

**CASE REPORT****Modification of Intrauterine Catheter Device to Manage Reocclusion Following Cervical Dysgenesis Surgery: A Case Series**Tyas Priyatini¹, Rodiani^{2,*}¹ Division of Urogynecology and Reconstruction, Department of Obstetrics and Gynecology, Faculty of Medicine, Universitas Indonesia/Dr. Cipto Mangunkusumo National General Hospital, Jakarta, Indonesia² Department of Obstetrics and Gynecology, Faculty of Medicine, University of Lampung/Abdul Moeloek General Hospital, Bandar Lampung, Indonesia**Corresponding Author:** Rodiani; rodianimoekroni@gmail.com ; +62 812-2294-9925**Submitted :** May 14, 2025; **Accepted:** July 8, 2025; **Published:** July 25, 2025**Doi :** <https://doi.org/10.25077/aoj.9.2.318-326.2025>**Abstract****Background:** Cervical dysgenesis is an extremely rare type of Mullerian anomalies causing obstructive symptoms. Conservative surgery of neocervix may be related to reocclusion of the genital tract and further increase the risk of reoperation. The presence of uterine malformation may also complicate this condition and lead to challenges for normal anatomy restoration.**Case presentation:** We present three cases of primary amenorrhea and obstructive symptoms caused by reocclusion following cervicovaginal conservative surgery. A neovagina was created using amniotic graft, followed by the insertion of intrauterine catheter device using a syringe barrel to maintain canalization and prevent recurrent occlusion. Double approach technique (laparotomy hysterotomy and transvaginal approach) was used in the two cases and one case underwent transvaginal surgery. Three months follow-up revealed normal menstruation and rather satisfying anatomical outcome.**Clinical discussion:** Treatments should aim to relieve obstructive symptoms, improve function, and preserve fertility. Conservative surgical approach to manage cervical dysgenesis warrants challenges in preventing reocclusion. Surgery mainly consists of creating neocervix, neovagina if needed, and maintaining the continuity of the genital tract.**Conclusion:** Intrauterine catheter device using a syringe barrel is a simple and feasible option with satisfactory anatomical as well as functional outcome to manage cervical dysgenesis.**Keywords:** Cervical dysgenesis, cervicovaginal stenosis, amniotic graft, primary amenorrhea, hematometra, neocervix.

INTRODUCTION

Cervical dysgenesis is a rare female genital anomaly, described as the absence or defect of the cervical canal. The prevalence is extremely low, with approximately one case in 100,000, 3% of all uterine malformations, and <0.1% of the general population. Local atrophy of the 'primitive cervix' is suggested to cause the abnormal organogenesis of the cervical canal.^{1, 2} Cervical dysgenesis primarily causes obstructive symptoms and is frequently complicated by the coexistence of uterine malformation. Occluded menstrual flow typically presents as asymptomatic, hematometra, or hematocolpos. Further hampered cervicouterine function may result in endometriosis, pelvic adhesion, and primary infertility.^{1, 3, 4} Conservative surgical option has been proposed to relieve the obstructive symptoms, and restore normal anatomy, while still preserving the reproductive function.^{5, 6} Nonetheless, conservative procedures are associated with several complications, mainly, secondary occlusion followed by reoperation.^{2, 7, 8} We propose a simple new method in maintaining canalization using intrauterine catheter device following amniotic graft neovagina.

CASE REPORT

Case 1

A 12-year-old-girl presented with primary amenorrhea and cyclic abdominal pain for 2 months. She was previously undergoing a vaginal incision procedure for the indication of hematometra hematocolpos. Upon the procedure, agenesis distal vagina was revealed. She was then advised to use Frank dilators while being referred to our department for further management. Her secondary development was Tanner M2P2. Gynecological examination revealed no hymen structure (figure 1, A). Ultrasound showed hematometra (5.77 x 2.91 x 2.58 cm, volume of 22 cm³), and hematocolpos (13.9 x 9.08 x 8.9 cm, volume of 588 cm³) with reclosure of distal vagina (figure 2, A1 and A2). She then proceeded to surgery of amniotic graft neovagina with a transvaginal approach. Accumulation of 900 cc hematometra and hematocolpos was successfully evacuated. A silicon catheter no. 16 with amniotic graft mold was inserted and sutured to the vulva (figure 3).

Case 2

A 37-year-old female patient was admitted with complaints of primary amenorrhea and cyclic abdominal pain, which gradually increased over time. Twenty years prior, she had received uterovaginal anastomosis surgery and evacuation of menstrual blood but had ceased post-operative molding exercises after one year due to discomfort. Twelve years ago, she underwent laparotomy for an endometriotic cyst. On examination, Tanner stage M3P3, and no vagina or hymen structure (figure 1, B). Ultrasound revealed hematometra (14.03 × 10.43 × 14.17 mm; volume 1,085 cm³), cervical dysgenesis, and proximal vaginal reclosure (figure 2, B1 and B2). A double approach (laparotomy-transvaginal) was performed to evacuate 700 cc of hematometra. A Hegar dilator was guided transvaginally, and an incision was made. Cervix was unidentifiable.

A silicone catheter (no. 18) with an amniotic graft mold was placed and sutured. The mold was removed after a week, and a 50-cc syringe barrel was kept to maintain canalization for 1–2 years (figure 3). She was then advised to replace syringe barrels monthly, as needed.

Case 3

A 25-year-old female with presented primary amenorrhea and cyclical pelvic pain. Ten years before, she had an abdominal surgery to evacuate menstrual blood and was advised to perform molding exercises. However, blood accumulation continued, and she was referred to our department with a 3-month contraceptive injection. Unfortunately, she was lost to follow-up and presented 6 years later with abdominal pain secondary to hematometra and suspected reclosure of the cervicovaginal tract. The examination revealed Tanner stage M3P3 secondary sexual characters, structure and vaginal sondage was obstruct at 2 cm (figure 1, C), and ultrasonography confirmed hematometra ($43 \times 30 \times 41$ mm with a volume of 27.1 cm^3), cervical dysgenesis and vaginal reclosure (figure 2, C1 and C2). Hematometra of 50 cc was evacuated during laparotomy. Using a Hegar dilator guidance, incision was made, and a dilated cervical canal was observed. An amniotic graft vaginal mold was placed and sutured. The following week postoperative, a 50-cc syringe barrel was substituted for the mold (figure 3).

Table 1: Summary of the cases

Characteristic	Case no 1	Case no 2	Case no 3
Age	12-year-old	38-year-old	25-year-old
Chief complain	Primary amenorrhea and cyclical abdominal pain		
Tanner development	M2P2	M3P3	M3P3
Previous surgery	Hematocolpos evacuation with transvaginal approach followed by moulding exercise	Hematometra evacuation with abdominal approach followed by moulding exercise	1. Hematometra evacuation with uterovaginal anastomosis construction followed by moulding exercise. 2. Laparotomy for endometriosis cyst
Marked clinical finding	Hematometra hematocolpos due to reclosure of distal vaginal dysgenesis	Hematometra due to dysgenesis cervix and reclosure of proximal vaginal dysgenesis	Hematometra due to dysgenesis cervix and reclosure of proximal vaginal dysgenesis
Surgical approach	Transvaginal	Double approach (laparotomy hysterotomy and transvaginal)	
Menstrual blood evacuated	900 cc	700 cc	50 cc
Operative blood loss	30 cc	400 cc	1200
Follow-up	Three months follow up showed a satisfactory anatomical result and normal menstruation has been reported.		

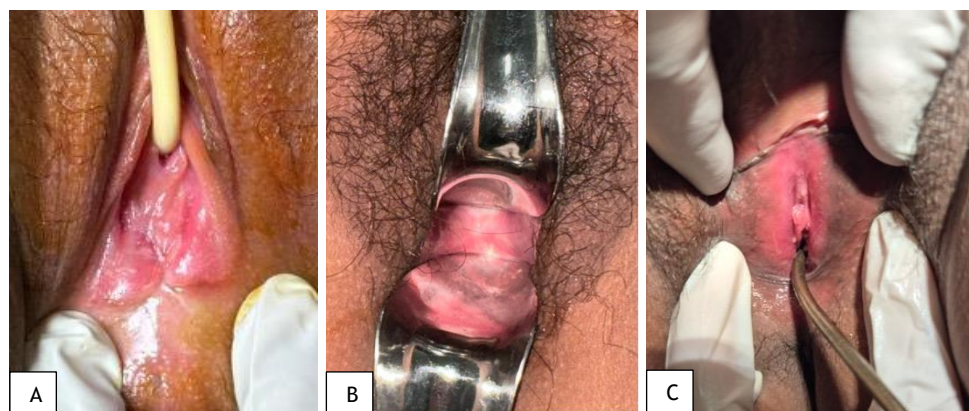


Figure 1: Gynecological examination. No hymen and vaginal structure in case no. 1 (A) and case no. 2 (B). Sondage was blocked at 2 cm in case no. 3 (C).

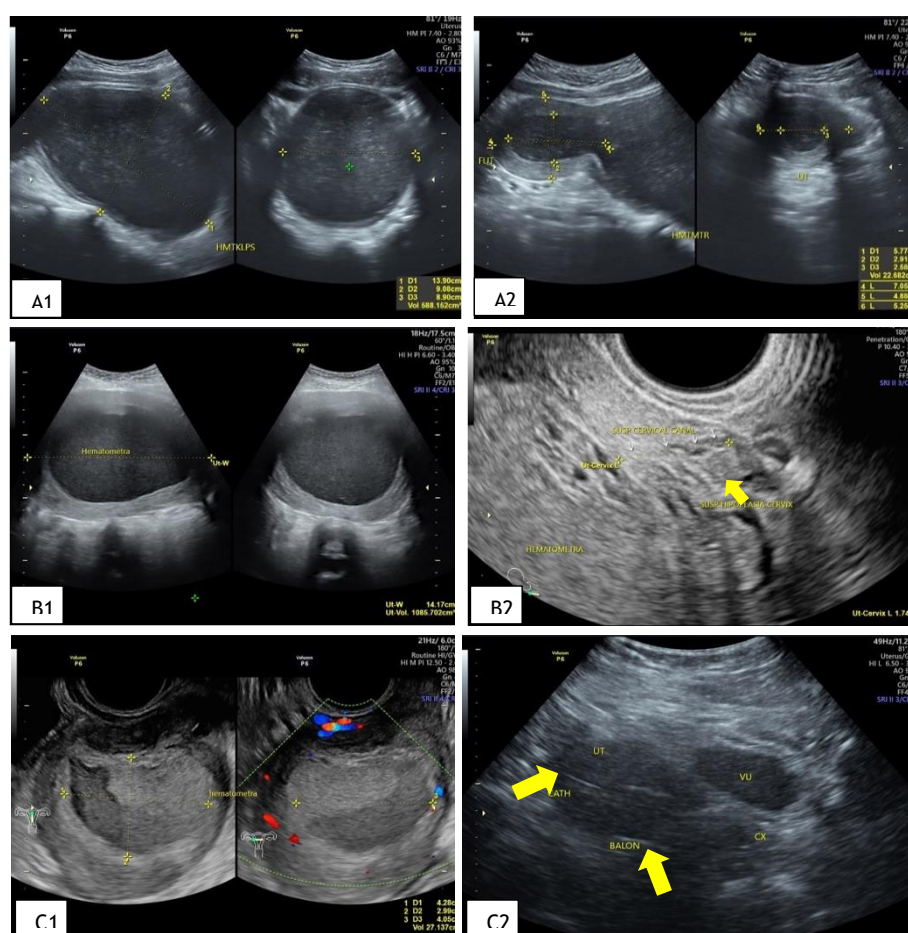


Figure 2: Ultrasound examination. (A1) Hematocolpos sized 13.9 x 9.08 x 8.9 cm, volume of 588 cm³ and (A2) Hematometra sized 5.77 x 2.91 x 2.58 cm, volume of 22 cm³ in the first case. (B1) Hematometra 14.03 x 10.43 x 14.17 mm; volume 1,085 cm³, (B2) cervical dysgenesis marked in yellow arrow and hematometra in sagittal plane in the second case. (C1) Hematometra (43x30x41 mm with a volume of 27.1 cm³), (C2) post-operative ultrasound evaluation, marked the balloon and catheter seen in yellow arrows.

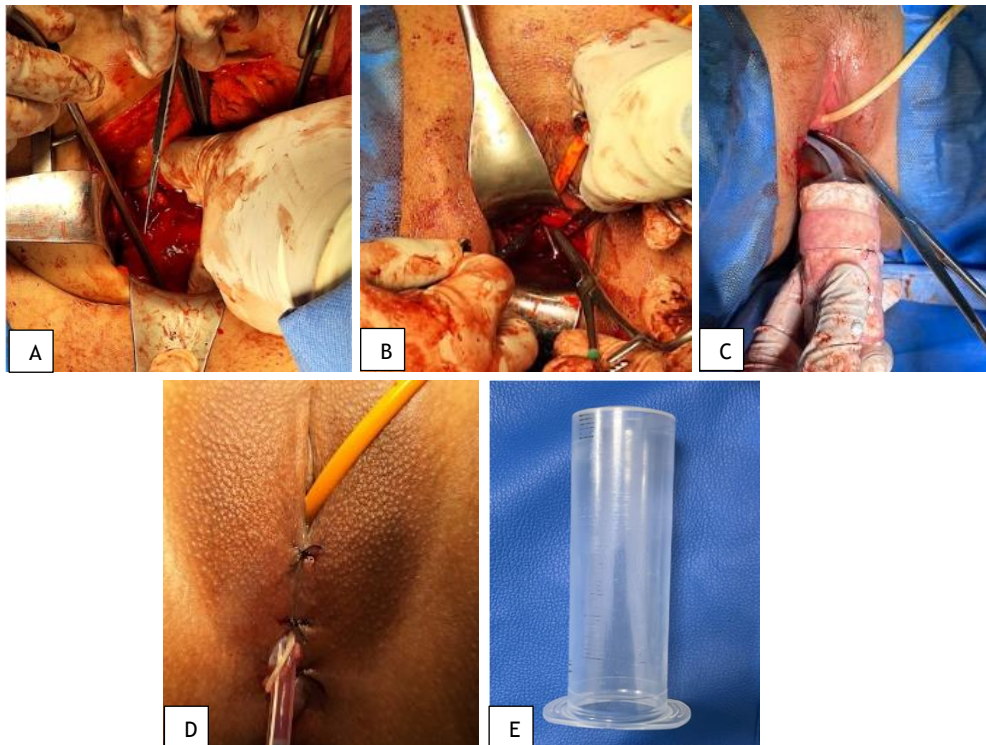


Figure 3: Surgical procedure using double approach technique. (A) Using a Hegar dilator guidance, entering the cervical directed to canal vagina, from the vagina in that direction an incision is made. (B) Replacing the dilator with clamp and reaching silicone catheter. (C) Intravaginally, amnion graft mold covering silicone catheter was inserted up to uterine cavity. (D) The mold was fixated to the vulva. (E) 50-cc syringe barrel to replace the mold.

DISCUSSION

Cervical dysgenesis is an extremely rare Mullerian anomaly. According to the European Society of Human Reproduction and Embryology (ESHRE) and the European Society for Gynaecological Endoscopy (ESGE) classification for female genital anomaly, cervical anomalies can be classified into: C0 (normal cervix), C1 (septate cervix), C2 (double normal cervix), C3 (unilateral cervical aplasia), and C4 (cervical aplasia).⁹ According to this classification, two of our cases (case no. 2 and 3) were type C4 or cervical dysgenesis.

Patients with cervical dysgenesis are often presented with obstructive symptoms (e.g primary amenorrhea, hematometra, hematocolpos, or cyclic abdominal pain) due to the impaired genital tract continuity. Asymptomatic patients or in cases of delay treatment may result in endometriosis, ascending infection, and further impairs fertility.^{1, 3, 4} All of our cases presented with primary amenorrhea and cyclic abdominal pain. Poor compliance with molding exercises and loss to follow-up after contraceptive injections led to reocclusion in two cases. Conservative transient treatment such as gonadotropin-releasing hormone analogues and frank dilators could be alternative treatments given the surgical option has been offered. Some

patients may postpone due to economic reasons or hesitation of surgical treatment. Clinical examination involves inspection, palpation, sondage if needed, and imaging.² Ultrasonography (US) is a reliable, non-invasive diagnostic modality. The current recommendation suggests the combination of gynecological examination and 2D US for asymptomatic patients, while 3D US is preferred for symptomatic cases.^{10, 11}

Due to the limited number of studies, there is no consensus on the paramount treatment of cervical dysgenesis. Treatments goals include relieve obstructive symptoms, restoring function and anatomy, and preserving fertility.^{2, 12} Hysterectomy is reserved only in failed surgical cases. Surgery mainly consists of creating neocervix, neovagina (if needed), and maintaining genital tract continuity. Conservative surgical treatment warrants challenges as the risk of secondary stenosis is up to 60% in recanalisation procedure.⁷ We performed amniotic graft neovagina followed by the insertion of intrauterine catheter device using a barrel of 50cc syringe. Amniotic graft neovagina is an effective option in cases of vaginal aplasia coexistence with cervical dysgenesis.^{2, 3, 13} Although the neovagina technique does not influence surgical outcomes, it is necessary to ensure adherence to post-surgical molding exercises to avoid reocclusion and to maintain neovagina dimensions.²

CONCLUSION

The potential risk of reocclusion following conservative surgery of cervical dysgenesis must be taken into account. Intrauterine catheter device using a syringe barrel is a simple and feasible option with satisfactory anatomical as well as functional outcome to manage cervical dysgenesis.

DISCLOSURE

The authors declared no conflicts of interest. Written consent was obtained from the patient/kin of the patient.

REFERENCES

1. Catena U, Romito I, Moruzzi MC, De Blasis I, Testa AC, Scambia G. Successful conservative treatment in a rare case of type 2 congenital cervical dysgenesis: case report and systematic literature review. *Obstetrics and Gynecology Research*. 2020;3(2):119-31.
2. Mikos T, Gordts S, Grimbizis GF. Current knowledge about the management of congenital cervical malformations: a literature review. *Fertility and sterility*. 2020;113(4):723-32.
3. Samantaray SR, Mohapatra I. Cervical Dysgenesis: A Rare Mullerian Duct Anomaly. *Cureus*. 2021;13(9).
4. Kavita Khoiwal MS, Anchal Agarwal, Jaya Chaturvedi. The Path of Birth is Not Always Normal: A Case Report of Cervicovaginal Agenesis. *Gynecology and Minimally Invasive Therapy*. 2021;10:247-51.
5. R. Sausan and H. R. Karmia, "The Role of Endothelial Nitrit Oxide in Preeclampsia Onset," vol. 9, no. 1, pp. 41–48, 2025, doi: <https://doi.org/10.25077/aoj.9.1.41-48.2025>.
6. Mikos T, Lantzanaki M, Anthoulakis C, Grimbizis GF. Functional and reproductive outcomes following surgical management of congenital anomalies of the cervix: a systematic review. *Journal of Minimally Invasive Gynecology*. 2021;28(8):1452-61. e16.
7. Halder A, Patel S, Dubey P. Abdominoperineal Approach to Uterovaginal Anastomosis in Cervical Dysgenesis: A Case Report and Review of Literature. *The Surgery Journal*. 2022;8(04):e297-e301.
8. Kisu I, Banno K, Iida M, Matsuda K, Shiraishi T, Iijima M, et al. Successful trachelectomy and re-vaginoplasty for cervico-vaginal stenosis following unsuccessful uterovaginal anastomosis and vaginoplasty in congenital cervical and vaginal aplasia: description of technique and a case report. *BJOG: An International Journal of Obstetrics & Gynaecology*. 2021;128(12):1997-2002.
9. E. S. Pangkahila, K. Y. Saspriyana, C. Amanda, and W. Septiani, "The Effect of Magnesium Sulfate ($MgSO_4$) Administration on Nitric Oxide and Prostacyclin Levels in Preeclampsia," vol. 9, no. 1, pp. 1–15, 2025, doi: <https://doi.org/10.25077/aoj.9.1.1-15.2025>.
10. Z. Y. Amaniko and H. Yuad, "Genital Ambiguity in a 46 , XY individual : a Rare Case," vol. 9, no. 1, pp. 153–160, 2025, doi: [Doi : https://doi.org/10.25077/aoj.9.1.153-160.2025](https://doi.org/10.25077/aoj.9.1.153-160.2025).
11. Ding Y, Zhang X, Zhang Y, Shen F, Ding J, Hua K. Cervicovaginal reconstruction with small intestinal submucosa graft in congenital cervicovaginal atresia: A report of 38 cases. *European Journal of Obstetrics & Gynecology and Reproductive Biology*. 2021;267:49-55.
12. Grimbizis GF, Gordts S, Di Spiezio Sardo A, Brucker S, De Angelis C, Gergolet M, et al. The ESHRE/ESGE consensus on the classification of female genital tract congenital anomalies. *Human reproduction*. 2013;28(8):2032-44.
13. Grimbizis GF, Di Spiezio Sardo A, Saravelos SH, Gordts S, Exacoustos C, Van Schoubroeck D, et al. The Thessaloniki ESHRE/ESGE consensus on diagnosis of female genital anomalies. *Human Reproduction*. 2016;31(1):2-7.
14. F. F. B. I. Utama, and F. Firdawati, "Comparison of women's quality of life post abdominal and vaginal hysterectomy," *Andalas Obstet. Gynecol. J.*, vol. 6, no. 1, pp. 35–41, 2022, doi:

10.25077/aoj.6.1.35-41.2022.

15. I. R. Burhan, M. Hasbi, A. Syukri, F. Nur, and F. Rahman, "Profile of Anemia Status in Adolescent Girls ; Case Study at SMP Negeri 27 Padang," vol. 9, no. 1, pp. 105–114, 2025, doi: <https://doi.org/10.25077/aoj.9.1.105-114.2025>.
16. R. Sriyanti and S. R. Mk, "Clinical Profiles and Outcomes of Patients with Placenta Accreta Spectrum at Dr . M Djamil Hospital , Padang During 2019-2022," vol. 9, no. 1, pp. 86–94, 2025, doi: <https://doi.org/10.25077/aoj.9.1.86-94.2025>.
17. e Passos IdMP, Britto RL. Diagnosis and treatment of müllerian malformations. *Taiwanese Journal of Obstetrics and Gynecology*. 2020;59(2):183-8.
18. Khoiwal KS, Meenakshi; Agarwal, Anchal; Chaturvedi, Jaya. The Path of Birth is Not Always Normal: A Case Report of Cervicovaginal Agenesis. *Gynecology and Minimally Invasive Therapy*. 2021;10.
19. E. S. Pangkahila, K. Y. Saspriyana, C. Amanda, and W. Septiani, "The Effect of Magnesium Sulfate ($MgSO_4$) Administration on Nitric Oxide and Prostacyclin Levels in Preeclampsia," vol. 9, no. 1, pp. 1–15, 2025, doi: <https://doi.org/10.25077/aoj.9.1.1-15.2025>.
20. Z. Y. Amaniko and H. Yuad, "Genital Ambiguity in a 46 , XY individual : a Rare Case," vol. 9, no. 1, pp. 153–160, 2025, doi: [Doi : https://doi.org/10.25077/aoj.9.1.153-160.2025](https://doi.org/10.25077/aoj.9.1.153-160.2025).
21. Fedele F, Parazzini F, Vercellini P, Bergamini V, Fedele L. Reconstructive surgery for congenital atresia of the uterine cervix: a systematic review. *Archives of Gynecology and Obstetrics*. 2023;308(3):685-700.