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Tips and tricks in management of adnexal mass lesions

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Abstract
Considering the diversities and dilemmas in management of Adnexal Masses Lesions and its prevalence among prior hysterectomy women, a prospective cohort study on clinico sonologic and pathological correlation of adnexal mass lesions specially focused at those with prior hysterectomy was planned. Among 105 subjects we found 21 % (22) were in prior hysterectomy patients. Prevalence of AM lesion was 8.5%, among them ovarian aetiology was 81%, of which 80% are neoplastic. Mean age for non-neoplastic, benign, and malignant masses are 32, 39 and 41 years, respectively. Mean age at hysterectomy was 29.28 years among prior hysterectomy group. Mean interval between hysterectomy and presentation with residual ovarian syndrome is 7.8 year. We report a case of endometrioid adeno carcinoma of ovary and a rare case of retroperitoneal leiomyomata respectively 13 years and 5years after AH. A significantly high portion of prior hysterectomy patients were managed conservatively. The study reiterates improperly documented young age hysterectomy as a concern in managing such patients.

Keywords: Adnexal mass, prior hysterectomy, retroperitoneal leiomyoma, endometrioid adenocarcinoma

Introduction
Difficulties in diagnosis and diversities in pathologies among adnexal masses (AM) elude gynecologist for its management. AM can originate in ovary, fallopian tube, broad ligament or neighboring organs. Many arise in ovary, often neoplastic due to its complex embryology. Next common origin is from tube where most lesions are inflammatory and a few neoplastic in nature. They may be related to or associated with pregnancy like ectopic pregnancy and functional and or neoplastic growths of ovary respectively. Considering the age-related risk, a high index of suspicion is needed; biochemical and radiological assistance should be implemented for earlier diagnosis; thereby reducing morbidity and mortality [1].

There is a unprecedented rise in hysterectomy in India specially among younger women of low literacy and low income [2-5] due to ignorance and non-availability of hi tech conservative procedures in small set ups and for all patients. There is individual, household, socio-economic and health system factors that influence women's belief and subsequent decisions to undergo hysterectomy as a pragmatic prevention and permanent solution to all gynecological ailments [6]. Trend is to preserve ovaries in young women undergoing hysterectomy with persistent risk of future adnexal pathology. Subsequent abdominal surgeries are often associated with risks of intra operative complications related to adhesion and distortion of anatomy [7, 8]. Frequency of AM among prior hysterectomy women depends upon whether total, partial or no adnexectomy done at the time of hysterectomy [7]. We found many AM lesions among hysterectomised women. Therefore we focused at correlating AM lesions among prior hysterectomy(Group 1) and without prior hysterectomy(Group 2) women as to their Clinical presentation, operative finding and HP report; compare the age at hysterectomy between groups and to study its effect of future development of Adnexal masses.

Material and Method
Type of study
Prospective analytical study on AM lesions and correlate between Prior Hysterectomy (Group 1) & without Hysterectomy (Group2) subjects.

Place and Period
OBST and GYN dept of MIMS G.H from Jan 2017 till Dec 2018.

Inclusion criteria- patients of ages ≥ 15 years admitted to gynaec ward with clinical and/or radiologic diagnosis of adnexal masses.

Exclusion criteria- AM associated with AUB, pregnancy and postpartum, lesions with non-gynaecological origin and post-menopausal lady with >200 RMI. Advanced stage malignancy (as diagnosed by imaging, high CA 125 level and/or FNAC) who were referred to higher center for further management.

IEC clearance was obtained

Informed written consent was obtained, right to withdraw from study reserved for all participants. After clinicial and/or sonographic diagnosis of adnexal pathology, patients were admitted. Detail history on demographic data, clinical symptoms and obstetric profile was obtained. Routine blood tests and specific imaging tests like doppler, plain or contrast CT scan, FNAC and tumor markers were obtained as appropriate, treatment plan was formulated for either conservative/surgical/referral to higher centre. Risk of Malignancy Index (RMI) was calculated for appropriate patient (excluded were USG diagnosis of solid tumor and benign teratoma for whom CA 125 is nonspecific and Women with Prior Hysterectomy who thus attained surgical menopause). Statistical analysis was done by using SPSS 16 and MS XL 2007. Qualitative variables were expressed as frequencies and percentages, quantitative variables were expressed as mean and standard deviation. Pearson Chi squire test was used for examining the categorical data. ANOVA one- way classification was used for examining the mean difference between all the groups. Student independent sample‘t’ test was used for multiple comparisons. For all statistical analysis p ≤0.05 was considered as statistically significant.

Results

Total admission to gynaec ward were 1230; with AM were 134. Those with a primary diagnosis of AUB (9), pregnancy related (4 EP), pregnancy and post-partum associated (2 cases of dermoid with torsion and 3cases of complex AM managed conservatively) and mesenteric cyst 2 cases, OHSS (2cases) and pelvic koch’s disease (2cases) started on ATT were excluded from the study. Five cases of advanced ovarian cancer were referred to oncology centres. Therefore 105 subjects with diagnosis of AM lesions were taken for study. Out of which ten patients were managed conservatively(accidental or incidental finding of a pelvic mass, five cases among group 1, five cases with PID or complex cyst among Group 2 patients). Hence 95 subjects who underwent exploratory laparotomy were taken for pathological correlation. Statistical analysis was done by using descriptive and inferential statistical methods.

Prevalence of AM disease was 8.5% among all gyneac admissions, considering surgical intervention it was of 7.7%; among all gynaecological surgeries AM lesions accounted for 25%. Frequency of AM lesions among prior hysterectomy was 21%. Incidence of ovarian masses were 81% of which 80% were neoplastic and 20% were non neoplastic. Incidence of malignancy was 11%. Incidence of tubal aetiology was 10.5% of which 80% were inflammatory in nature.

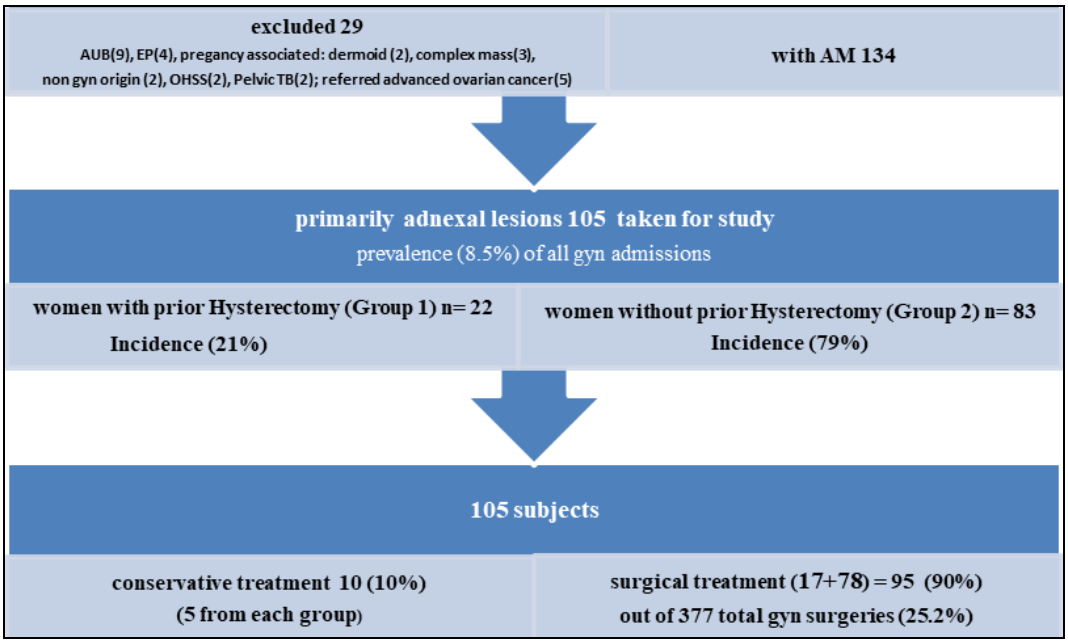

Fig 1: Total admission to Gyn ward 1230

Table 1: Pathological spectrum of Adnexal mass/AM) lesions (n= 95)

Origin / Pathological Diagnosis	Ovarian	Tubal	TO	Broad ligament	Miscellaneos Pseudocyst
Benign neoplastic	55			1	
Serous	23(42%)				
Mucinous	17(30%)				
Seromucinous	6				
Benign cystic teratoma	5(9%)				
Thecoma fibroma, Brenner	4				
Malignant neoplastic	7	1			
Non neoplastic	9				

Inflammatory		8(80%)	5		3
Endometriosis	6	1	1		
Torsion	6				
Clinico path Discordancy					3

Ovarian 55+7+9+ 6= 77 (81%)

Neoplastic 55+7=62 (80.5%); Non neoplastic =9+6=15 (19.4%)

Malignancy = 7(11%)

Tubal = 10 (10.5%); Inflammatory = 80%, Neoplastic = 10%

Included are paratubal and parovarian cysts. We report cases of retroperitoneal fibromyoma and endometrioid adenocarcinoma of ovary in prior hysterectomy group of AM lesions

Table 1 shows most common benign ovarian tumors were serous type (42%), mucinous (30%) and cystic teratoma (9%). There were six cases of endometrioma and pelvic endometriosis on laparotomy. Among them, three were with clinico pathological discordancy in diagnosis; reenforcing the conclusion that laparoscopy is the gold standard in diagnosis of endometriosis.

Table 2 shows different pathologic types: like non neoplastic follicular cyst, hemorrhagic corpus luteum, Ovarian torsion; neoplastic may be benign or malignant; inflammatory and endometriotic lesions. There was no significance for age predilection among these four pathologic types but an extreme significance in mean CA 125 level and mean RMI values.

Table 2: Comparison of parameters among different pathological types (n=95)

	NN (9)	Benign (56)	Malignant (8)	Inflammatory (16)	Endometrioma (6)	P value
Age	31.88 ± 8.17	39.25 ± 12.14	41.37±18.54	33.5 ± 8.14	28.66 ± 3.39	0.057
Mean CA 125 level	15.614± 7.58	28.64±32.65	76.61±84.05	28.25 ± 29.16	35.96 ±13.74	0.010
Mean RMI	15.9 ± 12.58	59.64± 84.65	208± 211.29	25.93 ± 33.95	85.73 ±56.60	0.000

Table 3: Comparison of parameters between benign and malignant lesions

	BN 56	MN 8	P value
Mean Age	39.25 ±12.14	41.37±18.54	0.389
Post menopause	13(23%)	02(25%)	0.606
Parity			0.044
Para ≤1	14(25%)	05(62.5%)	
Para ≥2	42(75%)	03(37.5%)	
Tubectomy			0.701
Yes	35(62%)	04(50%)	
No	21(38%)	04(50%)	
Mean Ca 125	28.64±32.65 Out of 44	76.61±84.05	0.000
Mean RMI	59.64± 84.65 Out of 34	208± 211.29	0.000

Table 3 Comparing the age, postmenopausal and tubectomy status there was no difference between benign and malignant lesions; whereas low parity showed a significant risk relation with malignant lesions similar to CA 125 and mean RMI values.

Table 4: Correlation with menopausal status among pathological types

	BN (56)	MN (8)	Inflammatory (16)	NN & E (9+6)	Total (95)
Post menopause	13(23%)	02(25%)	01(06%)		16
Pre menopause	30(54%)	05(63%)	12(75%)	15	62
Prior Hysterectomy	13(23%)	01(12%)	03(18%)		17

Table 4 shows there was a statistical significance in high proportion of all types of AM lesions among premenopausal women

Table 5: Comparison between Prior Hysterectomy (Group 1) and without prior hysterectomy (Group 2)

	Prior hyst(n=22) 21%	C Prior hyst(n=83) 79%	p value
Mean Age at presentation	37.27± 8.45	36.84± 12.10	0.5734
Tubectomy	20(91%)	46(55%)	0.0004
Parity			0.0441
Para ≤1	03(18%)	31(37%)	
Para ≥ 2	18(81%)	52(63%)	
Symptom complex			
Abd lump	05(22%)	21(25%)	0.032
Pain	16(72%)	38(45%)	
Miscellaneous	01(04%)	24(30%)	
Acute abd	0	07	

Infertility	0	04	
Incidental	01	03	
Miscl	0	10	
Management			
Medical	5(23%)	5(6%)	0.0176
Surgical	17(77%)	78(94%)	
Complications / Multi			0.0608
Speciality involvement	3(17.6%)	2(2.5%)	
Per- op			
HP spectrum			0.6931
NN	01	08	
BN	12	44	
MN	01	07	
I	03	13	
E	0	06	
Origin			0.277
Ovary	13	64	
Tube	01	09	
TO /misc	03	05	
Ovarian conservation	03	14	0.715

Table 5 shows 91% were tubectomised and 81% were para ≥2 among Group 1 with a p-value <0.05; Chronic pain abdomen was most frequent symptom (72%) among group1 and this was statistically significant. Acute pain was more common among group 2 ; Medical management was opted in significant numbers in group 1, Complication rate was higher (18%) in group 1 than group 2(2.5%) with a p- value of 0.060. There was no difference in origin of lesions in any group or ovarian conservation during surgical exploration.

Table 6: Comparison of age at hysterectomy among groups in private nursing home and institutes

	Group 1 (N=22)	**Group 2, who underwent hysterectomy(n=37)**	**women who underwent hysterectomy(n=54) for causes other than AM/ UV prolapse**	**p value**
Mean age at hysterectomy	29.28± 5.71	45.62± 9.67	43.96± 5.76	0.000

Table 6 show an extreme significant difference in age at hysterectomy among groups as labelled above

Discussion

AM lesions with surgical interventions were 95 with an incidence of 7.7% among 1230 gynaec admission during the study period [Fig 1]. A study by Radhamani and Akhila [9] reported the same as 5.26%. Among all AM lesions incidence of ovarian mass was 81% of which 80% were neoplastic and 20% were non neoplastic with incidence of malignancy being 11%; whereas 10.5% of cases had tubal origin of which 80% are inflammatory and 10% neoplastic in nature; similar to results found by Radhamani and Akhila [9]. These results are comparable to that of Sharada SO, Sridevi TA [1] benign 87.8 % (123/140), malignant 10 % in their study on ovarian masses: changing clinico pathological trends; Narula R, Arya A [10] in their study on an overview of benign and malignant tumors of female genital tract.

Our incidence of serous, mucinous cystadenoma and mature cystic teratomas were 42%. 30% and 9% respectively, Jayasree Manibhaskaran *et al.* [11] in their 'study of benign adnexal masses' found them as 59.5%, 20% and 14%: Sharadha SO *et al.* [1] reported them as 67 %,19% and 11.6% respectively. Surface epithelial tumors are common and that serous cystadenoma are more common than mucinous cystadenoma in a study by Gupta N, Bisht D *et al*. [12] and Pilli GS[1], Suneeta KP *et al*. [13].

The patients' ranged between 15 – 70years with mean age at presentation being 37.3 years. Table 2 showed no difference in tumour types regarding the age. Mean age for non-neoplastic, benign, and malignant masses were 32, 39 and 41 years respectively; Sharada SO *et al.* [1] (2014) reported them as 35, 39, and 41 years respectively. Mean age of malignant tumors by Mondal *et al.* [14] in 2011 and Wasim *et al.* [15] in 2009 were 48years and 49.5 years respectively. Therefore recent studies report a significant reduction in mean age at malignant lesions, which is 41 years; and its proximity to mean age of benign ovarian tumors at 39 years needs a high index of suspicion to rule out malignancy in all age groups. Table 2 also shows there was an extreme significance in mean CA 125 level and mean RMI values among different groups. There was a wide Standard deviation in mean CA125 and mean RMI values due to the fact that solid ovrian tumors and benign teratomas were not subjected to CA125 and prior hysterectomy status were dropped from RMI calculation. Therefore International Ovarian Tumor Analysis(IOTA) [16] simple rules would be a better tool to differentiate between benign and malignant adnexal masses which exclusively considers USG criteria averting the confusion on menopausal status among prior hysterectomy group or need for non-specific tumor marker as in the present study.

Similar to study by Sharada SO *et al.* [1], present study in table 3 didn't show significant relation between tubectomy and postmenopausal status with benign and malignant neoplastic lesions, whereas low parity showed a significant association p = 0.04 with malignant lesions similar to CA 125 and mean RMI values.

Table 5 shows minimal difference in age at presentation between group 1 and 2 patients. Abdominal pain was the commonest symptom in both groups among all AM lesions (61/105 i.e 58%) similar to study by Jayasree Manibhaskaran *et al*. [11]. All cases in group 1 were following Abdominal Hysterectomy (AH); none of them could provide the details of surgery as to whether ovaries conserved or not. This was similar to observation made

in a study by Kameswari and Vinjamuri (2013) [5]. In our study we report a case of endometrioid adeno carcinoma of ovary 13 yrs following AH for endometriosis; also we report a case of retroperitoneal leiomyomata 5years after AH. She was nulligravida and underwent myomectomy at 24 years and AH for myoma uterus at 30years. There is report of such an entity as a differential diagnosis of adnexal mass in prior hysterectomy patients as reported by Suneetha Y, Prabha Devi K *et al.* [17] and P Ocal, I Cepni *et al* [18]. There was extremely significant association of sterilisation (p value 0.004) and higher parity in group1 indicating that young age hysterectomy was common among women of high parity and tubal ligation. This finding is in concordance with that of Ranjan kumar Prusty *et al.* [2] in their study on predictors of hysterectomy among married women 15-49 years in India. There is statistical significance in management options between 2 groups; group1 had preference to conservative approach with p value 0.01.

Table 6 reveals a significant difference in age at hysterectomy in tertiary care centres and private nursing homes and small hospitals when we compared the age at prior hysterectomy among group 1 patients (29.28± 5.71) with the age at hysterectomy in our institute for causes other than UV prolapse and adnexal lesions (43.96± 5.76).

Conclusion

There are paucity of literature on comparative studies of this kind. This study reiterates the high prevalence of young age hysterectomy in private hospitals of the state without proper records of the surgery or instruction on follow up. Among women with AM lesions, frequency of prior hysterectomy was 21%. There is no much of difference in the origin or pathological spectrum of AM in general and when compared among prior hysterectomy and non hysterectomised women. We suggest on considering retroperitoneal leiomyomata as a D/D in AM lesions. For characterisation of persistent adnexal lesions IOTA simple rule should be the preferred cost effective system which will overcome the concern of menopausal status among prior hysterectomy group as well as avoidance of non-specific tumour markers for diagnosing ovarian malignancy. This study high lights the age at hysterectomy in private hospitals is below 30yrs and in tertiary care centres it is above 40 years of age.

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