

eISSN : 2579-8324

pISSN : 2579-8323

**Alamat Korespondensi:**

Ruang Redaksi Andalas Obstetrics and Gynecology Journal, Lantai 3 PPDS Obstetri dan Ginekologi Universitas Andalas, RSUP DR. M. Djamil Padang, Jl. Perintis Kemerdekaan Padang, Sumatera Barat 25127

**Website:**

<http://jurnalobgin.fk.unand.ac.id/index.php/JOE>

**CASE REPORT****Arteriovenous Malformation on Caesarean Section Scar**

Yusrawati

*Affiliations* : Sub Division of Maternal Fetal Medicine, Obstetrics and Gynecology Department, Faculty of Medicine, Andalas University, Dr. M. Djamil Central General Hospital Padang

*Correspondence*: Yusrawati, email: [yusrawati\\_65@yahoo.co.id](mailto:yusrawati_65@yahoo.co.id), Hp: 0811668272

**Abstract**

*Uterine arteriovenous malformations is rare case which cause secondary postpartum hemorrhage. This disorder can cause massive and sudden vaginal bleeding. Despite of rare case, secondary arteriovenous malformations can occur after a cesarean section. Patients who undergo uterine arteriovenous malformation generally have symptoms of menorrhagia or metrorrhagia after miscarriage, uterine surgery, including cesarean section, and curettage. In severe cases, this can lead to malformations of dyspnoea and heart failure. Management of AVM is by embolization, methotrexate treatment and hysterectomy depending on patient condition. Here reported a case of a patient aged 25 years with a diagnosis of P2H1, AUB ec AVM. Patients got history of cesarean section 6 months ago, and since 5 months ago patients were admitted 8 times for recurrent bleeding. Diagnostic examinations found AVM and hysterectomy was done. The AUB diagnosis in patients is less precise, the patient should be diagnosed with secondary postpartum hemorrhage due to uterine arteriovenous malformation acquired. Uterine arteriovenous malformation diagnosis should be considered in patients with secondary postpartum haemorrhage.*

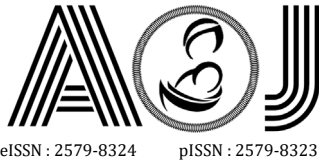
**Keywords:** arteriovenous malformation, a former cesarean section, AUB

**INTRODUCTION**

Postpartum hemorrhage is an obstetric emergency that can accompany both vaginal and vaginal delivery, and is the leading cause of maternal death in the world. Each year, an estimated 140,000 women die from postpartum hemorrhage. The World Health Organization (WHO) states that about a quarter of maternal deaths in the world are caused by postpartum hemorrhage.<sup>1</sup>

The American College of Obstetricians and Gynecologists (2006) defines secondary post-partum hemorrhage as vaginal bleeding that occurs 24 hours to 12 weeks postpartum.<sup>2</sup> Unlike primary postpartum hemorrhage, in secondary postpartum hemorrhage, there is no clear definition of the amount of blood loss. Therefore, the diagnosis is very subjective. Secondary postpartum hemorrhage can be caused by uterine / subinvolutional atony, birth canal trauma, placental abnormalities, choriocarcinoma, coagulation disorders, and also abnormalities in the uterus such as vascular abnormalities / uterine arteriovenous malformations.

Uterine arterio-venous malformation (AVM) is a rare case of secondary postpartum hemorrhage. This disorder can cause vaginal bleeding that is massive and sudden. Although rare, secondary arteriovenous malformations can occur after cesarean section.<sup>4,5</sup> Uterine



eISSN : 2579-8324

pISSN : 2579-8323

**Alamat Korespondensi:**

Ruang Redaksi Andalas Obstetrics and Gynecology Journal, Lantai 3 PPDS Obstetri dan Ginekologi Universitas Andalas, RSUP DR. M. Djamil Padang, Jl. Perintis Kemerdekaan Padang, Sumatera Barat 25127

**Website:**

<http://jurnalobgin.fk.unand.ac.id/index.php/JOE>

arteriovenous malformations were first noted by Dubreuil and Loubat in 1926. The incidence of these cases is not known with certainty due to the underreporting of cases.

Patients with uterine arteriovenous malformations generally have symptoms of menorrhagia or metroragia after a miscarriage, uterine surgery including cesarean section, or curettage. Bleeding manifestations can be a little or a lot. In severe cases, these malformations can lead to dyspnoea and heart failure.<sup>8</sup>

The following reports the case of a patient aged 25 years with a diagnosis of P2H1, AUB ec AVM and a hysterectomy was performed.

## CASE REPORT

Reported the case, a female patient, aged 25 years came to the emergency room Dr. M. Djamil Padang on May 25, 2013 at 17.30 WIB, sent by RSUD Pasaman with D / vaginal bleeding from uterine aneurysm + chronic anemia ec chronic bleeding. From the history, it was obtained, blood came out from the genitals since  $\pm$  7 days ago, soaking the underwear. Complaints like this have been felt since  $\pm$  5 months ago. The patient has experienced bleeding 7 times and was treated in RSUD Pasaman 4 times, and in RSUP Dr. M. Djamil Padang 4 times. During the treatment the patient received blood transfusions, a total of 15 bags, post SC patients 6 months ago on the indication of umbilical cord twisting. history of bleeding from the genitals outside the menstrual cycle before pregnancy was denied, history of bleeding during menstruation was denied, history of bleeding that was difficult to stop was previously denied, history of swelling in the stomach was denied, history of trauma (-) vaginal discharge (-) fever (-), bowel movements and BAK as usual, menstrual history: menarche, age 13 years, regular cycle once a month, duration 5 - 7 days, replace 2 - 3 duk / day, menstrual pain (-), the patient has never suffered from heart disease, lung disease, liver disease, kidney disease, diabetes mellitus, hypertension, and drug allergies, no family member suffering from hereditary, infectious and psychiatric diseases, the patient was married once, in 2010, in 2011 the patient gave birth to a daughter, 2900 grams, term, vacuum during the second period extends, the private hospital, SpOG, died, in 2013 gave birth to a boy, 3400 grams, just months, SC ai twisted, private hospital, SpOG, alive, the surgical wound healed in 7 days.

On physical examination, he found vital signs within normal limits, conjunctiva anemic, and other internal status within normal limits. From the gynecologic status obtained, the abdomen did not appear bulging, cicatricial (+) pfannenstiel incision SC scars, FUT was not palpable, NT (-), NL (-), DM (-), tympanic, Uu (+) normal, Genitalia : I: V / U: calm, PPV (-), inspekulo: vagina : tumor (-), laceration (-), fluxus (+), looks blackish red blood accumulating in the posterior fornix, portio: MP, size of an adult big toe, tumor (-), laceration (-), flux (+), looks black-red blood seeping from cervical canal, closed OUE. VT bimanual : vagina: tumor (-), portio: MP, the size of an adult big toe, tumor (-), NT (-), rocking pain (-), CUT: AF, the size of a chicken egg, AP: left and right weakness, CD : does not stand out.

On laboratory examination, Hb: 9.7 g / dl, erythrocyte:  $2.39 \times 10^6$  / mm<sup>3</sup>, leukocytes: 4,500 / mm<sup>3</sup>, reticulocytes: 6.5%, Ht: 29%, platelets : 187,000 / mm<sup>3</sup>, MCH / MCV / MCHC: 40.7 / 88 / 46.3. Urinalysis, protein: +1, crystals: (-), glucose: (-), epithelium: (+) flattened, leukocytes: 0 - 1, bilirubin: (-), erythrocytes: 0 - 1, urobilinogen: (+), cylinder: (-).

Ultrasound examination showed normal shape and size of uterus (61.3 x 42.6 mm), end line 11.2 mm, both adnexes within normal limits. Impression: Endometrial Hyperplasia

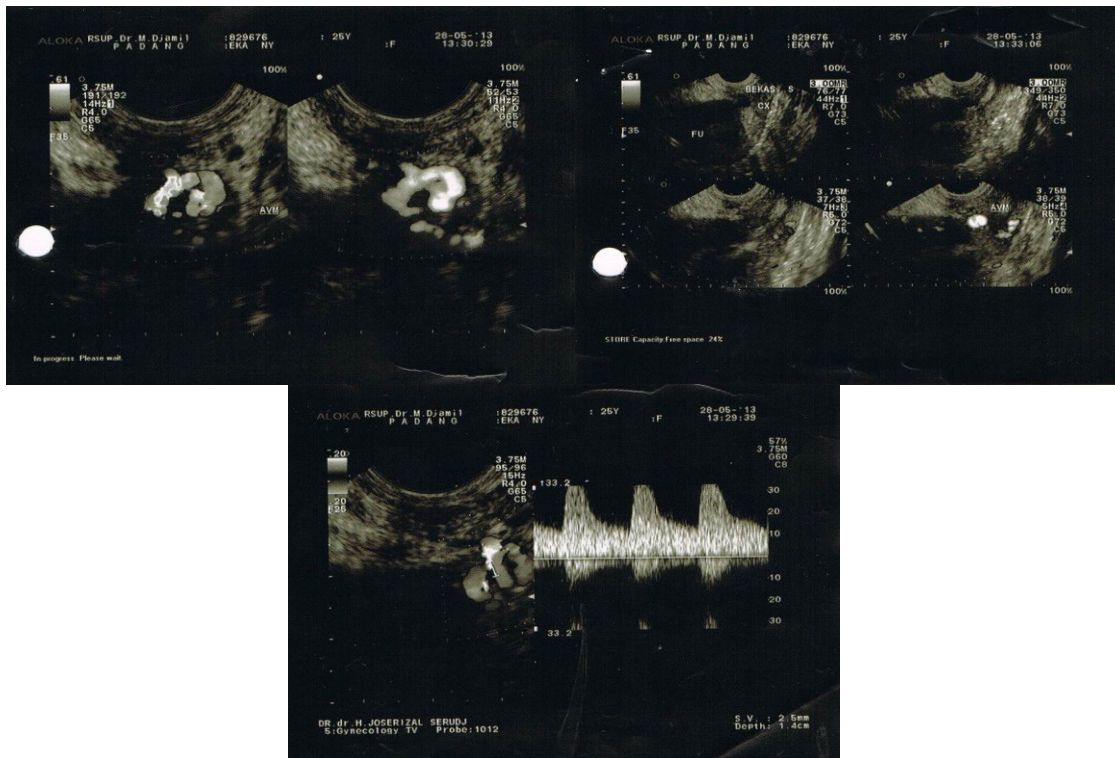


**Figure 1.** A picture of endometrial hyperplasia (endline: 11.2 mm)

The patient was diagnosed with, P2H1, AUB (menometrorrhagia) P? A? L? M? C? O? E? I? N? ec Endometrial hyperplasia + Mild anemia (Hb 9.7 g%) + susp. AVM.

The patient was planned for improvement of KU (SF tab 1x1, Curcuma tab 2x1) and fetomaternal ultrasound.

Fetomaternal ultrasound shows the uterus of normal shape and size, seen in the area of the sonolucent incision (SBR) with a size of  $\pm 1 \times 1$  cm, with Doppler blood flow examination it turns out that it comes from vascularity (AVM), both ovaries are within normal limits. Impression: AVM, Advis: MT therapy



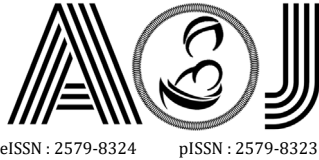
**Figure 2.** A sonolucent image with a size of  $\pm 1 \times 1$  cm, with Doppler blood flow examination, it turns out that it comes from vascularity (AVM).

On the fourth day of treatment, the patient complained of profuse blood from the genitals (+), bright red, without pain. From the physical examination, it was found that KU was moderate, awareness of cooperative composentis, BP 90/60, pulse 118 x / l, breath 22 x / l, Temp 37.10C, conjunctival anemia, no signs of acute abdomen, slow capillary refilling. Patient diagnosed with P2H1, recurrent vaginal bleeding a lot ec AVM + Anemia. The patient was decided to have a hysterectomy.

In a patient with a cito laparotomy, when the peritoneum is opened, a uterus of 7 x 5 x 2 cm is seen, a total hysterectomy is performed, bleeding during the procedure is  $\pm 200$  cc, the uterus is divided, there is an open blood vessel into the uterine cavity (AVM) in the area of the incision. sectio cesarean



**Figure 3.** The total cleft post hysterectomy uterus



eISSN : 2579-8324

pISSN : 2579-8323

**Alamat Korespondensi:**

Ruang Redaksi Andalas Obstetrics and Gynecology Journal, Lantai 3 PPDS Obstetri dan Ginekologi Universitas Andalas, RSUP DR. M. Djamil Padang, Jl. Perintis Kemerdekaan Padang, Sumatera Barat 25127

**Website:**

<http://jurnalobgin.fk.unand.ac.id/index.php/JOE>

In postoperative care, the patient was transfused with 1 unit of PRC due to post-op lab results, hemoglobin: 8.6 g / dl, leukocytes: 12,100 / mm<sup>3</sup>, hematocrit: 25%, platelets: 298,000 / mm<sup>3</sup>. The patient was placed in a 5-day urinary catheter, given pharmacotherapy ceftriaxone 2 x 1 gram iv, mefenamic acid 3 x 500 mg and SF tab 1x1. Post transfusion lab results, hemoglobin: 12.1 g / dl, leukocytes: 8,800 / mm<sup>3</sup>, hematocrit: 36%, platelets: 215,000 / mm<sup>3</sup>. The patient was discharged after 5 days of treatment, confirmed that the patient could spontaneous BAK, dry surgical wounds and went home with the oral drug ciprofloxacin 2x500 mg, mefenamic acid 3x1 tab, SF 1x1 tab, vitamin C 3x1 tab.

**DISCUSSION**

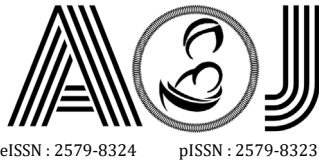
It has been reported that a 25 year old female patient who was treated in the Gynecology ward Dr. M. Djamil Padang with a diagnosis of P2H1, AUB ec AVM + mild anemia (Hb 9.7 g / dl). Patients sent to RSUD Pasaman with D / vaginal bleeding from uterine aneurysms + chronic anemia ec chronic bleeding, and were referred to Dr. M. Djamil Padang to get further management. In this case discussed:

1. How is this patient diagnosed?
2. What is the cause of uterine arteriovenous malformations in this patient?
3. How is this patient managed?

The patient was diagnosed with P2H1, AUB ec AVM + mild anemia (Hb 9.7 g / dl). Diagnosis of abnormal uterine bleeding (AUB) is based on history, where there is a history of recurrent vaginal bleeding. The patient complained of bleeding from the genitals since ± 7 days ago, wetting the underwear, where the complaint of vaginal bleeding was repeated until the patient was hospitalized several times. On physical examination, it was found that there was fluxus, both in the vagina and in the portio. The presence of red-black blood in the posterior fornix and seeping from the cervical canal indicates the source of bleeding comes from the uterine cavity.

The patient should be diagnosed with secondary postpartum hemorrhage ec AVM. This refers to the literature that secondary postpartum hemorrhage is postpartum hemorrhage that occurs after 24 hours to 6 weeks postpartum.<sup>1,2</sup> The bleeding is profuse and causes symptoms in the patient (such as dizziness, fatigue, palpitations, and cold sweats) and / or symptoms of hypovolemia (hypotension, tachycardia, oliguri, and low oxygen saturation).<sup>1,9</sup> The patient first experienced vaginal bleeding 1 month after cesarean section, and after that there was profuse and recurrent vaginal bleeding until the patient received 15 bags of blood transfusions.

The diagnosis of AVM is made from the history in which the patient experiences severe and recurrent secondary postpartum hemorrhage, without pain, a history of failure of medical



eISSN : 2579-8324

pISSN : 2579-8323

**Alamat Korespondensi:**

Ruang Redaksi Andalas Obstetrics and Gynecology Journal, Lantai 3 PPDS Obstetri dan Ginekologi Universitas Andalas, RSUP DR. M. Djamil Padang, Jl. Perintis Kemerdekaan Padang, Sumatera Barat 25127

**Website:**

<http://jurnalobgin.fk.unand.ac.id/index.php/JOE>

therapy to treat bleeding, and a history of cesarean section. According to Hayes, clinicians should suspect an abnormality

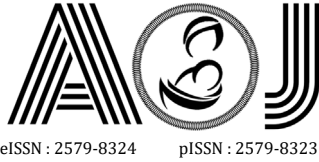
Uterine arteriovenous malformation if symptoms are found: severe secondary postpartum hemorrhage, recurrent episodes of secondary postpartum bleeding, history of transfusion to treat anemia caused by postpartum hemorrhage, bleeding that occurs is generally painless, history of cesarean section, generally in emergency cases, history of failure of medical therapy to treat the bleeding that occurred, and other causes of bleeding have been excluded.<sup>10</sup>

On sonographic examination, a sonolucent image with a size of  $\pm 1 \times 1$  cm was found in the area of the former section incision (SBR). Then performed a Doppler blood flow examination, it turned out that the sonolucent image came from vascularity (AVM). Although angiography is the "gold standard" in diagnosing the presence of arteriovenous malformations, the use of color Doppler sonography also provides a good non-invasive method of examination. . Then with the use of color Doppler sonography, a mosaic image will appear in the hypoechoic area with multiple / turbulent blood flow patterns (indicated by alternating red and blue colors). On Doppler spectrum analysis, rapid blood flow with low resistance will be seen.<sup>6,10,11</sup> Sonographic findings in this patient are evidenced by the presence of open blood vessels into the uterine cavity in the area where the incision was sectioned.

Anemia in a patient is based on physical examination where the patient's conjunctiva is anemic. Then from laboratory examination, it was found that the patient's hemoglobin level was 9.7 g / dl and erythrocyte  $2.39 \times 10^6$  / mm<sup>3</sup>. According to WHO, the definition of anemia is a low level of hemoglobin, hematocrit, and number of erythrocytes in the blood, where women are said to be anemic if their hemoglobin levels are <11 g / dl. The categories of severity of anemia according to WHO are as follows: hemoglobin levels between 9 - 11 g / dl, including mild anemia; hemoglobin levels between 7 - 9 g / dl including moderate anemia; and hemoglobin level <7 g / dl including severe anemia. The patient was diagnosed with mild anemia because his hemoglobin level was 9.7 g / dl.

Uterine arteriovenous malformation in this patient is an acquired type. The patient had no history of genital bleeding outside the menstrual cycle before pregnancy and a history of profuse bleeding during menstruation, but had a history of trauma to the uterus, namely during cesarean section. In acquired uterine arteriovenous malformations, the malformations develop from trauma to the uterus, such as cesarean section, curettage, and insertion of an intrauterine device (IUD).<sup>10,12,13</sup>

The possibility of arteriovenous malformations in this patient occurred because of failure to secure the angle of the uterine wound during cesarean section. Therefore, to prevent the formation of uterine arteriovenous malformations, it is very important to ensure that the wound corners are properly sutured.



eISSN : 2579-8324

pISSN : 2579-8323

**Alamat Korespondensi:**

Ruang Redaksi Andalas Obstetrics and Gynecology Journal, Lantai 3 PPDS Obstetri dan Ginekologi Universitas Andalas, RSUP DR. M. Djamil Padang, Jl. Perintis Kemerdekaan Padang, Sumatera Barat 25127

**Website:**

<http://jurnalobgin.fk.unand.ac.id/index.php/JOE>

In this case, hysterectomy was performed to treat uterine arteriovenous malformations. The patient has just had 1 child and still needs fertility function. Before taking a hysterectomy, conservative measures should be considered. Uterine artery embolization cannot be performed on the patient. This is because there are no such facilities at Dr. M. Djamil Padang. Meanwhile, to refer the patient to Jakarta, the patient's condition is not possible because the hemodynamic is unstable.

When a patient experiences profuse recurrent bleeding until the patient's condition is in shock, before hysterectomy should be performed first uterine artery ligation. The success rate of this procedure is quite high and can maintain the fertility function of the patient.<sup>5</sup> If after the uterine artery ligation procedure, vaginal bleeding is still found, after clear informed consent to the patient and family regarding the patient's unsustainable fertility function, a hysterectomy is performed.

The management of uterine arteriovenous malformations depends on the hemodynamic status, the degree of bleeding, the patient's age, and the patient's desire to maintain fertility. In stable patients who are willing to undergo strict control, long-term expectative therapy may be possible. However, hysterectomy remains an option in postmenopausal patients or in patients with life-threatening emergency conditions.<sup>11</sup>

## CONCLUSION

The diagnosis of AUB in patients is less precise, the patient should be diagnosed with secondary postpartum hemorrhage. Secondary postpartum hemorrhage in this patient is due to acquired uterine arteriovenous malformations. Hysterectomy in this case is not quite right. Uterine arteriovenous malformations should be considered in the differential diagnosis in patients with secondary postpartum hemorrhage.

## REFERENCES

1. Su, C. W. (2012). Postpartum Hemorrhage. In *Prim Care Clin Office Pract* (Vol. 39, pp. 167-187). Contra Costa: Elsevier Inc.
2. Cunningham FG, e. a. (2010). *Williams Obstetric* (23rd Edition ed.). (e. a. Cunningham FG, Ed.) New York: The McGraw-Hill Company
3. Groom, K., & Jacobson, T. (2006). The Management of Secondary Postpartum Hemorrhage. In *A Texrbook of Postpartum Hemorrhage* (Vol. 7, pp. 316-324). Duncow: Sapiens Publishing
4. Patel, S., Potti, S., & Jaspan, D. (2009). Embolization of Uterine Arteriovenous Malformation for Treatment of Menorrhagia. In *Arch Gynecol Obstet* (Vol. 279, pp. 229-232). Philadelphia: Springer-Verlag
5. Jeve, Y., Janjua, A., & Qureshi, N. (2013). Secondary Post-Partum Hemorrhage Due



eISSN : 2579-8324

pISSN : 2579-8323

**Alamat Korespondensi:**

Ruang Redaksi Andalas Obstetrics and Gynecology Journal, Lantai 3 PPDS Obstetri dan Ginekologi Universitas Andalas, RSUP DR. M. Djamil Padang, Jl. Perintis Kemerdekaan Padang, Sumatera Barat 25127

**Website:**

<http://jurnalobgin.fk.unand.ac.id/index.php/JOE>

- to Secondary Uterine Arterio-venous Malformation following Caesarean Section. In *Journal of Pharmaceutical and Biomedical Sciences* (Vol. 28, pp. 643-645). Birmingham: Birmingham Women's NHS Foundation Trust
6. Kelly, S., Belli, A., & Campbell, S. (2003). Arteriovenous Malformation of The Uterus Associated with Secondary Postpartum Hemorrhage. In *Ultrasound Obstet Gynecol*. London: John Wiley & Sons, Ltd.
  7. Castillo, M. S., Borge, M. A., & Pierce, K. L. (2007). Embolization of a Traumatic Uterine Arteriovenous Malformation. In *Seminars in Interventional Radiology* (Vol. 24, pp. 296- 299). New York: Thieme Medical Publisher.
  8. Timmerman, D., Wauters, J., Van Calenbergh, S., Van Schoubroeck, D., Maleux, G., van den Bosch, et al. (2003). Color Doppler Imaging is a Valuable Tool for the Diagnosis and Management of Uterine Vascular Malformations. In *Ultrasound Obstet Gynecol* (pp. 570-577). John Wiley & Sons, Ltd
  9. Anderson, J. M., & Etches, D. (2007). Prevention and Management of Postpartum Hemorrhage. In *American Family Physician* (Vol. 75, pp. 875-82). Western Pennsylvania: American Academy of Family Physician.
  10. Syta, B., Fetiu, S., & Tafarshiku, S. (2011). Transabdominal Two- and Three-Dimensional Color Doppler Imaging of A Uterine Arteriovenous Malformation. In *Ultrasound Obstet Gynecol* (pp. 376-378). John Wiley & Sons, Ltd
  11. Hashim, H., & Nawawi, O. (2013). Uterine Arteriovenous Malformation. In *Malays J Med Sci* (Vol. 20, pp. 76-80). Penerbit Universiti Sains Malaysia.
  12. Mohamed, S., Abdullah, B., & Omar,
  13. S. (2005). Postpartum Haemorrhage. In *Biomedical Imaging and Interventional Journal*. Kuala Lumpur: Department of Biomedical Imaging (Radiology), University of Malaya.
  14. Cura, M., Martinez, N., Cura, A., Dalsaso, J., & Elmerhi, F. (2009). Arteriovenous Malformations of the Uterus. In *Acta Radiologica* (Vol. 50). San Antonio: Sage.