

A study of uterine fibroid embolization with its therapeutic role and complication

Yadav Waghaji Munde¹, Kiran Vinayak Naiknaware^{2*}

¹Assistant professor, Department of Interventional Radiology, Bharati Vidyapeeth Medical College, Satara Road, Pune, Maharashtra, INDIA.

²Consultant Interventional Radiologist, Department of Interventional Radiology, 7 Orange Hospital, Pawana Nagar Housing Society, Chinchwad, Pimpri-Chinchwad, Maharashtra 411033, INDIA.

Email: yadvamunde@gmail.com

Abstract

Background: Uterine fibroids are a major cause of morbidity in women of reproductive age (and sometimes even after menopause). UFE was used since 1995, because the embolization is either solely or primarily performed through the uterine artery, the procedure is often referred to as uterine artery embolization (UAE). **Objectives:** To see the therapeutic role of uterine fibroid embolization in fibroids with its associated complications. **Material and Methods:** This analytical prospective study was done on 30 cases with uterine fibroid. Embolization was performed by using 355-500 microns poly vinyl alcohol (PVA) particles. Data analyzed using SPSS version 20. **Results:** Out of total 30 cases, most common (46%) age group was found to be 40-45 years. Pain in abdomen was the most common symptom seen in 74%. Intramural fibroids seen in majority 60% of study cases. There was statistically significant reduction in volume of fibroid after embolization 83 ± 174 cc when compared with before embolization volume 273 ± 567 cc. Complications were seen in 11 cases in which post embolization syndrome was most common 6 (54%) complication. **Conclusions:** UFE is having high success rate and very good fibroid volume reduction in this study.

Key Word: Uterine fibroids, Embolization, Post embolization syndrome.

*Address for Correspondence:

Dr. Kiran Vinayak Naiknaware, 7 Orange Hospital, Pawana Nagar Housing Society, Chinchwad, Pimpri-Chinchwad-411033, Maharashtra.

Email: dr.kvn0247@gmail.com

Received Date: 07/03/2019 Revised Date: 02/04/2019 Accepted Date: 12/06/2019

DOI: <https://doi.org/10.26611/10131036>

Access this article online

Quick Response Code:



Website:

www.medpulse.in

Accessed Date:
23 June 2019

INTRODUCTION

Uterine fibroids (also known as leiomyomas or myomas) are the commonest benign uterine tumors, with an estimated incidence of 20%–40% in women during their reproductive years.^{1,2} They are monoclonal tumors of the uterine smooth muscle cells and consist of large amounts of extracellular matrix that contain collagen, fibronectin, and proteoglycan.^{3,4} Even though their pathogenesis is not clearly known, there is considerable evidence that estrogens and progestogens proliferate tumor growth,^{5,6} as

the fibroids rarely appear before menarche⁷ and regress after menopause. They are classified by their location relative to the layers of the uterus.⁸ Arterial embolisation is a long-established technique in the treatment of abdominal and pelvic haemorrhage but has only recently been used to treat uterine fibroids. Until recently, surgery has been the only effective treatment for fibroids.⁹⁻¹³ Hysterectomy is major surgery and disadvantage of myomectomy is the risk of fibroid recurrence and the requirement for further surgery that arises in 5.7% to 51% of patients.¹⁴ UFE has been shown to reduce pain, bulk symptoms (pressure and abdominal wall distortion), and menorrhagia in most cases.¹⁵ Although hysterectomy has long been considered the definitive treatment for symptomatic fibroids and remains the most common intervention for fibroids, there is growing interest in less invasive therapies and treatments that avoid removal of the uterus, including medical management, abdominal or laparoscopic myomectomy, endometrial ablation and UFE.¹⁶ So this study was carried out to see the therapeutic role of uterine fibroid embolization in fibroids with associated complication out of it at our hospital.

How to cite this article: Yadav Waghaji Munde, Kiran Vinayak Naiknaware. A study of uterine fibroid embolization with its therapeutic role and complication. *MedPulse International Journal of Radiology*. June 2019; 10(3): 32-35.
<http://www.medpulse.in/Radio%20Diagnosis/>

MATERIAL AND METHODS

This interventional prospective study was conducted at the Department of Interventional Radiology, Bharati Vidyapeet Medical College and Department of Interventional Radiology at 7 Orange Hospital. Total of 34 cases were selected 2 lost to follow up and 2 had technical failure so were excluded from this study. So, 30 cases that completed study follow up formed the sample size. All those with symptomatic fibroids were included in this study. Cases who were pregnant at that time or those desiring pregnancy were excluded. All the cases were informed about procedure and written informed consent was taken. All of the patients were advised to wait 6 months after treatment for pregnancy. Uterine artery embolization was performed by using 255e500-mm poly vinyl alcohol (PVA) particles. The preferred endpoint was complete occlusion of flow to the fibroid, with slow flow remaining in the main uterine artery, as described by Spies *et al.*⁹ All patients were admitted for overnight care, with pain management. Patients were followed-up as visit to hospital with clinical assessment at 1 week, 3 months, and 6 months, with a scheduled visit 1 year after the procedure. On an average all the 30 cases were followed for 1.5 years.

Procedure of UAE: Transfemoral route was used for accessing the arteries. Arteriography was performed for uterine and ovarian artery. Selective catheterization of the contra-lateral internal iliac artery using a Cobra catheter was done under fluoroscopic guidance. 355-500 microns poly vinyl alcohol (PVA) particles used for embolising fibroids arteries.

RESULTS

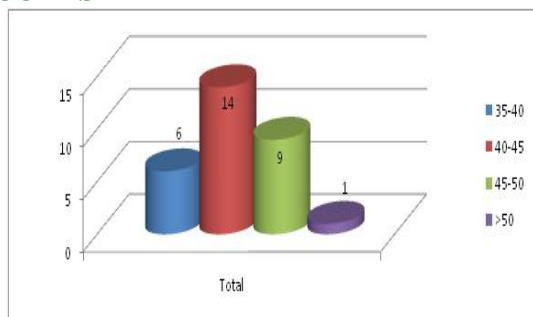


Figure 1: Distribution as per age

Most common (46%) age group was 40-45 years. Mean age of this study was 46.2±17.6 years.

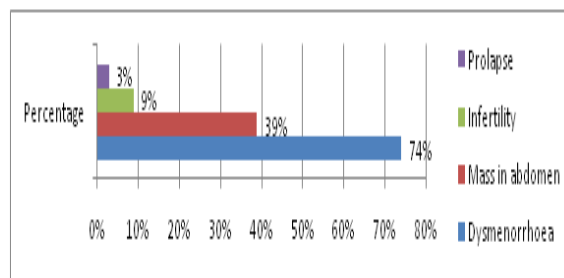
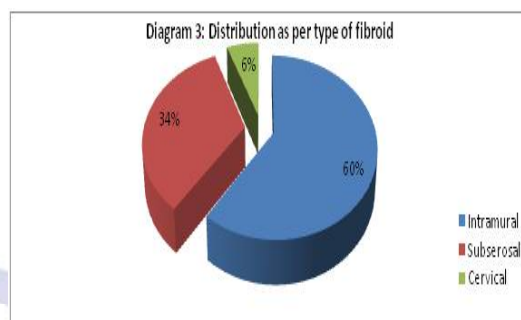


Figure 2: Distribution as per presenting symptoms

Pain in abdomen was the most common symptom seen in 74%, mass in abdomen seen in 39% cases.



Intramural fibroids seen in majority 60% of study cases.

Table 1: Reduction in fibroid volumes before and after embolization by ultrasound

Variable	Volume (cc)		Total	p value
	Mean SD	Range		
Before	273 ± 567	12-1542	30	<0.05
After	83 ± 174	5-589	30	

There was statistically significant reduction in volume of fibroid after surgery 83 ± 174 cc when compared with before surgery volume 273 ± 567cc.

Table 2: Complications of uterine fibroid embolization (JOHN)

Type	Complications	Total (%)
Early	Post-embolization syndrome	6 (54%)
	Infection	2 (18%)
	Haematoma	2 (18%)
Late	Chronic vaginal discharge	1 (9%)
	Sexual dysfunction	1 (9%)
	Temporary amenorrhea	1 (9%)

Out of 30, complications were seen in 11 cases in which post embolization syndrome was most common (54%) complication seen in this study. Infections, Haematoma were seen in 9% cases.

DISCUSSION

This was a prospective interventional study conducted at our hospitals on 30 cases presented with fibroid were taken for fibroid embolization by using 355-500 microns poly vinyl alcohol (PVA) particles. The most common age group presented in this study was 40-45 years which

formed 46%. While next common age group was 45-50 which formed 30%. This finding of age distribution was supported by a study done by Subramanian R *et al*¹⁷, which found 40-45 age group as most common 42%. Our finding was also supported by Lahori *et al*¹⁸, were majority of cases belonged between 41-50 years (46.84%). Mean age of study cases in this study was found to 46.2±17.6 years. In a study done by Walker *et al*⁹ the mean age was 43.2 years, while another study done by Dsouza J *et al*¹⁹ the mean was found to be 36 years. Both of these studies had more or less similar mean age for the study cases. In this study pain in abdomen was the most common symptom seen in 74%, second common symptom mass in abdomen seen in 39% cases. Infertility seen in 9% and prolapse of uterus seen in 3%. In a study done by Dsouza J *et al*¹⁹ the most common presenting symptom was menorrhagia, 14 (56%) with dysmenorrhoea and 8 (32%) with pressure symptoms. Subramanian R *et al*¹⁷ study found mass per abdomen in 50% as most common symptom in their study. Bulman JC *et al*²⁰ study also had similar presenting symptoms in their study. In this study intramural fibroids seen in majority 60% of study cases. In Subramanian R *et al*¹⁷ study also intramural fibroids were seen as most common (35%) type of fibroids. Dsouza J *et al*¹⁹ study also found intramural fibroids in 40% cases. Both of these studies supported our findings. In this study there was statistically significant ($p < 0.05$) reduction in volume of fibroid after embolization (83 ± 174 cc) when compared with before embolization volume (273 ± 567 cc). Other studies like Walker WJ *et al*²¹, Pelage JP *et al*²² and Brunereau L *et al*²³ also supported our finding of reduction in volume after embolization. Out of 30 cases, 11 showed some kind of complications. 'Post-embolization syndrome' which can occur commonly, although it is only severe in a minority of cases. It consists of pain, nausea, a flu-like illness, mild pyrexia and raised inflammatory markers. It was seen as most common complication post UFE in 54% cases. Similarly Dsouza J *et al*¹⁹ found that pelvic pain was the commonest side effect and complication during UAE with an incidence of 64%. Similarly Soyer P *et al*²⁴ found more than 50% cases of post-embolization syndrome in their study. Other less common complications were vaginal discharge, temporary amenorrhea similar was seen in Dsouza J *et al*¹⁹. No any major complications were seen at the end of follow up period. Smaller sample size would be the limitation of this study.

CONCLUSION

This study results shows that uterine fibroid embolization is an effective method for fibroids with a low complication and failure rate.

REFERENCES

1. Ryan GL, Syrop CH, Van Voorhis BJ. Role, epidemiology, and natural history of benign uterine mass lesions. *Clin Obstet Gynecol.* 2005; 48: 312–324.
2. Wallach EE, Vlahos NF. Uterine myomas: an overview of development, clinical features, and management. *Obstet Gynecol.* 2004; 104: 393–406.
3. Sankaran S, Manyonda IT. Medical management of fibroids. *Best Pract Res Clin Obstet Gynaecol.* 2008; 22(4):655–676.
4. Parker WH. Etiology, symptomatology, and diagnosis of uterine myomas. *Fertil Steril.* 2007; 87(4):725–736.
5. Rein MS, Barbieri RL, Friedman AJ. Progesterone: a critical role in the pathogenesis of uterine myomas. *Am J Obstet Gynecol.* 1995;172(1 Pt1):14–18.
6. Andersen J. Growth factors and cytokines in uterine leiomyomas. *Semin Reprod Endocrinol.* 1996;14(3):269–282.
7. Fields KR, Neinstein LS. Uterine myomas in adolescents: case reports and a review of the literature. *J Pediatr Adolesc Gynecol.* 1996;9(4):195–198.
8. Cramer SF, Patel A. The frequency of uterine leiomyomas. *Am J Clin Pathol.* 1990; 94(4):435–438.
9. Spies JB, Scialli AR, Jha RC, *et al.* Initial results from uterine fibroid embolization for symptomatic leiomyomata. *J Vasc Interv Radiol* 1999;10:1149–1157.
10. Heaston DK, Mineau DE, Brown BJ, Miller FJ. Transcatheter arterial embolization for control of persistent massive puerperal hemorrhage after surgical hypogastric artery ligation. *AJR* 1979; 133: 152–154.
11. Walker WJ. Successful internal iliac artery embolisation with glue in a case of massive obstetric haemorrhage. *Clin Radiol* 1996; 51: 442–444.
12. Pelage JP, Le Dref O, Mateo J, *et al.* Life-threatening primary postpartum hemorrhage. Treatment with emergency selective arterial embolization. *Radiology* 1998; 208: 359–362.
13. Ravina JH, Herbreteau C, Ciraru-Vigneron N, *et al.* Arterial embolization to treat uterine myomata. *Lancet* 1995; 346: 671–672.
14. Nezhat FR, Roemisch M, Nezhat CH, Seidman DS, Nezhat CR. Recurrence rate after laparoscopic myomectomy. *J Am Assoc Gynecol Laparosc* 1998; 5(3):237–40.
15. Spies JB, Myers ER, Worthington-Kirsch R, *et al.* The FIBROID Registry: symptom and quality-of-life status 1 year after therapy. *Obstet Gynecol* 2005; 106(6):1309–1318.
16. Parker WH. Uterine myomas: management. *Fertil Steril* 2007; 88(2):255–271.
17. Subramanian R, Kirubamani H. Spectrum of Fibroid Presentation in a Tertiary Care Centre. *Int. J. Pharm. Sci. Rev. Res.*, 54(1), January - February 2019; Article No. 11, Pages: 64-66.
18. Lahori M, Malhotra AS. clinicopathological spectrum of uterine leiomyomas in a state of Northern India: a hospital based study. *Ijrcog.* 5(7), 2016, 2295-9.
19. Dsouza J, Kumar S, Hande PC, Singh SN. Uterine artery embolisation for uterine fibroids: Our experience at a tertiary care service hospital. *Med J Armed Forces India.* 2015;71(3):233–238.

20. Bulman JC, Ascher SM, Spies JB. Current concepts in uterine fibroid embolization. *Radiographics*. 2012 Oct; 32(6):1735-50.
21. Walker WJ, Pelage JP. Uterine artery embolisation for symptomatic fibroids: clinical results in 400 women with imaging follow up. *Br J Obstet Gynaecol* 109, pp. 1262–1272
22. Pelage JP, Le Dref O, Soyer P, *et al*. Fibroid-related menorrhagia: treatment with superselective embolization of the uterine arteries and mid-term follow-up. *Radiology* 2000; 215: 428–431.
23. Brunereau L, Herbreteau D, Gallas S, *et al*. Uterine artery embolization in the primary treatment of leiomyomas. *AJR* 2000; 175: 1267–1272.
24. Soyer P, Morel O, Fargeaudou Y, Sirol M, Staub F, Boudiaf M *et al*. Value of pelvic embolization in the management of severe postpartum hemorrhage due to placenta accreta, increta or percreta. *Eur J Radiol* 2011; 80: 729-35.

Source of Support: None Declared
Conflict of Interest: None Declared

