal pain since 6 years ago. Previously, patient had history of vaginal drainage procedure when she was 14 years old but she did not felt improvement in complaint and symptom. Cystoscopy and radiology imaging showed vaginal agenesis and renal dekstra agenesis, subsequently patient was planned for a sigmoid vaginoplasty procedure. Identification and exploration during surgery revealed vaginal agenesis, renal dekstra agenesis, hematometra from hemiuterus dekstra, hemiuterus sinistra with asesorius or hipoplasia uterine and hematosalping dekstra. In 5 days post operative, patient suffer anuria and acute kidney injury complication. Acute kidney injury after major surgery involving gastrointestinal was common because of surgical stress response, and agenesis renal condition aggravates this complication.

KEYWORDS: Mullerian Duct Anomalies, Anuria, Acute kidney injury, Sigmoid Vaginoplasty

BACKGROUND

Congenital malformations of female genital tract defined as embryological maldevelopment of the Mullerian or paramesonephric ducts. Interruption of mullerian duct can result in formation of Mullerian Duct Anomalies (MDA), and anomalies can range from vaginal agenesis, uterine agenesis, and renal agenesis[1]. In a general population-based study, prevalence of Müllerian duct anomalies was 9.8% and more frequent in nulliparous women [2]. MDA are uncommon congenital anomalies, but can vary widely and treatable with surgical procedure [3]. In a patient with congenital anomalies of Mullerian duct, vaginal reconstruction may be indicated, and the procedure are involving intestinal transplant methods to create a functioning neovagina. Sigmoid vaginoplasty were proposed more than 100 years ago, but postoperative acute kidney injury (AKI) is a common complication following gastrointestinal surgery, and a renal agenesis condition can worsened the complication and will be discussed in this case report of a 20-year-old female who presented with abdominal pain and amenorrhea.

CASE REPORT

A 20 year old girl admitted to obstetric gynecologic clinic with complaints of abdominal pain, amenorrhea, and redness voiding. She experienced abdominal pain since 6 years ago. She felt the pain every once a month in lower abdominal area, and she never had menstrual cycle before. She also said that once on a month she had a redness voiding. Previously, patient had history of vaginal drainage procedure when she was 14 years old but she did not felt improvement in complaint and symptom. Physical examination revealed lower abdominal tenderness. There was no pathological finding on laboratory examinations. Gynecologic examination reveal 2 cm vaginal sondage, without anomalies of external genitalia or hymen. Abdominal ultrasound examination showed uterus with size 6,5x4,1x3,39 cm and mass seems hematosalphing in both adnexa (figure 1). Patient had cystoscopy

procedure and radiology imaging confirmed vaginal agenesis and radiology test showed delayed function of right kidney with normal left kidney function.

After diagnostic procedure, patient than planned for sigmoid vaginoplasty procedure. Identification and exploration during surgery revealed vaginal agenesis, renal dekstra agenesis, hematometra from hemiuterus dekstra, hemiuterus sinistra with asesorius or hipoplasia uterine, unilateral cervical aplasia and hematosalping dekstra. In five days post operative, patient suffer anuria and acute kidney injury complication. There is no urine production and patient had laboratory test which showed elevated in creatinin serum until five times fold normal limit. Patient had abdominal ultrasound evaluation and showed inflammation in left kidney (figure 2). After initial therapy and fluid rehidration, patient regained kidney normal function and discharge after twelve days post surgical procedure.

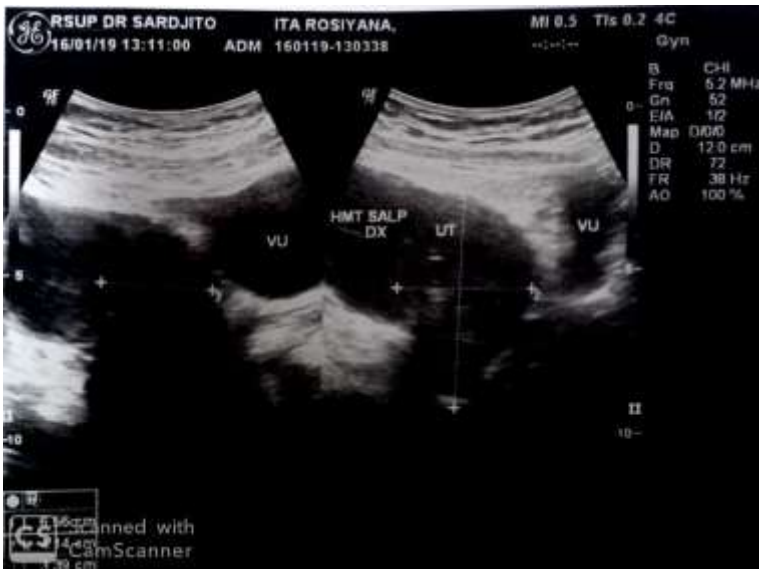

Figure 1. Ultrasound finding in initial evaluation

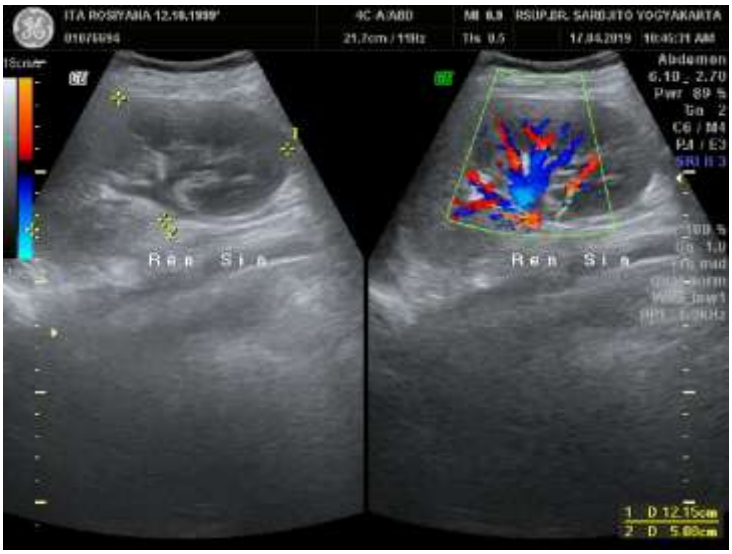

Figure 2. Evaluation Ultrasound of Left Kidney After Sigmoid Vaginoplasty Procedure

DISCUSSION

The female reproductive tract develops from a pair of Mullerian ducts that form fallopian tube, uterus, cervix and the upper two-thirds of the vagina [1]. Congenital malformations arise if there is agenesis of one or two ducts, or absence of fusion or reabsorption of the septum between the ducts. Vaginal anomalies are often associated with uterine anomalies [4]. Due to their wide variability, classification of MDA are useful for their diagnosis and management [3].

The most common classification system that developed and had been used were by American Society for Reproductive Medicine (ASRM) and European Society of Human Reproduction and Embriology (ESHRE) and European Society for Gynaecological Endoscopy (ESGE). ASRM divides uterine malformations into seven main groups [5]. This system does not include vaginal

anomalies and certain combined anomalies. Two European societies, ESHRE and ESGE have introduced a classification based on the anatomy of the female genital tract and malformations of the uterine cervix and vagina [6].

From surgical finding in this patient, patient had hemiuterus dekstra with hipoplasia uterine sinistra, unilateral cervical aplasia, and partial vaginal aplasia. In ESHRE/ESGE classification this is include in Class U4a, which incorporates all cases of unilateral formed uterus. Hemiuterus defined as the unilateral uterine development, and the contralateral part incompletely formed [6]. A unilateral cervical aplasia classified into subclass C3 which included in unilateral cervical formation and partial vaginal aplasia classified into subclass V4 for cases of complete or partial vaginal aplasia.

Treatment for patient was a surgical sigmoid vaginoplasty and resection of hematometra from hemiuterus dekstra. Main purposes of treatment are to relieve symptoms and create a neovagina to provide further sexual and reproductive function. In this procedure, sigmoid colon have been used to create a neovagina because it is anatomically close to the perineum, sufficiently long and its vascular mobility allows it to be brought into the perineum [7]. Surgical procedure are completed, but after five days of surgery, patient had acute kidney injury. Acute kidney injury after major surgery involving gastrointestinal was common because of surgical stress response, and agenesis renal condition in this patient aggravates this complication [8].

In the present cohort, AKI associated with a significantly increased risk of morbidity and mortality. One study confirmed that postoperative AKI following gastrointestinal surgery is common, affecting around one in seven patients, and is associated with an increased risk of major complications and death [8]. Although a causative relationship between AKI and poor clinical outcomes cannot be claimed, numerous potential mechanisms exist. AKI is independently associated with cytokine release, systemic inflammation and organ dysfunction [8]. From STARSurg study, hypertension, proteinuria, or renal failure was present in approximately two-third of patients with renal agenesis/dysplasia. Those with HT and proteinuria had a higher risk of progression to renal insufficiency [8].

In a study included women who had renal anomalies, unilateral renal agenesis being most frequent defect. The incidence of unilateral renal agenesis has been reported as 1 per 500–1000 in autopsies [9]. In patient with single kidney, an adaptive phenomenon occurs at the solitary kidney as a result of the diminished number of nephrons. Increases in size and functional capacity of the kidney have been shown in animal and human studies [10]. An increased renal blood flow and glomerular pressures cause a mechanical stimulation for renal growth. A decrease in 50% of human renal mass causes an increase in glomerular filtration rate [10], and Wang et al showed that patients with congenital solitary kidney had a higher risk of renal insufficiency [11].

A large fluid overload upon the single kidney after initial hydration therapy for dehydration might have caused a rapid cone-shaped expansion of the previously collapsed proximal ureter due to dehydration [12]. Initially this seems a worrying condition, but after several days, patient had regained it normal kidney function.

To summarize, in this patient with Mullerian duct anomalies was a condition which need a surgical intervention to provide further function in sexual and reproductive. Acute kidney injury is a common complication due to stress response from mayor abdominal surgery and a renal agenesis can aggravates this condition.

REFERENCES

1) Chandler TM, Machan LS, Cooperberg PL. Müllerian duct anomalies: from diagnosis to intervention. The British Journal of Radiology 2009; 82: 1034-1042
2) Dreisler E, Stampe Sørensen S. Müllerian duct anomalies diagnosed by saline contrast sonohysterography: prevalence in a general population. Fertil Steril 2014; 102(2):525–9.
3) Grimbizis GF, Campo R. Congenital malformations of the female genital tract: the need for a new classification system. Fertil Steril 2010; 94:401–407.
4) Spencer TE, Dunlap KA, Filant J. Comparative developmental biology of the uterus: insights into mechanisms and developmental disruption. Mol Cell Endocrinol 2012;354(1–2):34–53.
5) The American Fertility Society. The American Fertility Society classifications of adnexal adhesions, distal tubal occlusion, tubal occlusion secondary to tubal ligation, tubal pregnancies, Müllerian anomalies and intrauterine adhesions. Fertil Steril 1988;49(6):944–55.
6) Grimbizis GF, Gordts S, Di Spiezio Sardo A, et al. The ESHRE/ESGE consensus on the classification of female genital tract congenital anomalies. Hum Reprod 2013;28(8):2032–44.
7) Hendren WH, Atala A (1994) Use of bowel for vaginal reconstruction. J Urol 152:752–755
8) STARSurg Collaborative. Prognostic model to predict postoperative acute kidney injury in patients undergoing major gastrointestinal surgery based on a national prospective observational cohort study. BJS Open 2018; 2: 400-410.

9) Oppelt P, von Have M, Paulsen M, et al. Female genital malformations and their associated abnormalities. Fertil Steril 2007; 87(2):335–42.
10) Basturk T, Koc Z, Ucar T et al. Renal Damage Frequency in Patients with Solitary Kidney and Factors That Affect Progression. International Journal of Nephrology. 2015; 876907
11) Y.Wang, Z. Wang,W.Wang, H. Ren, W. Zhang, and N. Chen, "Analysis of factors associated with renal function in Chinese adults with congenital solitary kidney," *Internal Medicine*, vol. 49, no. 20, pp. 2203–2209, 2010.
12) Choi M.B, Kim Jum, Seo Ji Hyoun, et al. Unilateral renal agenesis presenting with acute obstructive postrenal failure following administration of hydration fluid. Pediatrics International 2006: 48; 420-422