
GYNECOLOGY

Analysis of Adnexal Mass in Women with Previous Hysterectomy - An observational study

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ABSTRACT

Objectives: To characterize the clinicopathological features of adnexal masses arising subsequent to hysterectomy and portion of them requiring re-operation. In addition, average time interval between hysterectomy and diagnosis of adnexal mass was ascertained along with the need of salpingectomy

Materials and Methods: This observational study was conducted on the patients who presented with adnexal mass subsequent to hysterectomy. Data regarding characteristics of lesion, clinical presentation, proportion requiring re-operation and histological nature were analyzed.

Results: Over the span of 4 years, 115 women with hysterectomy presented with adnexal mass. 93% of them had index hysterectomy abdominally. Out of this 115 patients, 45 (39%) were kept on follow-up in whom mass had resolved subsequently (expectant group) and 70 (61%) required operation for the cure (re-operation group). Median time interval to diagnosis of adnexal mass was longer in re-operation group ($p < 0.001$). Patients in re-operation group were more symptomatic ($p = 0.011$), presented with larger size ($p < 0.001$) and more complex cyst ($p = 0.0001$) with higher number of septa ($p = 0.007$) compared to expectant group. In 74% of patients, mass arose from the ovary and accounted for 72.3% of the benign mass and 100% of malignant mass. In remaining 26%, tube was confirmed as the source of origin. Commonest histological variety was serous cystadenoma.

Conclusion: Significant number of adnexal lesion disappeared during follow up. Benign ovarian mass was the predominant lesion in re-operated group. Fallopian tube also contributed prominently in 26%, thus salpingectomy with hysterectomy shall decrease the occurrence of fallopian tube pathology.

Keywords: hysterectomy, adnexal mass, adnexal preservation, re-operation.

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Introduction

Hysterectomy is most frequently performed gynecological surgery. Prevalence of hysterectomy in India is 17/1000 of married women and varies from 2-63/1000 in different states.⁽¹⁾ Reoperation following hysterectomy is not uncommon and usually done for adnexal masses which can arise from ovary, tube or surrounding connective tissue. Emergence of subsequent pelvic mass has profound physical and psychological impact on patients especially those requiring re-operation. Complex adnexal mass poses diagnostic as well as surgical challenge to the gynecologist. The incidence of subsequent surgery after hysterectomy varies from 2.8 to 9.2%.⁽²⁾ These subsequent abdominal surgeries are often associated with increased risk of intraoperative complications related to adhesive disease and distorted anatomy.⁽³⁾ Removing ovaries during hysterectomy in young patients has its own long term complications and thus not recommended. Recently, a meta-analysis of three studies of women undergoing hysterectomy for benign indications found women who underwent bilateral salpingectomy concurrently with hysterectomy had a lower risk of developing ovarian cancer when compared with women who did not undergo salpingectomy.⁽⁴⁾ Many institutions has adopted this practice but still not widely practiced in peripherals. In light of available evidence, this study thus reviewed all the case of adnexal mass appearing in post-hysterectomy women with the primary objective to characterize clinical and histopathological features of post hysterectomy adnexal masses and to determine the proportion requiring reoperation. The secondary objectives were to ascertain time interval between hysterectomy and appearance of adnexal mass along with the need of salpingectomy.

Materials and Methods

This observational study was conducted after obtaining approval from the institutional ethical committee (AIIMS/Pat/IEC/2019/335) from January 2016 to December 2019 in the Department of Obstetrics and Gynecology at All India Institute of

Medical Sciences (AIIMS) Patna. All the patients presented to gynecology outpatient department during specified time period with pelvic mass and had history of hysterectomy for benign gynecological pathology were included in the study. Patients with history of hysterectomy for malignant gynecological pathology or who did not present during specified time period were excluded from the study.

All demographic characteristics, age at hysterectomy, route and indication of hysterectomy, presenting symptoms and time interval between hysterectomy and appearance of mass were recorded in a checklist. Detailed clinical examination, ultrasound with Doppler study and tumour markers for ovarian cancer were carried out. On the basis of sonographic feature, mass was classified as simple, unilocular or multilocular or complex cyst and solid mass. Patients with simple cyst of size < 7 cm with normal levels of tumour markers were managed expectantly and offered three monthly scan for 18 months. On each visit they were asked about exaggeration or onset of new symptoms. Rest of the patients underwent surgery either laparotomy or laparoscopy. Intraoperative findings, presence of adhesions or any intraoperative complications and histopathology report of removed mass were recorded.

Statistical analyses were performed using SPSS Version 20.0. Wilcoxon rank sum test was used for the comparison of continuous variables of non-normally distributed samples of the two groups. The categorical variables were summarized with rates using chi square test. P value < 0.05 was considered statistically significant.

Results

Over 4 years of span, 115 women presented with pelvic mass subsequent to hysterectomy who fulfilled the inclusion criteria were included in the study. 68.3% of them had hysterectomy at age < 35 years and 31.8% were in the age group between 35-45 years. Mean age at presentation was 41.3 years. Majority (n = 107) of the patients had index

hysterectomy abdominally and 8 patients had hysterectomy vaginally. Indication of hysterectomy was not known in significant number of cases 42.5% (n = 49). In the remaining patients, pelvic inflammatory

disease (PID) was the most common indication in 28% followed by abnormal uterine bleeding (AUB) in 16%. 2.5% (n = 2) patients had cesarean hysterectomy for postpartum hemorrhage (PPH) (Table 1).

Table 1. Age, route and indication of hysterectomy, time interval to appearance of mass.

	Frequency	Percentage
Route of hysterectomy		
Abdominal	107	93.0
Vaginal	8	7.0
Age at hysterectomy		
< 35 years	79	68.8
35-45 years	33	28.8
> 45years	3	2.5
Indication of hysterectomy		
PID	32	28.0
AUB	18	15.6
PPH	2	2.5
Uterine Prolapse	8	7.0
Ovarian cyst	6	5.2
Not known	49	42.5
Time interval to diagnosis of mass		
< 1 year	6	5.0
1-5 years	48	41.3
6-10 years	36	31.3
> 10 years	25	22.5
Management		
Medical	45	39.1
Surgical	70	60.9

PID: pelvic inflammatory disease, AUB: abnormal uterine bleeding, PPH: postpartum hemorrhage.

Among the 115 selected patients, 70 patients underwent surgery for the adnexal mass (re-operation group) and 45 patients were kept on follow-up (expectant group). The adnexal mass resolved subsequently during the follow-up period (mean duration 4.3 months). Table 2 shows the characteristics of adnexal mass in re-operation and expectant group. Number of symptomatic patients were higher in re-operated group (80%) than the expectant group (57.7%) and the difference was statistically significant ($p = 0.011$). Median time interval to diagnosis of mass was

statistically longer in re-operation group (78 months) than the expectant group (8 months) ($p < 0.001$). All borderline and malignant tumors presented after 8 years of index surgery. There was no significant difference in CA125 level in both the groups. Patient in the re-operated group presented with significantly larger size ($p < 0.001$), more complex cyst ($p < 0.0001$) with higher number of septations ($p = 0.007$) as compared to the expectant group. Median size of cyst in re-operated group was 7.9 cm where as in expectant group it was 4.3 cm. In the re-operated group, 30

patients were operated laparoscopically and 40 patients had laparotomy. Dense adhesion was encountered in 21.4% patients (n = 15), 2.8% (n = 2) patients sustained bowel injury and only one (1.4%) had bladder injury. Majority of the mass arising after hysterectomy and requiring re-operation were benign (92.9%), while 5.7% (n = 4) were borderline and only

one was malignant. Most of the masses were ovarian in origin (n = 52) comprising 74.18%. These ovarian masses accounted for 72.3% of benign mass and 100% of borderline and malignant mass overall. Fallopian tube and peritoneum accounted for the rest of the mass 25.8% (n = 18), and all of them were benign (Table 3).

Table 2. Characteristics of adnexal mass in re-operation and expectant group.

	Re-operation group (N=70)	Expectant group (n=45)	p value
Symptomatic on presentation	56 (80%)	26 (57.7%)	0.011
Time to diagnosis (months median, minimum-maximum)	78 (8- 360)	8 (3-60)	<.001
Interval to follow up (months)		4.3(2-18)	
Serum CA125 (median, range)	20.3 (4.3-46.4)	7.8 (3.2- 35)	0.189
Sonographic characteristics			
Size (cm, median, minimum-maximum)	7.9 (4.8- 30.4)	4.3 (3.8- 7)	< 0.001
Simple (n,%)	28 (40%)	39 (86%)	< 0.005
Complex (n,%)	42 (60%)	6 (13.3%)	0.0001
Septations (n,%)	47 (67.1%)	18 (40%)	0.007
Abnormal doppler (n,%)	5 (7.1%)	1 (2.2%)	0.466

cm: centimeter

Table 3. Histopathological characteristics of removed adnexal mass.

Histology	Frequency	Percentage
Benign	65	92.8
Serous cystadenoma	17	24.3
Mucinous cystadenoma	9	12.8
Endometrioma	14	20
Hydrosalpinx	10	14.3
Cystadenofibroma	3	4.3
Paratubal cyst	8	11.4
Follicular cyst	4	5.7
Borderline	4	5.7
Serous cystadenoma	3	4.3
Mucinous cystadenoma	1	1.4
Malignant		
Serous cystadenocarcinoma	1	1.4

Discussion

Hysterectomy is generally considered as final treatment of all gynecological problems by the women but this does not hold true if they have to undergo re-operation for gynecological indications. In this review over span of 4 years, 115 patients reported with adnexal mass subsequent to hysterectomy. Exact incidence of adnexal pathology subsequent to hysterectomy could not be calculated as all the patients had hysterectomy outside our institution. Incidence of adnexal mass was higher following abdominal hysterectomy compared to vaginal route (96% vs 4%). This may be due to small peritoneal trauma by vaginal approach or abdominal route is preferred even though criteria for vaginal route are fulfilled. Similar finding has been observed by Holub et al,⁽⁵⁾ where reoperation rate was 5.6% versus 0.7% in abdominal and vaginal hysterectomy respectively. They suggested that the important factor affecting the reoperation rate were age, primary histologic findings and smaller peritoneal trauma.

Indication of primary surgery was not known in 42.5% (n = 49) of cases due to lack of previous operative note records. This emphasizes the importance of providing detailed operative notes along with histopathological report to the patient at time of discharge. Median time interval from hysterectomy to the diagnosis of mass was longer in re-operated group than the expectant group. All the borderline and malignant tumor appeared after 8 years of index surgery. This is in accordance with the study done on Iranian women by Lalooei et al,⁽⁶⁾ where all the benign adnexal masses appeared within 10 years of hysterectomy. Loft et al,⁽⁷⁾ also reported that the protective effect of hysterectomy on the occurrence of ovarian cancer decreased over time in Danish women. Present study had demonstrated that almost 39% of secondary adnexal mass disappeared during follow-up. We decided to follow women up for 18 months as there is evidence in literature that this time period is sufficient for the development of morphological changes which could indicate malignant nature of the lesion.⁽⁸⁾ Hence we affirmed that all of them did not require operation. The adnexal masses which had been removed were

more symptomatic, larger in size and had features doubtful of malignancy. Majority of mass arose from ovary and were benign though the significant number had also been contributed by tubes. Removal of ovaries before menopause is associated with own sets of risk like cardiovascular, osteopenia etc. The American College of Obstetricians and Gynecologists practice bulletin 2016 also reaffirmed that 'strong consideration should be made for retaining normal ovaries.' Most hysterectomies performed in present study were in younger age group thus retaining healthy ovaries. Retained ovary is associated with the risk of developing pathology. Casiano et al,⁽⁹⁾ reported the incidence of oophorectomy after hysterectomy up to 9.2%. He proposed that disruption of ovarian blood supply after hysterectomy altered its function resulting in adnexal pathologies. In the present study majority of the mass requiring re-operation were benign (92.9%) and arose from the ovary (74.2%). Commonest histological variety was serous cystadenoma. This is in agreement with the study by Shiber et al.⁽¹⁰⁾ They observed that most of the adnexal lesion arising after hysterectomy were benign ovarian mass (80%) and commonest histopathological variety being serous cystadenoma. Though the majority of post-hysterectomy mass were ovarian in origin, significant number 25.8% (n = 18) had been contributed by tubes too. It is now well established fact that tubes serve no purpose after completion of fertility and have potential to induce high grade ovarian serous carcinoma.^(11, 12) In addition retained tubes can give rise benign lesions such as hydrosalpinx, tubo-ovarian mass, fallopian tube prolapse, mesenchymal cyst of oviduct etc. Morse et al,⁽¹²⁾ reported that women who underwent hysterectomy had 8% lifetime risk of reoperation for hydrosalpinx. In a study by Falconer et al,⁽¹³⁾ it was found that salpingectomy along with hysterectomy was associated with reduced risk of ovarian cancer. A 2019 study by Chao et al,⁽¹⁴⁾ reviewing 247 women demonstrated the lower incidence of secondary benign pelvic lesion after salpingectomy. Recently Öksüzoğlu et al,⁽¹⁵⁾ in 2019 analyzed the characteristics of adnexal lesion appearing after hysterectomy in 137 Turkish women. They reported that

only 51.8% of lesion required surgical management and rest disappeared during follow-up. Among the operated group most of the lesion were benign ovarian mass. Findings of current study is in accordance with this study except the proportion of tubal lesion were higher in our study (25.8% vs 5.6%), this may be due to difference in the study population and also the indication of index surgery between the two groups. Due to unavailability of operative note, we could not study the effect of salpingectomy on occurrence of subsequent adnexal mass. However, it was quite evident from the histology data that 25.8% mass were tubal in origin. Thus author suggest simple procedure of salpingectomy at the time of hysterectomy should be adopted as preventive measure to decrease the incidence of fallopian tube pathology. Second surgery is associated with the attendant complications. We too encountered severe adhesions in 21.4% patients 2 patients sustained bowel injury and bladder injury was seen in one patient. In three cases, laparoscopy was converted to laparotomy due to dense adhesions.

There were few limitations in our study due to inherent retrospective observational nature. First, we could not calculate the incidence of adnexal pathology subsequent to hysterectomy as all index hysterectomy in the studied population was performed outside our institution. Second, due to unavailability of previous operative note, indication of hysterectomy and adnexal status were not known in significant number of cases. Thus, we could not study the effect of salpingectomy on the incidence of adnexal mass arising after hysterectomy.

Despite certain limitations, our findings have implication in managing secondary adnexal masses. Importance of providing detailed operative note and histopathological report to the patient must be emphasized to the treating surgeon. As the incidence of secondary adnexal mass remains significant risk of returning to the operation after hysterectomy should be included in the preoperative counselling of the patients. Prophylactic bilateral salpingectomy should be adopted as it reduces the risk of tubal pathology. Majority of the mass appearing after hysterectomy were benign in

nature, so prophylactic oophorectomy along with hysterectomy is not advised in perimenopausal women.

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Potential conflicts of interest

The authors declare no conflict of interest.

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