

# Hematometra and hematocolpos, secondary to cervical canal occlusion, a case report and review of literature

## Abstract

**Background:** Hematometra is an uncommon disorder that can be caused by congenital or acquired structural obstruction of the cervical canal. Acquired cervical stenosis can develop due to surgical procedures performed on the uterus or cervix. Common symptoms associated with this disorder include amenorrhea or dysmenorrhea in premenopausal women, pelvic pain or pressure, urinary frequency and retention. We report a case of hematometra and hematocolpos, secondary to cervical canal occlusion treated with ultrasound guided placement of lacrimal probe.

**Case:** A 41-year-old G1P1001, non-pregnant woman presented to our clinic in October 2015 with complaints of two months amenorrhea after gradual progressive pelvic pain, pelvic pressure and dysmenorrhea since 2014. She had a history of one normal spontaneous vaginal delivery and her surgical history was significant for a Loop Electrosurgical Excision Procedure (LEEP) in 2009 followed by a cold knife cone biopsy in 2014 for management of recurrent cervical dysplasia. Pelvic exam showed complete occlusion of cervical canal as well as a palpable boggy uterus. The patient was scheduled for Dilatation and Curettage (D&C) with ultrasound guided placement of a lacrimal probe for management of cervical stenosis, hematometra and hematocolpos.

**Conclusion:** In the work up of a patient presenting with pelvic pain and secondary amenorrhea with a history of a Loop Electrosurgical Excision Procedure (LEEP) or cone procedure, the diagnosis of cervical stenosis and subsequent hematometra should be considered. Although management is simple, it can be complicated by a high rate of recurrent stenosis for which there is no definitive solution. Early recognition and treatment prevents severe complications of hematometra such as uterine rupture, infertility and endometriosis.

**Keywords:** Cervical Canal Occlusion, Cervical Conization, Cervical Dilatation, Cervical Dysplasia, Cervical Obstruction, Cervical Scarring, Cervical Stenosis, Cone Biopsy of Cervix, Cytotec, Hematocolpos, Hematometra, Hymenectomy, Lacrimal Probe, LEEP, Loop Electrosurgical Excision Procedure (LEEP), Misoprostol, Ultrasound Guided Dilatation and Curettage (D&C), Uterine Cervical Stenosis, Uterine Rupture

Volume 6 Issue 3 - 2017

Shadi Rezai,<sup>1</sup> Daniel Lieberman,<sup>2</sup> Kimberley Caton,<sup>2</sup> Sandra Semple,<sup>1</sup> Cassandra E Henderson<sup>1</sup>

<sup>1</sup>Department of Obstetrics and Gynecology, Lincoln Medical and Mental Health Center, USA

<sup>2</sup>St. George's University, West Indies

**Correspondence:** Cassandra E Henderson MD, CDE, Director of Maternal Fetal Medicine, Lincoln Medical and Mental Health Center, 234 East 149th Street, Bronx, NY, 10451, Email [Cassandra.henderson@nychhc.org](mailto:Cassandra.henderson@nychhc.org)

**Received:** November 27, 2016 | **Published:** March 03, 2017

## Background

Hematometra or hemometra is a medical condition involving collection or retention of blood in the uterus. It is most commonly caused by congenital abnormalities of the cervix or uterus.<sup>1,2</sup> Less commonly it can be acquired due to processes that cause obstruction of the cervical canal.<sup>1,2</sup>

Hematometra typically presents as cyclic, cramping pain in the midline of the pelvis or lower abdomen. Patients may also report urinary frequency and urinary retention.<sup>1</sup> Premenopausal women with hematometra often experience abnormal vaginal bleeding, including dysmenorrhea (pain during menstruation) or amenorrhea (lack of menstruation), while postmenopausal women are more likely to be asymptomatic.<sup>1</sup> Due to the accumulation of blood in the uterus, patients may develop low blood pressure or vasovagal response, as well as acute abdomen in the setting of uterine rupture.<sup>3</sup> When palpated, the uterus will typically feel firm and enlarged.<sup>1</sup>

## Presentation of the case

This patient is a 41-year-old non-pregnant, G1P1001 female, who

presented in October 2015 with complaints of pelvic pain and pelvic pressure for two months with associated amenorrhea. The patient reported that her last menstrual period (LMP) was in 2013. She was started on Depo-Provera for contraception in 2013, which was then discontinued in January 2015, after which she had still had not had her menses. She has a history of one normal spontaneous vaginal delivery (NSVD), no history of STI's and no significant medical history. She had history of abnormal Pap smear and had been followed in the colposcopy clinic. Her surgical history included a Loop Electrosurgical Excision Procedure (LEEP) in 2009 and cold knife cone biopsy in 2014 for cervical dysplasia. Pelvic exam showed complete occlusion of the cervical canal as well as palpable, boggy uterus. There was a high clinical suspicion for hematometra as the cause of her symptoms and the patient was scheduled for Dilatation and Curettage (D&C) with ultrasound guided placement of a lacrimal probe for management of cervical stenosis, hematometra and hematocolpos.

Prior to surgery the patient received Misoprostol (Cytotec) 25 microgram vaginally. Perioperative pelvic exam revealed an anteverted uterus (14 weeks size), non-palpable ovaries and adnexa, stenotic closed cervical os, and no active bleeding at the time of examination.

Under direct transabdominal ultrasound guidance, a lacrimal probe was inserted into the stenotic cervical os and the cervical canal was visualized by sonogram. Serial cervical dilation was done using cervical dilators. A suction curette size 7 mm was used, and 150 cc of hematometra/hematocolpos was suctioned out. Sharp curettage of cervix revealed a gritty uterine texture. The patient had uncomplicated postoperative course and full recovery with resumption of menses in the month following the procedure.

## Discussion

Hematometra or hemometra is a medical condition involving the collection or retention of blood in the uterus. Imperforate hymen<sup>4</sup> can create primary hematometra or hematocolpos at menarche and is treated with hymenectomy.<sup>4</sup> There are also reports of cases of primary hematometra due to imperforate cervix in postmenarchal girls with didelphys uterus.<sup>3,5</sup> Hemometra can also be acquired by cervical stenosis secondary to surgical procedures of the cervix such as LEEP and conization,<sup>2,6-10</sup> previous cervical radiation therapy<sup>11</sup> or as a complication of endometrial ablation.<sup>12</sup> Ablating the cervico-uterine junction is possible in certain cases, likely owed to poor surgical technique.<sup>12</sup> Cervical stenosis may present as a late complication of extensive resection or trauma to the cervical os, and presentation will vary depending on degree of obstruction.<sup>13</sup> Cervical conization is associated with a high risk of stenosis with a rate of 1.3% to 25%.<sup>13</sup> In contrast Suh-Burgmann et al.<sup>8</sup> reported a 6% rate of cervical stenosis after LEEP.<sup>8</sup>

Notably, the authors identified two important, independent predictors of stenosis:

- a. Volume of tissue removed, and
- b. History of previous LEEP.<sup>8</sup>

Common symptoms of cervical stenosis include chronic pelvic pain or pressure, dysmenorrhea, amenorrhea, infertility and endometriosis. Our patient developed hematometra/hematocolpos due to postoperative cervical stenosis, as explained throughout this report. Ultrasound and MRI are two imaging modalities that can be used in the diagnosis of hematometra.<sup>3,5,13</sup> With ultrasound the uterus can be seen as an enlarged pelvic mass with an echo free lumen due to the presence of blood.<sup>14</sup> Diagnosis of cervical stenosis can also be made by the inability to pass a 2.5 mm Hegar dilator through the cervical os.<sup>13</sup> Physical exam may reveal a palpable mass or enlarged uterus.<sup>1</sup> Additionally, diagnosis of any congenital malformation causing secondary hematometra is aided by pyelography and/or laparoscopy.<sup>1</sup>

Management of hematometra usually involves dilation of the cervix to drain the accumulated blood.<sup>1</sup> Standard dilatation may be traumatic thus requiring the use of lacrimal duct dilators or a series of small Hagar dilators, which are beneficial when dealing with a stenotic cervix.<sup>15</sup> The use of sonography in conjunction with cervical dilation decreases the risk of uterine perforation and allows for immediate repair in the event that it occurs. The method of management chosen for our patient was D&C with placement of a lacrimal probe under sonographic guidance. One of the greatest challenges associated with treatment is the high rate of post procedural recurrence. In an attempt to overcome this challenge, the use of catheters, pessaries and stents to maintain patency of the cervix has been suggested by several authors.<sup>16</sup> Yang et al.<sup>16</sup> presents a case report of severe, recurrent cervical stenosis and hematometra, refractory to both surgical and conservative management.<sup>16</sup> Other case reports by Caceres et al.<sup>7</sup> and Motegi et al.<sup>2</sup> demonstrate success with the use of levonorgestrel-releasing

intrauterine system at 5 months after placement. Additionally, there are reports of nylon threads tied to IUDs and protruding through the cervical canal, as well as the successful use of cooper IUDs.<sup>2</sup> Though preliminary, these results hold promise for yet another benefit to intrauterine devices. More study on this subject would be ideal. Valle et al.<sup>13</sup> obtained favorable results with the removal of a cervical central cylinder of tissue for patients with recurrences.<sup>13</sup> Factors that predispose to recurrent cervical stenosis should be further studied to aid in the development of an effective treatment algorithm for such patient. Moreover, there is a strong need for further organized study of suitable treatment modalities in order to prevent recurrent stenosis.

## Conclusion

Uterine cervical stenosis is not a rare complication of LEEP or cervical conization; however, its severity varies from patient to patient.<sup>2</sup> Several studies have investigated the risk factors associated with uterine cervical stenosis after conization.<sup>2,6-10</sup> One such study identified height of excision and a totally endocervical lesion as major risk factors.<sup>6</sup> The reported frequency of cervical stenosis after loop excision ranged from 1.3–6%.<sup>6,8,18</sup> After conization the risk ranges from 1.3 to 25%.<sup>13</sup>

Although other causes of secondary amenorrhea should be considered, the evidence points towards hematometra secondary to cervical stenosis. Cervical stenosis developed after her LEEP and cone biopsy, which subsequently obstructed the drainage of menstrual effluent from the endometrial cavity. This caused the patient significant pelvic discomfort. A pelvic ultrasound examination is the best test to confirm this diagnosis. The most appropriate initial approach to hematometra, particularly in a young woman of low parity, is to attempt cervical dilation and drainage of the fluid collection. If cervical dilation is not possible, hysterectomy may be necessary. Early recognition and treatment of this disorder may help to prevent severe complications of hematometra such as uterine rupture, infertility and endometriosis. Cervical stenosis and hematometra should be considered as a main differential diagnosis in a patient presenting with secondary amenorrhea and pelvic pain with a history of cervical surgery.

## Acknowledgments

None.

## Conflicts of interest

None.

## References

1. Hematometra. Wikipedia.
2. Motegi E, Hasegawa K, Kawai S, et al. Levonorgestrel-releasing intrauterine system placement for severe uterine cervical stenosis after conization: two case reports. *J Med Case Rep.* 2016;10:56.
3. Klimek P, Klimek M, Kessler U, et al. Hematometra presenting as an acute abdomen in a 13-year-old postmenarchal girl: a case report. *J Med Case Rep.* 2012;6:419.
4. Wheelless CR, Roenneburg ML. Hymenectomy. *Atlas of Pelvic Surgery.* 2015.
5. Purandare CN, Umrigar R, Bandukwalla V, et al. Hematometra in uterus didelphys with right hemivagina and right renal agenesis. *The Journal of Obstetrics and Gynecology of India.* 2011;61(2):210–212.
6. Baldauf JJ, Dreyfus M, Ritter J, et al. Risk of cervical stenosis after large loop excision or laser conization. *Obstet Gynecol.* 1996;88(6):933–938.

7. Houlard S, Perrotin F, Fourquet F, et al. Risk factors for cervical stenosis after laser cone biopsy. *Eur J Obstet Gynecol Reprod Biol.* 2002;104(2):144–147.
8. Suh–Burgmann EJ, Whall–Strojwas D, Chang Y, et al. Risk factors for cervical stenosis after loop electrocautery excision procedure. *Obstet Gynecol.* 2000;96(5 Pt 1):657–660.
9. Boulanger JC, Gondry J, Verhoest P, et al. Treatment of CIN after menopause, *Eur J Obstet Gynecol Reprod Biol.* 2001;95(2):175–180.
10. Borgatta L, Sayegh R, Betstadt SJ, et al. Cervical obstruction complicating second–trimester abortion: treatment with misoprostol. *Obstet Gynecol.* 2009;113(2 Pt 2):548–550.
11. Rothrock JC. Alexander’s Care of the Patient in Surgery. (15th edn), *Gynecologic and Obstetrics Surgery*, Chapter 14, Mosby Elsevier, USA. 2015.
12. Laberge P, Leyland N, Murji A, et al. Endometrial ablation in the management of abnormal uterine bleeding. *J Obstet Gynaecol Can.* 2015;37(4):362–379.
13. Valle R, Sankpal R, Marlow JL, et al. Cervical Stenosis: A Challenging Clinical Entity. *Journal of Gynecologic Surgery.* 2002;18(4):129–143.
14. Sailer JF. Hematometra and hematocolpos: ultrasound findings. *AJR Am J Roentgenol.* 1979;132(6):1010–1011.
15. Crane JMG. How to overcome a resistant cervix for hysteroscopy and endometrial biopsy. *OBG Management.* 2007;19(11):37–44.
16. Yang L, Kanagalingam D. Spontaneous uterine rupture secondary to recurrent hematometra from cervical stenosis. *Singapore Med J.* 2012;53(6):e114–e116.
17. Caceres A, Jackson T. Recurrent Hematometra Secondary to Cervical Stenosis Treated with Placement of an Intrauterine Device, Abstract 530. *The Journal of Minimally Invasive Gynecology.* 2012;19(6):S160–S161.
18. Wright TC Jr, Gagnon S, Richart RM, et al. Treatment of cervical intraepithelial neoplasia using the loop electrosurgical excision procedure. *Obstet Gynecol.* 1992;79(2):173–178.