DOI: https://doi.org/10.53350/pjmhs22162213

ORIGINAL ARTICLE

To Determine the Association between Endometrial Polyp and Metabolic Syndrome

SABA RASOOL[1], SIDRA RAFFIQUE[2], MARIA BASHIR[3], ABDUL RAUF[4], AMNA MAQBOOL[5], SHYSTA SHAUKAT[6]
[1]*Woman Medical Officer, Services Hospital, Lahore*
[2]*Postgraduate Fellow, Sir Ganga Ram Hospital, Lahore*
[3]*Postgraduate Fellow, Sir Ganga Ram Hospital, Lahore*
[4]*Senior Registrar of Urology, Shaikh Zayed Hospital, Lahore*
[5]*PGR, Sir Ganga Ram Hospital, Lahore*
[6]*Assistant Professor, Services Hospital, Lahore*
Correspondence to Dr. Saba Rasool, Email: dr_saba_r@hotmail.co.uk, Mob: 0333-7440711

ABSTRACT

Background: Endometrial polyps are common among females especially in postmenopausal women. They have different type of prognosis and could lead to other related comorbidities. Metabolic syndrome is one of those conditions.
Aim: To determine the association between endometrial polyp and metabolic syndrome.
Study design: Case control study.
Place and duration of study: Department of Obstetrics and Gynecology, Unit-IV, Sir Ganga Ram Hospital, Lahore from12-04-2016 to 13-10-2016.
Methodology: One hundred women presenting in the obstetric and gynecological outdoor of Sir Ganga Ram Hospital, Lahore who meet the inclusion criteria of age between 18 to 60 years and with confirmation of endometrial polyps enrolled in this study. Detailed history and written informed consent was obtained from each patient. Two groups of patients were assimilated as follows. Cases: Those with endometrial polyp (as per operational definition), Controls: Healthy women without endometrial polyp (endometrial thickness≤5mm on transvaginal ultrasound scan). Patient's workup was done on outdoor basis and demographic details along with presence/absence of metabolic syndrome were recorded in the attached proforma. All patients were examined by a single resident and all labs were acquired from a single (Hospital) laboratory to eliminate bias.
Results: The mean age of the study participants was 33.57±6.65 years. The women who presented are maximum of having second parity 42(42%) and parity 3, 23(23%). There was significant difference for the metabolic syndrome in the cases and control as there were 33(62%) cases who have metabolic syndrome and 20(37%) control were having this disease.(odds ratio >1).
Conclusion: There is significant association of endometrial polyps with metabolic syndrome.
Keywords: Metabolic syndrome, endometrial polyps, Lipid profile.

INTRODUCTION

Endometrial polyp is a benign nodular protrusion of endometrium observed in 16% to 34% of women attending gynecological clinic.[1] Transvaginal ultrasound is the mainstay of diagnosis and hysteroscopic resection is the most effective treatment of benign endometrial polyps.[2] The importance of endometrial polyp is due to the fact that a proportion (0.8% to 4.8%) of these polyps can change into malignant ones over time.[1] Timely diagnosis and treatment of endometrial polyp is therefore important[3].

Co-occurrence of several known risk factors of cardiovascular disease is termed as metabolic syndrome (MS) including obesity, diabetes, hypertension and hyperlipidemia.[4] There have been numerous epidemiological studies on the prevalence of MS in various populations with great degree of disparity owing to inconsistency in the definition of MS. It has been reported up to 25% in western population[5]. Much higher prevalence has been reported in Pakistan being 35.2% in 2007[6] and 46% in 2008[7]. A possible explanation for this higher prevalence is the dietary and lifestyle differences between Western and Asian Population[7]. Metabolic syndrome has been found in association with a number of malignancies; liver (relative risk 1.43, P <0.0001), colorectal (1.25, P <0.001), and bladder cancer (1.10, P=0.013). This association may suggest MS a risk factor for malignancy or malignancy causing hormonal and other physiological changes leading to endometrial polyp[8].

Özkan et al., in 2015 observed that there was significantly higher frequency of metabolic syndrome in Turkish patients with endometrial polyps (71.1% vs. 13.3%; p<.001) as compared to healthy controls[9]. Bueloni-Dias et al, in 2014 also observed a similar association (48.5% vs. 33.3%; p=.004) in Brazilian population[10].

Received on 10-08-2021
Accepted on 21-01-2022

In line with the previous evidence on association of metabolic syndrome with various malignancies, the results of Ozkanet al[9] and Bueloni-Dias et al[10] also depict an association between MS and endometrial polyps. MS is a risk factor for cardiovascular disease and endometrial polyp is a precursor of endometrial carcinoma. So such an association advocates metabolic workup of patients presenting with endometrial polyp on one hand and trans-vaginal scan of women diagnosed of MS on the other to avoid morbidity and mortality associated with these conditions. However, at the moment the available evidence is limited to only 2 international studies and to the best of candidate's knowledge, no such local published material is available. Also previous studies have reported much higher incidence of MS in Pakistani population in general[6,7].

Therefore the purpose of the current study is to confirm this association in women presenting at a teaching hospital with endometrial polyps in local population.

MATERIAL AND METHODS

One hundred women presenting in the obstetric and gynecological outdoor of Sir Ganga Ram Hospital, Lahore who meet the inclusion criteria was enrolled into this study after permission from IRB. Detailed history and written informed consent was obtained from each patient. 2 Groups of patients was assimilated as follows.

- Cases: Those with endometrial polyp.
- Controls: Healthy women without endometrial polyp (endometrial thickness ≤5mm on trans-vaginal ultrasound scan).

Patient's workup was done on outdoor basis and presence/ absence of metabolic syndrome was noted. Patient's demographic details along with presence/absence of metabolic syndrome were recorded in the attached proforma. All the patients were examined by a single resident and all the labs were acquired from a single (Hospital) lab to eliminate bias. Confounding variables was controlled by exclusion. All the collected data was entered into SPSS version 21. Numerical variables; age was presented by

mean±SD. Categorical variables i.e. metabolic syndrome was presented by frequency and percentage. Odds ratio was calculated to determine the strength of association between endometrial polyps and metabolic syndrome. OR >1 was considered as significant. Frequency was calculated for parity. Data was stratified for age and parity to address effect modifiers. Post stratification adjusted odd's ration was calculated and OR >1 was considered as significant. Women aged between 18-60 years presenting in the obstetric and gynecological outdoor of Sir Ganga ram Hospital, Lahore.

Cases: Those with endometrial polyp (as per operational definition).

Controls: Healthy women without endometrial polyp (endometrial thickness ≤5mm on trans-vaginal ultrasound scan). Patients in OPD with any other gynecological complaint like H/S of bleeding. Pregnant women (gestational amenorrhea, ultrasound evidence of fetal sac). Women with congenital anomalies of the uterus where trans-vaginal scan is not possible like Unicornuate, Bicornuate and Septated uterus (abdominal ultrasound scan).

RESULTS

There were total 100 cases of which 50(50%) were cases and 50(50%) were controls. The mean age of the study participants was 33.57±6.65 years (Table 1). The women who are presented, the maximum of the female were having second parity 42(42%) and then parity 3 was common in 23(23%) (Table 2). There was significant difference for the metabolic syndrome in the cases and control as there were 33(62%) cases who have metabolic syndrome and 20(37%) control were having this disease.(odds ratio >1, Table 3, 4).

On stratification it was evaluated that there was significant difference for parity in the age group of 20-60 years and no significant difference in the cases and control in the age group of 18-26 (Table 5). Similarly, there was significant difference with respect to metabolic syndrome in the both cases and controls (Table 6).

Table 1: Distribution of mean age of the study samples (n=100)

	Cases	Control
N	50	50
Mean	33.48	33.60
Standard chartered	7.00	6.35

Overall mean age= 33.57±6.65, p-value=0.48

Table 2: Distribution of the Parity (n=100)

	n	%age
1.00	13	13.0
2.00	42	42.0
3.00	23	23.0
4.00	18	18.0
5.00	4	4.0
Total	100	100.0

Table 3:Distribution of the Metabolic Syndrome (n=100)

	n	%age
Yes	53	53.0
No	47	47.0
Total	100	100.0

Table 4: Comparison of the cases and controls for the metabolic syndrome

Metabolic syndrome	Group of cases	
	Case	Controls
Yes	33 (62.3%)	20 (37.7%)
No	17 (36.2%)	30 (63.8%)

Odds Ratio: 6.87

Table 5: Stratification of the metabolic syndrome with respect to age

			Group of cases		
Age	Variable of study		Case	Controls	Odd's ratio
18-25	Metabolic syndrome	Yes	5(71.4%)	2(28.6%)	6.25
		No	2(28.6%)	5(71.4%)	
26-60	Metabolic syndrome	Yes	28(60.9%)	18(39.1%)	0.62
		No	15(37.5%)	25(62.5%)	

Table 6: Stratification of the metabolic syndrome with respect to parity

			Group of cases		
Parity	Variable of study		Case	Controls	Odd's ratio
1-2	Metabolic syndrome	Yes	19(67.9%)	9(32.1%)	3.01
		No	11(40.7%)	16(59.3%)	
>2	Metabolic syndrome	Yes	14(56%)	11(44%)	3.72
		No	6(30%)	14(70%)	

DISCUSSION

Uterine polyps, also known as endometrial polyps, are growths that attach to the inner lining of the uterus (endometrium). They can be benign or cancerous and cause problems with fertility and menstruation. Patients can have one or many uterine polyps that range in size from a sesame seed to a golf ball. The polyp usual stays inside the uterus but can grow long enough to project from the opening of the cervix[11].

The reason behind the overgrowth of endometrial tissue that forms these polyps is still unknown. Swings in hormones have shown to be a possible factor. Estrogen, which causes the endometrium to thicken each month, appears to be another possible cause of the growth of uterine polyps[12].

Women between the age of 40 and 50 and those in menopause or entering it have the highest risk for developing uterine/endometrial polyps. But they are still possible in all women. Uterine polyps are rare in women under 20 years old. Women who are obese, have high blood pressure, are taking tamoxifen (drug used to treat breast cancer) or have a history of Lynch syndrome or Cowden syndrome are at increased risk to develop uterine polyps. Around 5% of uterine polyps are cancerous or precancerous. The percentage increases for those who are postmenopausal, on tamoxifen or have heavy or irregular periods[13,14].

There are many studies that have evaluated the association between metabolic syndrome and endometrial polyps. In a study it was noted that metabolic syndrome was present in 32(71.1%) of women having endometrial polyps and in 6(13.3%) in the control group (P<0.001). Logistic regression demonstrated that Mets was a significant risk factor for endometrial polyps. ROC curve analysis also showed that MetS was the most significant discriminative risk factor in the study group with an AUC of 0.789 (0.691–0.887; CI 95%). The result of this study was similar as obtained in this current study.[15] In another study, Patients with endometrial polyps were older and had been in menopause for a longer time compared to control (p<0.0001). The percentage of obese women with polyps (72%) was higher compared to the control group (39%; p <0.0001). The measurement of waist circumference was superior among patients with polyps (p 0.0001). We observed a higher incidence of diabetes, hypertension and dyslipidemia in patients with endometrial polyps (p <0.0001). According to the US National Cholesterol Education Program/ Adult Treatment Panel III

(NCEP/ATP III) criteria, 48.5% of women with polyps and 33.3% of the Control Group were classified as having metabolic syndrome (p=0.004). Analysis of risk for endometrial polyps formation showed higher chances of occurrence of the disorder in patients with: BMI ≥25kg/m^2 (OR=4.6; 95% CI 2.1-10.0); glucose ≥100mg/dL (OR=2.8; 95% CI 1.3-5.9); dyslipidemia (OR=7.0; 95% CI 3.7-13.3); diabetes (OR=2.5; 95% CI 1.0-6.3) and metabolic syndrome (OR=2.7; 95% CI 1.1-6.4) compared to the control group[16]. This study further strengthens our results. But in our study there was a limitation that we did not study that entire variable which has been studied by the study in the previous one.

Although the risk of metabolic syndrome is high, endometrial polyps should be removed when detected, as excision allows for both histological diagnosis and effective treatment of abnormal uterine bleeding patterns and excessive menstrual loss; in addition, endometrial polyps in postmenopausal women are more likely to be malignant when symptomatic[17].

The question arises whether asymptomatic and incidental endometrial polyps should be treated. DeWaayet al[18] observed natural regression of over half of endometrial polyps <1 cm in asymptomatic premenopausal women who underwent SIS with a 2.5 year follow-up, whereas larger endometrial polyps tended to become symptomatic. Similarly, Haimov-Kochmanet al reported a small case series of asymptomatic women diagnosed with endometrial polyps of 5–8mm on hysteroscopy, which regressed after several months[19].

Incidental small endometrial polyps in women may be amenable to conservative treatment due to their low malignant potential and chances of regression. However, endometrial polyps that lead to infertility, postmenopausal bleeding, menorrhagia and abnormal bleeding patterns, metabolic syndrome and those in postmenopausal women warrant hysteroscopic removal under vision, which is superior to blind avulsion[20].

This study has limitation that it was institutional study and we have limited sample size. Moreover, the variables included in this study were not sufficient to study all the factors that could enhance the metabolic syndrome.

CONCLUSION

Conclusively, it is stated that there is significant association between metabolic syndrome and endometrial polyps. It is needed to manage or screen the patients who are presenting with endometrial polyps for the presence of metabolic syndrome.

REFERENCES

1. Rahimi S, Marani C, Renzi C, Natale ME, Giovannini P, Zeloni R. Endometrial polyps and the risk of atypical hyperplasia on biopsies of unremarkable endometrium: a study on 694 patients with benign endometrial polyps.Int J GynecolPathol 2009;28(6):522-8.
2. Salim S, Won H, Nesbitt-Hawes E, Campbell N, Abbott J.Diagnosis and management of endometrial polyps: a critical review of the literature. J Minim Invasive Gynecol 2011;18(5):569-81.
3. Tabrizi AD, Vahedi A, Esmaily HA.Malignant endometrial polyps: Report of two cases and review of literature with emphasize on recent advances. J Res Med Sci 2011;16(4):574-9.
4. Huang PL. A comprehensive definition for metabolic syndrome. Dis Model Mech 2009;2(6):231–7.
5. Prasad H, Ryan DA, Celzo MF, Stapleton D. Metabolic syndrome: definition and therapeutic implications. Postgrad Med 2012;124(1):21-30.
6. Jahan F, Qureshi R, Borhany T, Hamza HB. Metabolic syndrome: frequency and gender differences at an out patient clinic. J Coll Physicians Surg Pak 2007;17(1):32-5.
7. Basit A, Shera AS. Prevalence of metabolic syndrome in Pakistan. Metab Syndr Relat Disord 2008;6(3):171-5.
8. Sposito K, Chiodini P, Colao A, Lenzi A, Giugliano D.Metabolic syndrome and risk of cancer: a systematic review and meta-analysis. Diabetes Care 2012;35(11):2402-11.
9. Özkan NT, Tokmak A, Güzel Aİ, Özkan S, Çiçek MN. The association between endometrial polyps and metabolic syndrome: a case-control study. Aust N Z J Obstet Gynaecol 2015;55(3):274-8.
10. Bueloni-Dias FN, Spadoto-Dias D, NahásNeto J, Nahás EA. Predictive factors for occurrence of endometrial polyps in postmenopausal women. Rev Bras Gynecol Obstet 2014;36(11):489-96.
11. Rawal A, Girisha K. Use of Periconceptional Folic Acid for Prevention of Neural Tube Defects–Where are We. J Obst Gynaecol Res. 2015;41:6.
12. Clement PB, Scully RE. Endometrial stromal sarcomas of the uterus with extensive endometrioid glandular differentiation: a report of three cases that caused problems in differential diagnosis. Int J Gynecol Pathol. 1992;11(3):174.
13. Savelli L, De Iaco P, Santini D, Rosati F, Ghi T, Pignotti E, Bovicelli L. Histopathologic features and risk factors for benignity, hyperplasia, and cancer in endometrial polyps. Am J Obs Gynecol. 2003 30;188(4):927-31.
14. Nappi L, Indraccolo U, Sardo AD, Gentile G, Palombino K, Castaldi MA, Spinelli M, Greco P. Are diabetes, hypertension, and obesity independent risk factors for endometrial polyps?. J Minimally Invasive Gynecol. 2009;16(2):157-62.
15. Özkan NT, Tokmak A, Güzel Aİ, Özkan S, Cicek MN. The association between endometrial polyps and metabolic syndrome: A casecontrol study. Australian and New Zealand J Obstetrics and Gynaecol. 2015;55(3):274-8.
16. Bueloni-Dias FN, Spadoto-Dias D, NahásNeto J, Nahás EA. Predictive factors for occurrence of endometrial polyps in postmenopausal women. Revista Brasileira de Ginecologia e Obstetrícia. 2014;36(11):489-96.
17. Tjarks M, Van Voorhis BJ. Treatment of endometrial polyps. Obstetrics & Gynecology. 2000;96(6):886-9.
18. DeWaay DJ, Syrop CH, Nygaard IE, Davis WA, Van Voorhis BJ. Natural history of uterine polyps and leiomyomata. Obstetrics & Gynecol. 2002;100(1):3-7.
19. Haimov-Kochman R, Deri-Hasid R, Hamani Y, Voss E. The natural course of endometrial polyps: could they vanish when left untreated?. Fertility and Sterility. 2009;92(2):828-11.
20. Lieng M, Istre O, Qvigstad E. Treatment of endometrial polyps: a systematic review. Acta Obst Gynecol Scandinavica. 2010;89(8):992-1002.