

# MR Imaging of Congenital Vaginal Anomalies

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## Methods

Nine female patients, aged 15 to 25 years (mean 20 years), with normal secondary sexual characteristics, the 46, XX karyotype, and congenital vaginal anomalies requiring surgical intervention were studied. Seven patients had presented complaints of primary amenorrhea, with or without cyclic low-abdominal pain. One of them also suffered from urinate leakage. Two patients had scanty menstruation and cyclic low-abdominal pain.

A whole body superconductive 1.5T MR scanner (Visart, Toshiba) was employed and the body coil was used. All patients were scanned with spin-echo (SE) T1WI in the axial plane, and fast SE T2WI in the axial, sagittal, and oblique coronal planes of the pelvic. Slice thickness was 5 mm, with a 1-mm interval. MR imaging was performed before surgery. On each examination, the vagina, cervix, uterus and ovaries were assessed.

## Results

The vaginal anomalies were categorized into three groups in our study: □ complete absence of the vagina (n=3), which is almost always accompanied with the absence of normal uterus and cervix. It is also called as Mayer-Rokitansky-Kuster-Hauser (MRKH) syndrome (Fig 1). □ Vaginal atresia (n=3) (Fig 2), one case with complicated urinogenital abnormality (Fig 3). □ Transverse vaginal septum (n=2) (Fig 4). Plus 1 case showed imperforate hymen (Fig 5).

## Discussion

MRI is a reliable method for evaluating vaginal anomalies. An accurate MRI examination can be helpful to surgical management. □ In patients with MRKH syndrome, i.e. Complete vaginal agenesis with only a rudimentary uterine bulb and without functioning endometrium, vaginoplasty is the choice of the treatment for sexual function. □ In patients with vaginal atresia or transverse vaginal septum, if the normal uterus and cervix are present, vaginoplasty would allow the egress of menstrual discharge, prevent complications like endometriosis, and normal pregnancy is feasible. □ In patients with vaginal anomalies, with functioning uterine corpus but without normal cervix, fertility preservation is not possible at present. Hysterectomy would be an initial procedure to prevent the development of endometriosis, and followed by vaginoplasty.

## Conclusion

In patients with vaginal anomalies, MR imaging findings were essential for the appropriate choice of the surgical approach and type of procedure.

## References

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Figure 1: MRKH syndrome in a 24-year-old woman with a history of primary amenorrhea without cyclic pelvic pain. A. Sagittal T2-weighted fast SE image (TR/TE, 4500/120), B. Axial T2-weighted fast SE image (TR/TE, 4500/120) excluded the presence of the normal vagina, cervix, and uterus between the bladder, the urethra and the rectum. There was a streak of midline tissue posterior to the bladder and urethra, which may represent a rudimentary vagina and uterus

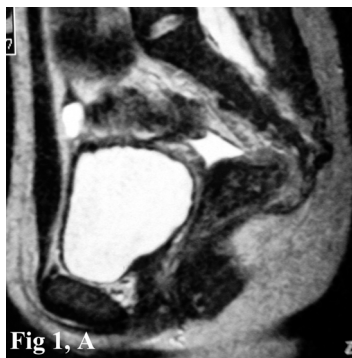


Figure 2: Vaginal atresia in a 17-year-old girl with primary amenorrhea and cyclic pelvic pain. A. Sagittal T2-weighted fast SE image (TR/TE, 4500/120) demonstrated the uterine cavity and cervical canal were distending with blood (hematometra). The upper portion of the vagina was also dilated and filled with blood (hematocolpos), and ended blindly owing to the presence of a vaginal atresia. B. Axial T1-weighted SE image (TR/TE, 500/15) showed hematometra and right-sided endometrioma

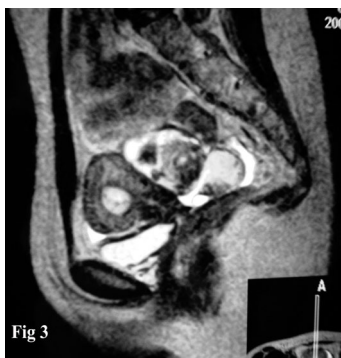


Figure 3: Complicated urinogenital abnormality in a 15-year-old girl with primary amenorrhea, cyclic pelvic pain, and urinate leakage. Sagittal T2-weighted fast SE image (TR/TE, 4500/120) showed normal uterus with thickened endometrium. The cervix was short, the upper portion of vagina was seen, and the distal portion of the vagina was absent. There was a little pelvic effusion. No fistula between the urethra and the vagina was seen. Vaginal atresia and urethra sphincter agenesis was found at surgery

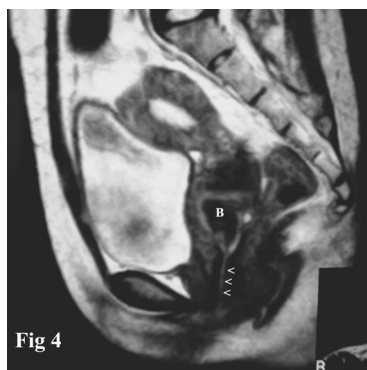


Figure 4: Transverse vaginal septum in a 22-year-old woman with scanty menstruation and cyclic pelvic pain. Sagittal T2-weighted fast SE image (TR/TE, 4500/120) showed normal cervix and uterus. There was a low intensity mass in the upper portion of the vagina, just above the septum. The signal intensity of the mass was compatible with old blood block (B). The distal part of vagina was seen as thin string of relative high signal intensity (arrowheads)



Figure 5: Imperforate hymen in a 15-year-old girl with severe pelvic pain at menarche but no onset of menstruation. Sagittal T2-weighted fast SE image (TR/TE, 4500/120) showed the uterine cavity was distended with blood (hematometra, H), and a markedly dilated vagina (hematocolpos). The obstruction is at the level of perineum (arrowhead)