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## Novel use of dienogest prior to embryo transfer in patient with multiple fibroids

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### Abstract

Uterine leiomyomas are the most common benign tumors amongst women of the reproductive age group with the potential of affecting their fertility. In the subset of cases where fibroids are inoperable, there is a need for medical improvisation. Dienogest is one such well studied progestin used for the treatment of endometriosis. In our case report, we would like to highlight the novel use of pre-Assisted Reproduction Technology (ART) dienogest in a patient with multiple fibroids, frozen pelvis and desirous of conception.

**Keywords:** Uterine fibroids, dienogest, infertility, frozen pelvis

### 1. Introduction

While it has been reported that fibroids affect approximately 5-10% of the infertile population, they may be responsible for infertility in only 1-2.4% of these patients [1]. Amongst multiple pathways, their impact on fertility is probably due to the alteration of endometrial receptivity leading to defective implantation [2]. Therefore, management of fibroids before embryo transfer is crucial in such patients. The increased morbidity, complications and costs of fibroid surgery creates the need for medical management, especially in cases that are inoperable such as in frozen pelvis. Dienogest is one such novel option that we would like to present.

### 2. Case report

A 28 year old female married for nine years was referred to our center with secondary infertility. She had a spontaneous pregnancy six years post marriage which resulted in a missed abortion at 6 weeks of gestation. She had already undergone two laparoscopic ovarian cystectomies for bilateral large endometriotic cysts, which were confirmed on histopathology. Following this, she underwent another laparoscopy for endometriosis associated pain, during which she was diagnosed as frozen pelvis. These procedures were performed at another center prior to referral to our hospital. Fertility work up of the couple revealed normal results except for the low anti mullerian hormone level of the patient which was 0.29 ng/dl. Her ultrasound revealed a 2.3cm X 3cm left hydrosalpinx and a uterus studded with multiple intramural and submucosal fibroids ranging from 4 to 30 mm. It also revealed bilateral small endometriotic cysts ranging from 10-25 mm [Fig 1] and an endometrial thickness of 7.5 mm (type 2 with zone 1 Applebaum staging). In view of her diminished ovarian reserve, the couple was counselled regarding the use of donor oocytes. Despite her previous surgeries and difficult laparoscopic access to the fibroids, a hysteroscopic myomectomy with delinking of the hydrosalpinx was performed to optimize her treatment. Following endoscopy, the fibroids were suppressed with 3 months of leuprolide depot. Unfortunately, she followed up after a gap of six months, during which the fibroids had enlarged once again. In order to avoid the long term side effects of Gonadotropin Releasing Hormone agonist (GnRha) combined with the advantage of the antiestrogenic dienogest effect on fibroid volume reduction, we decided to start her on 2mg daily for three months of the oral preparation. Her subsequent scan at the end of this period revealed a significant reduction in the size of the fibroids with endometrial Doppler zone 3 on Applebaum staging. Her endometrial cycle preparation for embryo transfer was done with letrozole and she conceived in her first attempt and delivered a 2.4 kg female child by elective caesarean at 37.4 weeks of gestation with an apgar score of 9/10.



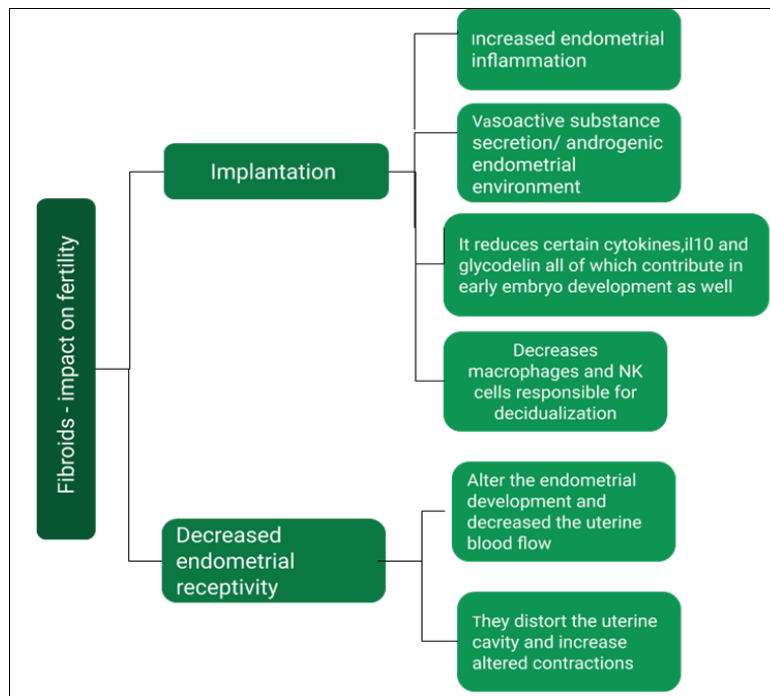
**Fig 1:** Uterine cavity in the sagittal view showing multiple intramural and submucosal fibroids.

**3. Discussion**

Fibroids and endometriosis often coexist due to their dependence on estrogen [3]. Fibroids negatively affect fertility and implantation rate by multiple mechanisms [Table 1] [1, 4, 5] Further, fibroids larger than 4cm or those distorting the

endometrium can potentially hinder implantation. Also based on their anatomical location, submucous, intramural and subserosal fibroids are the causative agents of infertility in decreasing order. Accurate fibroid mapping by an expert sonologist using ultrasound is a critical step in such an assessment [1, 5].

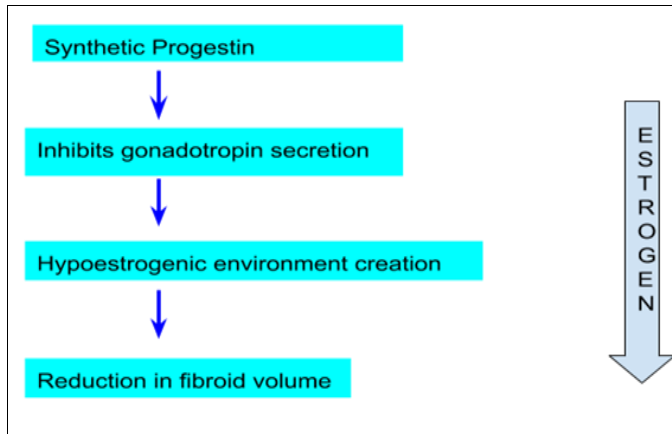
**Table 1:** Pathophysiology of fibroids on fertility



Women with fibroids who desire future fertility face a dilemma because of the limited treatment choices. The conventional methods used for management of symptomatic fibroids are surgical (which was not possible in our case), uterine artery embolisation (our patient was not willing to undergo any further operative intervention) and GnRH agonists (which were already used over a period of three months, post which the patient was lost to follow up). Dienogest is a 19 -nortestosterone derivative belonging to the estrane group having antigonadotropic effects, with limited androgenic, glucocorticoid and mineralocorticoid activity [6]. Its mechanism for fibroid size reduction is shown in Table 2

Dienogest is used as monotherapy at an oral dose of 2 mg once daily for 3 months. It has a high oral bioavailability (90%) with

fast renal elimination of metabolites (10 hours). It is indicated in women who require temporary reduction in myoma volume, where surgical intervention is not possible. Ichigo S *et al.* over a 24 month period, compared the effect of dienogest with that of GnRH agonist on the size of fibroids in women with coexisting endometriosis. They observed a comparable myoma size reduction in both groups but with significant side effects of GnRH<sub>a</sub> [6]. Hence, our approach utilised the estrogen suppression advantage of dienogest over adverse effects of prolonged use of GnRH<sub>a</sub>. Thus dienogest can be used as an alternative mode of medical management of fibroids in the fertility seeking population. However, we currently lack evidence from prospective randomized studies that can support this hypothesis.

**Table 2:** Mode of Action of Dienogest

#### 4. Conclusion

In cases where fibroids are inoperable, medical management with dienogest can go a long way in improving endometrial receptivity and improving success rates especially in a population anxious to conceive. Also, surgical complications and long term consequences of GnRHa can be avoided by the appropriate use of dienogest.

#### 5. References

1. Donnez J, Jadoul P. What are the implications of myomas on fertility? A need for a debate? *J of Hum Reprod* 2002;17:1424-30. DOI: 10.1093/humrep/17.6.1424
2. Rackow B, Taylor H. Submucosal uterine leiomyomas have a global effect on molecular determinants of endometrial receptivity. *J of Fertil Steril* 2010;93:2027-34. doi: 10.1016/j.fertnstert.2008.03.029
3. Huang J, Lathi R, Lemyre M, Rodriguez H *et al.* Coexistence of endometriosis in women with symptomatic leiomyomas. *J of Fertil Steril* 2010;94:720-723. DOI: 10.1016/j.fertnstert.2009.03.052
4. Essam El Mahdi Fibroids and Infertility *EMJ Repro Health* 2019;5(1):94-99.
5. Purohit P, Vigneswaran K. Fibroids and infertility. *Curr Obstet Gynecol Rep* 2016;5:81-88. DOI: 10.1007/s13669-016-0162-2
6. Ichigo S, Takagi H, Matsunami K *et al.* Beneficial effects of dienogest on uterine myoma volume: a retrospective controlled study comparing gonadotropin-releasing hormone agonist. *Arch Gynecol Obstet* 2011;284:667-670. DOI: 10.1007/s00404-010-1732-6