Arteriovenous aberration as a cause ofidiopathic repeated foetal wastage and it`s treatment by laparoscopic intrauterine injection of Interferon (LII)

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Abstract: Arteriovenous aberration of the uterus is a new aetiological factor of repeated early pregnancy wastage. Historically hysterectomy has been the only treatment option of these patients. Advances in interventional radiology have allowed for conservative management. We introduce for the first time in the literature laparoscopic intrauterine injection of interferon Alfa 2 [LII]. So our aim is to evaluate the effectiveness of this modality in the treatment of this problem. Eight patients complaining of repeated early fetal loss, with no demonstrable causes after exclusion of genetic, environmental uterine anomalies, infection, Endocrine disease, immunological causes as a cause of repeated abortion. They have arteriovenous aberration (AVA) mean age and mean number of repeated pregnancy wastage were 32 ± 3.2 years, and 6 ± 2.1 respectively. The diagnosis of this problem was based on earful clinical examination, 3 D ultrasound, and pelvic stereography. Laparoscopically intrauterine injection of interferon 3 million units at 12.3.9 clock of the uterus, followed by 4 months follow up by serial 3D ultrasound, and pelvic arteriography. Complete disappearance occur in 6 cases (75%), partial disappearance in one cases and no change in one case, pregnancy rate and continuation of pregnancy was seen in 6 patients (75%), no complication of significance was reported. Laparoscopic intrauterine injection of interferon [LII] is a new effective line of treatment of anteriovenous aberration (AVA), this line is aiming at preservation of the uterus with no reported complication. Anteriovenous aberration (AVA), is a new cause of Idiopathetic repeated foetal loss and should be searched in the evaluation of this problem.

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1. Introduction:

Recurrent pregnancy loss is defined as three of more consecutive losses of pregnancy and this distressing problem affects approximately 1% of all women(1). Many factors responsible for the aetiology of this condition: genetic factor, environmental contribution, Anatomical defect, infection, Endocrine dysfunction and immunological causes. To the best of our knowledge no reference in the literature dealt with arteriovenous aberration as a cause recurrent pregnancy Loss. Arteriovenous aberration as we [(2-8)] introduced this name or artoriovenous malformation consists of proliferation of arterial and venous channels in various sizes, historically hysterectomy had been the only treatment option of this problem. Advance in interventional radiology have allowed for conservative management of this problem. We introduce for the first time in the literature Laparoscopic intrauterine injection of interferon as a new modality of this problem [LII].

2. Material and Methods

Eightwomen complaining from repeated foetal wastage were enrolled in the study mean age was 33 ± 3.2 years, mean number of repeated foetal wastage was 6 ± 2.1 all patients were subjected to

- Full clinical examination.
- Full pelvic examination.

History of previous operation it was taken in order to find the acquired causes of this problem, we find a history of Dilation and curttage in 4 cases only.

- Investigation to rule out genetic factors, environmental contribution, uterine anomalies infection, endocrine disease, immunological causes of repeated foetal loss.
- 3D ultrasound.
- Pelvic arteriography.

Pelvic arteriography was done in 6 out of 8 cases two cases refused to do the artriography and the diagnosis of this condition was based on 3D ultrasound.

After confirmation of the diagnosis and consenting Laparoscopic injection of interferon (Reform 1), interferon Alfa 2α. 3 million units was injected in the uterus at 12. 3. 9 clock of the uterus.

- Follow up monthly was done for 4 Months, to determine Disappearance rate, and pregnancy rate, and any complication

3.Results:

Eight Patients complaining of repeated foetal wastage, having artriovenous aberrations were subject to Laparoscopic intrauterine injection of Roveron) the results of this work are summarized in the following tables[I-III]:

Table I: Demographic characterizes of the study groups (n=8) (Mean ± SD)

Age	Number of foetal wastage
33 ± 3.2	6± 2.1

Table 1 demonstrate both mean ± SD of the age and number of foetal loss.

4 Cases out of 8 have Dilation and curettage, Curettage may aggravate the conditions.

Also, curettage is one of the acquired causes of arteriovenous aberration.

Table II: Grading of arteriovenous Aberration (AVA) based on 3D ultrasound. (Farid's grading)

Grade I	Grade II	Grade III	*P*
5(62.8)%	3(37.2)%	--	*P*<0.05

Grade I: Localized one area of AVA
Grade II: 2 areas of AVA
Grade III: more than 2 areas.

We put a new grading system based on 3D ultrasound for the first time in the Literature according to this grading system most of cases lies in grade I. This grading system is helpful for the follow up.

Table III: Effect of treatment after 4 months follow up

Follow up	No	%	*P*
Complete Disappearance	6	75%	*P*<0.005
Partial disappearance	1	12.5%	*P*> 0.05
No effect	1	12.5%	*P*>0.05
Pregnancy rate	6	75%	*P*<0.001

Table III represented the rate of disappearance (75%) and the pregnancy rate (75%) which were statistically highly significant

No complication of significance was reported.

4.Discussion:

Arteriovenousaberration of the uterus are rare. The first case was reported in 1926 by Dubreuil[2] described as cirsoid aneurysm, arteriovenous[3-8] Aneurysm, arteriovenous fistula arterio-venous malformation, racemose Aneurysm. We recently put forward the name arterovenous aberration because it gives a more descriptive name than the previous names, and this condition may be acquired.

An arterovenous aberration[2] consists of a proliferation of arterial and venous channels with a fistula formation and an admixture of small capillary like channels, in many cases distinction between arteries and veins is blurred because of secondary Intimal thickening in the latter as a result of elevated intraluminal pressure. In some cases the vessels are much smaller and uniform. Artoriovenous aberration of the uterus should be distinguished from the more common haemangioma of the [2]uterus, Haemangiomas are more localized in the uterus with uniformity of the vessels. Uterine arteriovenous aberration (AVA) are classified as acquired or congenital the congenital form is due to abnormal differentiation of capillary plexuses often resulting in multiple Lesions, predisposing factors associated with the acquired forms of arteriovenous aberration (AVA) [10,11] include dictation and curettage, Cesarean section, trophoblastic disease, genital tract malignancy, presumably in all of these scenarios the proliferation of the vessels occurs at the site of myometrial scar, due to acquired cause of the conditions, we choose arteriovenous aberration, than arteriovenous malformation.

The primary clinical presentation of this disease is abnormal vaginal bleeding, (12) but we studied this condition in Idiopathic repeated first trimester foetal loss. Patient may have no distinguishing physical examination findings with uterine Ateriovenous aberration. In all of our 8 patients a palpable thrill in the vaginal forncies and cervix is felt. We adopted the diagnosis by 3D Ultrasound, vaginal sonagraphy[13] had been adopted before for the diagnosis of this condition but this is first use of 3D ultrasound demonstrated multiple an echoic structures within the uterus, the wave form with color Doppler, ultrasonography shows rapid turbulent blood flow. We demonstrated this ultrasound finding in all of our patients.

To define the extent other diagnostic aid which is pelvic arteriogram 5 out of 8 cases accept this diagnostic aid, the rest refuse, we thick that this condition is under diagnosed, by the use of 3D

ultrasound more better pick up rate of this problem was detected. Historically, hysterectomy had been the only treatment option. Advances in the inteventional (9) radiology have allowed for conservative management of this problem, Transcatheter embolization of the arteriovenous Connection at the capillary level can obliterate the lesion.

We introduce for the first time in the literature Laparoscopic intrauterine injection of interferon Alfa 2 □ at 3 points. In the funds at 12 clock and the level of the isthmus where the uterine artery gives it's ascending and descending branches (at 3, 9 Clock), we inject 3 million of interferon at the previous sites.

The use of interferon is based upon it's[15, 16] effect on cell growth and division and its effect on angiogenesis like its use in Kaposi's Sarcoma, Burkitts Lymphoma. Follow up monthly for 4 months by serial 3D ultrasound revealed complete disappearance in 6 cases (75%) of cases of arteriovenous aberration partial disappearance in one case, no change in one case, pregnancy rate in 6 cases (75%), and continuation of pregnancy till term in (75%). No complications of significance was reported after this procedure.

We think that we are now in the infancy stage of this technique, and we think that large number of cases will added to the benefit of this technique. We demonstrated her a new cause of repeated Idiopathic foetal.

Loss and a new method of diagnosis by 3D ultrasound, a new line of therapy of this condition with a satisfactory pregnancy rate (75%).

Conclusion:

Laparoscopic intrauterine injection of interferon [LII] is a new effective line of treatment for arterio-venous aberration, and for idiopathic repeatedfoetal loss caused by arterio-venous aberration with a satisfactory disappearance and pregnancy rate.

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