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Gynaecologic malignancies in women of Andaman and Nicobar islands: An insight

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Abstract
The rural areas of India have been under reached with respect to the gynaecologic malignancies with no previous documented studies among the tribals. The Islands of Andaman and Nicobar are home to 62% rural female population. In this study it is proposed to find the approximate incidence, evaluate the sociodemographic and clinicopathologic features associated with gynaecologic malignancies. A retrospective analysis filtering all the cases for the islands was conducted at this Secondary level care Hospital between May 2015 and April 2018. Descriptive statistics and Z test were used for statistical analysis. There were 102 newly detected cases of gynaecologic malignancies during the study period of 3 years. The approximate annual incidence of gynaecologic cancers in these Islands was around 17.29 per 100,000 and age-adjusted incidence for carcinoma cervix was around 13.62 per 100,000. Cervical cancer was the commonest type 59%. Ovarian cancer had predominance in the tribal groups (61%).

Keywords: gynaecologic malignancies, sociodemographic, nicobarese, chotanagpur tribals

Introduction
Gynaecologic malignancies comprise a heterogeneous group that affects the female reproductive system including the vulva, vagina, corpus uteri, ovary, placenta and other unspecified organs [1]. There is a need to understand the evolution of these malignancies in the Indian perspective to better formulate preventive strategy. Their evolutionary trajectory reflects the sociocultural aspects in certain cancers such as carcinoma cervix and has some role of ethnicity in others as in ovarian cancer. In this study we aim to estimate the incidence of the various gynaecologic cancers among the women who are residents of the Andaman and Nicobar Islands. We have also attempted to review the sociodemographic features and to analyse the clinicopathologic attributions for the various gynaecologic malignancies in order to identify any possible preventable factors. The Andaman and Nicobar islands are located in the Bay of Bengal and according to 2011 population census of India, are inhabited by a multi-ethnic heterogeneous population of 379,944 including 177,614 women of which 62% constitute rural female population. Taking into consideration the growth rate the estimated female population in these islands for the year 2017 would be 196,672. Those who speak Bengali form the largest group (26%), while those who speak Tamil, Telugu, Malayalam, Chotanagpur tribal languages and Nicobarese constitute the rest [2, 3]. There has been no previous study on Gynaecologic malignancies in these Islands and none evaluating the possible role of ethnicity in etiopathogenesis. Andaman and Nicobar Islands Institute of Medical Sciences (ANIIMS) and G B Pant Hospital is the highest and only referral institute catering to the whole of Islands group. It is the nodal point receiving almost all the diagnosed or suspected cases of gynaecologic malignancies in the islands [5]. Consequently, rapid and specific identification of *Candida* species will help to choose the suitable antifungal and improve patient care. This immune imbalance is caused by a number of factors, such as excess stress, allergies, indiscriminate use of antibiotics, steroids.

Methods
The study was carried out in ANIIMS and G B Pant Hospital over a period of three l years between May 2015 and April 2018. Data was collected from the inpatient, outpatient, operative and referral registries and the individual medical case records. All women who had tissue-

proven diagnosis for any of the gynaecologic malignancies were considered as cases for our study. Women with diagnosis of Cervical Carcinoma, Vaginal or Vulval Carcinoma, Ovarian Carcinoma, Uterine Carcinoma, Fallopian tube Carcinoma found between May 2015 and April 2018 were included in the study. Those with premalignant lesions and the women who were non-inhabitants (Inhabitants were the women residing in these islands since childhood) were excluded from the study. A detailed analysis of the case records was done. The age of the woman at the time of diagnosis, parity, age at first childbirth, use of any contraceptive methods, tribal or nontribal status, the presenting symptoms, duration from onset to presentation, the site and stage of malignancy, the histopathological variants were noted. The study was commenced after obtaining permission from the Institutional Ethics Committee (Andaman and Nicobar Islands Institute of Medical sciences, ANIIMS) and Tribal welfare department of the Andaman and Nicobar Islands administration. The study being a retrospective case record analysis informed consent for participation was exempted.

Statistics

The data was entered in MS-Excel Worksheet. Further analysis of data was done using IBM SPSS 21.0 software. The categorical data was presented using frequency and percentage. The quantitative data was presented using Mean, Median and Standard deviation. Z test for comparing single proportions was used to test the significance of difference in Proportion. Incidence rates like the annual incidence rate and the age specific incidence rate for carcinoma cervix were derived using standard populations [3].

Results

This institute is the only referral unit for the whole Islands group and is the catchment point capturing nearly all the diagnosed cases of gynaecologic cancers from all the PHCs, CHCs and few private nursing homes existing in these islands. So the present data nearly represents the total gynaecologic cancer load of the women of Andaman and Nicobar Islands. Over a period of three years there were 102 women, newly diagnosed as cases of gynaecological malignancy. We have taken 2017 as a reference point in the study period. The estimated female population of the Andaman and Nicobar Islands in 2017 was 196,672 [2, 3]. Thus the approximate incidence for gynaecologic cancers in 2017 was 34 in 196,672 (17.29 per 100,000 women) and the age adjusted rate for cervical carcinoma for the year 2017 was 13.62 per 100,000 female population at risk, i.e. age more than 15 years). Carcinoma cervix was found to be the commonest gynaecologic malignancy (59%), followed by ovarian cancers 30%, endometrial cancer at 7.8%, uterine corpus 2% and carcinoma vagina 0.9%. There were no cases detected with Fallopian tube cancer or Choriocarcinoma during the study period. (Figure 1.)

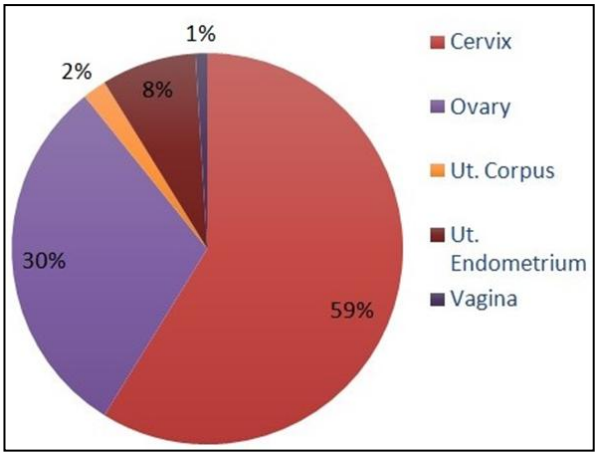

Fig 1: Percentage Distribution of Gynaecologic Malignancies

In the study, age of women with malignant disease ranged from 27 to 75 years with a mean age of 52.6 years with standard deviation of 10.32 years and median age of occurrence being 55 years. Maximum number of cases belonged to the age group of 51-60 years (37%). The mean age of occurrence for cervical malignancy was 54.37 years with a standard deviation of 9.6 years and median age 55 years, for ovarian 48.06 years with standard deviation of 11.03 years and median 49 years for ovarian tumours. The age wise distribution is represented in Table 1 and Table 2.

Table 1: Age-wise distribution of Gynaecologic malignancies

Age Group (years)	Number (n)	Percentage (%)
≤ 30	2	1.96
31-40	14	13.72
41-50	26	25.49
51-60	38	37.25
61-70	20	19.6
≥ 70	2	1.96
Total	102	100

Table 2: Age Group V/s Site of gynaecologic malignancies

Age Group	Cervix	Ovary	Corpus	Endometrium	Vagina	Grand Total
≤ 30	0	2	0	0	0	2
31-40	7	7	0	0	0	14
41-50	16	7	2	1	0	26
51-60	23	11	0	4	0	38
61-70	12	4	0	3	1	20
≥ 70	2	0	0	0	0	2
Total	60	31	2	8	1	102

Majority (89%) of the affected women were from lower socioeconomic group. High order parity was noted in women with carcinoma cervix, with 73.3% of these women having four or more children (P<.001, statistically significant). Though statistically insignificant, nearly 52% of women with carcinoma cervix had given birth to their first born by age 18 years or lesser (P>.05) The utilisation of any contraceptive method was minimal, tubal sterilisation was found as the main method (10%) in our study group, only one lady had used Oral contraceptive pill, while the rest had not used any method for contraception. The most common cause for presenting to the hospital in women with carcinoma cervix was postmenopausal bleeding (48%), followed by discharge per vaginum (20%) and intermenstrual bleeding (20%). Women with Ovarian malignancies presented mainly with vague pain abdomen and distension. There were 7 out of 8 women with endometrial carcinoma who presented with postmenopausal bleeding. The cases of uterine sarcoma presented with large mass per abdomen. The duration of complaints varied from one month to one year. Thus almost 40% of the women in our study group covering all the various types of gynaecologic cancers barring ovarian tumour presented with the

complaint of postmenopausal bleeding. On analysing the staging of the malignancies at the time of presentation, it was found that 61% of women with carcinoma cervix were in stage III or more. Seventy six percentage of women with cervical cancer were already in a no operable stage. In Ovarian cancers 32% presented with stage I disease and 35% presented with stage IV, rest in variable stages. While women with endometrial carcinoma presented earlier, most of them in stage I (62%). The stage wise distribution with respect to each malignancy is shown in Table 3.

Table 3: Stage-wise distribution of Gynaecologic Malignancies

Sites	I	II A	II B	III A	III B	IV A	IV B	Grand Total
Cervix	5	9	9	17	16	3	1	60
Ovary	10	1	1	4	3	11	1	31
Corpus	1	0	0	0	0	1	0	2
Endometrium	5	1	1	1	0	0	0	8
Vagina	0	0	0	0	0	1	0	1
Grand Total	21	11	11	22	19	16	2	102

Cervical cancers was almost all of squamous cell type, with only 2 showing adenocarcinoma and one with lymphoepithelioma like tumour. There were two cases of uterine sarcoma. All cases of endometrial cancers were endometroid adenocarcinomas. Epithelial Ovarian tumours constituted 70% and rest were non epithelial. In this study 17.6% women belonged to the Nicobarese tribals and the Chota Nagpur tribals. Ovarian tumours were more common in these two groups than the rest. (Table 4)

Table 4: Site-wise distribution of the gynaecologic malignancies among the tribal groups

Nicobarese Tribals		Chota Nagpur Tribals	
Sites	N	Sites	N
Ovary	6	Ovary	5
Cervix	2	Cervix	3
Corpus	1	Corpus	0
Endometrium	0	Endometrium	1
Total	9	Total	9

Discussion

Cervical cancer is the largest contributor to gynaecologic cancers. According to Globocan 2018 cervical cancer ranks fourth for both incidence and mortality [4]. At the national level following breast carcinoma (27.7%), cervical cancer is the second leading cause of cancer in Indian women (16.5%) and ovarian cancer as a emerging group (6.2%) [5]. According to data available from various population based cancer registries in India (NCRP) Aizwal district in north eastern part of India had the highest age-adjusted rate of 24.3, followed by Barshi Expanded at 19.5 and Bangalore at 18.9 [6]. For the population of the Andaman and Nicobar Islands which is a mirror of cultural and ethnic heterogeneity we could find an approximate age adjusted incidence of 13.62 in our study. Comparing the distribution patterns of the different gynaecologic malignancies from the work done by authors from various regions of India, the occurrence of cervical carcinoma ranged between 61-75%, while in our study it was around 59% [7-10]. On evaluating the demographic profile, majority of women with cervical cancer belonged to the age group 51-60 years (38%), followed by 41-50 years (26%) with no reported cases below 31 years of age in our study which is comparable to findings by few other authors [11, 12] and unlike the work presented by Hemalatha *et al* who had found the commonest age group for cervical malignancy between 25-35 years [10]. This difference could be due to lack of an effective screening method percolating to far off Islands missing an early detection and treatment. Due to logistic and transformational difficulties existent in this chain of Islands as well as the long natural course of the disease, many women approach the higher centre at a later stage and age. Postmenopausal bleeding was the commonest complaint (48%) of carcinoma cervix and 80% of endometrial carcinoma. Discharge per vaginum was the complaint in 20% of cancer cervix. These findings were similar to the study by Chaudhary *et al* and unlike those by Sarkar *et al* wherein 92% of their study cohort presented with excessive, offensive with or without blood stained vaginal discharge [8, 9]. In rhythm with similar studies, women with ovarian tumours presented with abdominal pain, distension.[13] Reviewing the sociocultural correlation, having four or more children was found to be significant risk factor associated with carcinoma cervix in our study. Lower socioeconomic status, poor awareness or acceptability for contraceptive measures were found more commonly in this subgroup, in accordance with findings by contemporary authors [11, 12]. Late presentation in inoperable stage was found in 76.6% of cases of carcinoma cervix in our cohort, comparable to findings by other authors [8- 10]. Unlike other reported studies ovarian tumours presented in variable stages in our cohort, 32% presented early stage I, while the rest were in stage II-IV. According to the study by Maheshwari *et al* and Mondal *et al* most of the ovarian malignant tumours presented as stage III (60%) or stage II (20%) [13, 14]. The difference could be attributed to an overall smaller number of cases of ovarian carcinoma. Endometrial malignancies presented relatively earlier in 62% in stage I [15, 16]. An interesting aspect observed was that in all the different types of malignancies the commonest age group was 51- 60 years, and the commonest presenting feature was postmenopausal bleeding. Thus focussing in any proposed screening programmes over the per menopausal age with any abnormal bleeding pattern or discharge would probably benefit more case detection. Although the tribal groups constituted only 17.6% of the study cohort, there was higher occurrence of ovarian tumours (61%) in this category as compared to cervical carcinoma (27.8%). The is future scope for further evaluation of ethnicity in etiogenesis of ovarian tumours. The limitation that a few cases may have never reported to hospital and been lost in the community does exist. Community based cancer registry and longer duration of study is required to find out the clear picture of malignancy in these unexplored islands.

Conclusion

Carcinoma cervix is the leading cause of gynaecologic cancers in these islands. Awareness and remedial measures in our social practices regarding high order parity, sexual hygiene and practices are required. Involvement of Primary health care workers in an appropriately planned screening programme is the need of the hour. It would be benificial to train the local health care professionals with simpler techniques including Visual inspection with Acetic acid and Lugols Iodine for early detection of cervical cancer in the peripheral rural areas.

Source of funding and potential conflicts of interest

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