Premature Ovarian Failure After Uterine Artery Embolization

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**Competing Interests:**
The authors did not report any potential conflicts of interest.
Premature Ovarian Failure After Uterine Artery Embolization


Abstract

Uterine artery embolization (UAE) is popular in some countries for management of postpartum hemorrhage, uterine myoma, and adenomyosis. However, avoidance of complications is important to preserve the uterus. The most serious complication is premature ovarian failure. UAE is advantageous for preserving the uterus for fertility; however, premature ovarian failure negates this advantage by causing infertility. We report two cases of premature ovarian failure after UAE. Our cases provide guidance for gynecologists who perform UAE. The first patient, aged 42 years, was para 1-0-0-1 and did not have a significant family history. She complained of metromenorrhagia, but she wanted to preserve her uterus for fertility. We performed a bilateral UAE. After 4 months, she complained of amenorrhea. She was diagnosed with premature ovarian failure by checking follicle stimulating hormone (FSH). The second patient, aged 40 years, had infertility from uterine myoma, endometriosis, and adenomyosis. She had undergone UAE and in vitro fertilization (IVF) 6 years earlier. After IVF, she became pregnant and was admitted from 26 weeks to 29 weeks for preeclampsia and preterm labor. After delivery, she had postpartum hemorrhage, and repeat UAE was performed. Two years later, she complained of hot flashes and amenorrhea. She was diagnosed with premature ovarian failure.

Introduction

Uterine artery embolization (UAE) has emerged as a safe, effective, and durable alternative to surgery for treating uterine fibroids (1,2). However, premature ovarian failure has been described as one possible complication, with reported rates ranging from 3% to 5% in patients aged.

This complication is thought to occur because of non-target ovarian embolization via the utero-ovarian collaterals, causing hypoxic ovarian damage and loss of ovarian follicles (4–6). It remains unknown, however, whether this is a sporadic event or whether there is a generalized impact of UAE on ovarian function that is more likely to be apparent in perimenopausal women (>45 years old), who have already-diminished ovarian reserve. For younger women, however, ovarian damage might occur that does not result in sudden ovarian failure but that might compromise subsequent ovarian function and even advance the onset of menopause (5,6).

The available data regarding the impact of UAE on the long-term functioning of the ovaries are relatively few and inconsistent (6–7). This is an important issue because earlier menopause is associated with long-term health risks such as cardiovascular disease and osteoporosis (8).

The aim of the present cases was to determine whether women aged.

Case reports

Case 1

A 42-year-old woman arrived at the emergency room with vaginal bleeding and menorrhagia. The patient was para 1-0-0-1 and did not have a significant family history. The following laboratory results were reported: white blood cell count (WBC) 17.35 × 10^3/µl; hemoglobin (Hb)/hematocrit (Hct), 7.4 g/dl/20.8%; platelets (PLT), 191 × 10^3/µl.

Due to menorrhagia, the patient had undergone insertion of an intrauterine device (IUD) at a local clinic. Metromenorrhagia occurred, and she complained of dizziness. She was diagnosed with uterine myoma. Her menstrual flow filled as much as one pad per hour, and she came to the emergency room.

Her symptoms were dizziness, with abdominal pain. Pelvic examination revealed a hard palpable mass and tenderness. Computed tomography revealed a 100 × 98-mm uterine myoma (Figure 1). After transfusion, right femoral artery anesthetic puncture, and application of a cobra catheter, both a uterine artery angiography micro-guide wire and a catheter were applied, and selective pelvic angiography with Gel-foam was carried out. After 4 months, the patient complained of amenorrhea. Ultrasonography revealed a 6 × 5-cm decreasing myoma. A pregnancy test was negative; follicle stimulating hormone (FSH) and estradiol were 34.2 mIU/mL and less than 10 pg/mL, respectively. Menopausal hormone therapy (MHT) was started.

Case 2
This 40-year-old para 1-0-0-1 woman suffered from hot flashes and amenorrhea. Her FSH and β-hCG test results were 95 mIU/mL and negative, respectively. She was diagnosed with infertility with uterine myoma, adenomyosis, and endometriosis in the right ovary. Mixed Gel-foam and antibiotics were injected at both uterine artery ascending branches.

At post-embolization follow-up angiography, the cervical branch was saved, and both uterine arteries were completely occluded. She became pregnant by in vitro fertilization (IVF) 1 year later. She was admitted for preeclampsia, preterm labor, and severe anemia.

A primary cesarean section was performed at 29 + 6 weeks. She delivered a male 1,080-g newborn. The Apgar was 7/8, hemoglobin was 7.7 g/dL, and proteinuria was detected. Postpartum hemorrhage occurred. The uterine artery was selected by angiography, both the uterine body and fundus were stained, and via nonuterine arterial collaterals, some parts of the uterine body were also stained. MHT was started.

Discussion

The patients presented with an increase in FSH values after UAE, suggesting ovarian failure. Changes in hormonal markers after UAE indicated impaired ovarian reserve, as indicated by an increase in FSH levels (6). Complications of UAE include infectious disease, deep vein thrombosis, malignant leiomyosarcoma, ovarian dysfunction, uterine necrosis, urinary tract infection, and hematoma (9). The percentage of patients (>45 years) with premature ovarian failure was higher after UAE because of a higher prevalence of uterine-ovarian anastomosis (9). Premature ovarian failure is thought to reflect the initial cohort of ovarian follicles and the rate of follicle depletion with age (10). If this is so, factors that may directly or indirectly damage the follicular pool may affect the timing of menopause by decreasing ovarian perfusion. UAE has been hypothesized to impair ovarian reserve, which could result in earlier menopause, as described in women who undergo hysterectomy with ovarian conservation (11).

The polyvinyl alcohol (PVA) particle size is also a risk factor for ovarian failure. The ideal particle size of PVA has not been established, but current opinion is that the particles should not be 550 µm, as they can accidentally obliterate non-target vessels (8,11,12). Magnetic resonance angiography has been helpful in predicting early menopause in cases of uterine myoma because the presence of ovarian collateral vessels to the uterine myoma increases the risk of premature ovarian failure or early menopause (9).

Performance of UAE twice in the same woman may be a risk factor for premature ovarian failure, such as in our patient. Early menopause is a rare complication of UAE but should be discussed in advance with patients.

Acknowledgement

Please accept our sincerest appreciation for a medical crops’ director Shin, Won-Han, the chairman of the board of Soonchunhyang University Suh, Kyo-II, the director of a hospital Hwang, Kyung-Ho, a pastor Yun, Dae-Young, a librarian Jung, Eun-Ae who lead us with unsparing guidance and encouragement until this paper is completed.

References

Illustrations

Illustration 1

Computed tomography revealed a 100 times, 98-mm uterine myoma
Reviews

Review 1

Review Title: premature ovarian failure after uterine artery embolization

Posted by Faculty Dr. Pankaj P Salvi on 23 Jun 2012 01:51:22 PM GMT

What are the main claims of the paper and how important are they?:
Uterine artery embolization may lead to premature ovarian failure and menopause.

Post partum hemorrhage can occur in a woman with previous uterine artery embolization claim about post partum hemorrhage following delivery in a case with previous uterine artery embolization is relatively novel

yes.

no.

in first case the evaluation of the patient is not done completely like the need for inserting intrauterine device, which sort of device, why ultrasonography of the patient did not precede the insertion of the intrauterine device, why she was not evaluated for the perimenopausal state with fsh values etc.Detaileds of cobra catheter and the technique is needed.

second case the patient is already menopausal due to the history of hot flushes and the fsh values of 95.details of the ivf needed.

If a protocol is provided, for example for a randomized controlled trial, are there any important deviations from it? If so, have the authors explained adequately why the deviations occurred?

no protocol provided in the report.

details of procedure are needed like the cobra catheter and ivf details.

at some places the sentences appear to be incomplete.

Yes the patient details the procedure of the uterine artery embolization, and the including more cases for this to become a case study would make it a very good study especially if it is a RCT.

Yes the patient details the procedure of the uterine artery embolization, and the including more cases for this to become a case study would make it a very good study especially if it is a RCT.

Rating: 4

Comment:
nice and new way for the apporoach of some conditions in both ob & gyn is made in this study

Competing interests: no

Invited by the author to make a review on this article? : No

Have you previously published on this or a similar topic?: Yes

References:
Sheehan's syndrome- A rare complication of postpartum hemorrhage. co-author; Medical journal of western India; vol. 37 (2009), page 90.

How to cite: Salvi P.premature ovarian failure after uterine artery embolization[Review of the article 'Premature Ovarian Failure After Uterine Artery Embolization ' by ] WebmedCentral 1970;3(6):WMCRW001966
Review 2

Review Title: 2 case report

Posted by Lead Faculty Dr. Mohammad Othman on 14 Jun 2012 10:26:03 PM GMT

What are the main claims of the paper and how important are they?:
UAE causes POF or accelerate it, it is extremely important

No, loads of papers and studies researched the same claim and some prove it and some refute it

NO the whole introduction was not clear and almost copied as is from other papers 4-6 in references, and the cases especially number 2 were unclear and unexplained.

no nothing in both cases support the claim and in any way the number of cases is 2 only which in any way will never prove any thing

If a protocol is provided, for example for a randomized controlled trial, are there any important deviations from it? If so, have the authors explained adequately why the deviations occurred?
no protocol

no methodology

yes full detailed information about both cases may help but still both will never prove the outcomes any way

yes full detailed information about both cases may help but still both will never prove the outcomes any way

Rating: 1

Comment:
this is the worst I have ever reviewed, I wish you have ZERO in rating

Competing interests: none

Invited by the author to make a review on this article?: No

Have you previously published on this or a similar topic?: No

Experience and credentials in the specific area of science:
I am a consultant and researcher and referee for many journals

How to cite: Othman M. 2 case report [Review of the article 'Premature Ovarian Failure After Uterine Artery Embolization ' by ]. WebmedCentral 1970;3(6):WMCRW001919
Review 3

Review Title: Premature Ovarian Failure After Uterine Artery Embolization

Posted by Dr. Dong-Soo Jeon on 03 May 2012 08:10:37 AM GMT

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Rating: 6

Comment:
This paper will be published.

Competing interests: No

Invited by the author to make a review on this article?: Yes

Have you previously published on this or a similar topic?: No

Experience and credentials in the specific area of science: SCIE

How to cite: Jeon D. Premature Ovarian Failure After Uterine Artery Embolization [Review of the article 'Premature Ovarian Failure After Uterine Artery Embolization'] WebmedCentral 1970;3(5):WMCRW001766
Review 4

Review Title: Premature Ovarian Failure After Uterine Artery Embolization

Posted by Lead Faculty Mr. Govind N Purohit on 27 Apr 2012 04:54:06 AM GMT

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Rating: 3

Comment:
Title: Premature Ovarian failure after uterine artery embolization
Authors Pisal P Kim and others

Comments: This manuscripts is a case study of 2 cases however, the manuscripts has many problems with the contents. The first para of the abstract is a part of introduction. The abstract needs revision mentioning the salient features of the cases handled and a small conclusion. The aim of the study is not described in the introduction. The source of the material used for example cobra catheter is not described. Also the procedures used are not referred to pertinent references. Some things in the case reporting are not described for example Apgar and MHT. The results of starting MHT are not mentioned. In the discussion it is not described about the particle size whether it should be greater than or smaller than 550 µm. There are many grammatical and syntax errors throughout the manuscript. The reference no 3 has no text citation. The Journal name for BJOG should be Br J Obst Gynecol. The Figures are not numbered and they do not have a title and markings showing the myoma.

Competing interests: no

Invited by the author to make a review on this article? : No

Have you previously published on this or a similar topic?: No

Experience and credentials in the specific area of science:
Nil

How to cite: Purohit G. Premature Ovarian Failure After Uterine Artery Embolization [Review of the article ‘Premature Ovarian Failure After Uterine Artery Embolization ’ by ]. WebmedCentral 1970;3(4):WMCRW001739
Review 5

**Review Title:** Premature ovarian failure after uterine artery embolization

Posted by Prof. EunSil Lee on 21 Apr 2012 03:36:42 AM GMT

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**Comment:**

Premature ovarian failure is a term generally used to describe amenorrhea associated with depletion of oocytes before age 40. 2 cases in this report is both aged more than 40, so I think its more appropriate to use a term 'early menopause', rather than 'premature ovarian failure' in this case.

I can't find out what you meant in last sentence of introduction, 'The aim of present cases was to determine whether women aged'. This sentence seems to need a touch.

In case 1, its said that IUD insertion was done in local clinic due to menorrhagia, but I think it needs more detailed information, such as since when did the symptom occurred, how was the condition of IUD, or time took for patient to come to ER.

And in case 1, it seems more appropriate to change a term 'selective pelvic angiography with gelfoam was carried', into 'embolization'.

And I have a question of what the indication was to perform embolization. Generally, we don't preform uterine artery embolization because it might cause to fail fertility preservation, and its restricted to those cases when patient wants uterine preservation. In this case, it doesn't seem proper indication to perform this procedure to preserve fertility.

In case 2, please add the reason why you did embolization and post. embolization angiography.

I wonder why (in what indication) you have done embolization in this case, because if her FSH was 95mIU, it means already menopause state. And please give us information of the indication to perform post. angiography, and the date it was done after the procedure.

If pregnancy was induced(?) with IVF, please mention whether it was done by ovum donation, or other ways.
And I cannot understand the last sentence of the case 2, and this might need a touch too.

Please give us more explanation of why you decided to use menopausal hormone therapy.

This sentence, "Premature ovarian failure is thought to reflect the initial cohort of ovarian follicles and the rate of follicle depletion with age", in discussion was hard to figure out. Please make some revision of this sentence, and also 'Current opinion is that the particle should not be 550um?" seems to need touch, too.

**Competing interests:** No

**Invited by the author to make a review on this article?** : Yes

**Have you previously published on this or a similar topic?** : No

**Experience and credentials in the specific area of science:**

How to cite: Lee E. Premature ovarian failure after uterine artery embolization[Review of the article 'Premature Ovarian Failure After Uterine Artery Embolization ' by ]. WebmedCentral 1970;3(4):WMCRW001710
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