Original Article

Pattern of Ovarian and Uterine Malignancies in Tabuk City, Saudi Arabia: A Retrospective Study

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Abstract

Data availability regarding gynecological malignancies is essential for policymaking and future planning. No researchers have assessed the prevalence of gynecological cancer in Tabuk, Saudi Arabia. We aimed to assess the same in Tabuk, Saudi Arabia. retrospective study was conducted in King Fahd Specialists Hospital in Tabuk City, KSA, from November 2023 to February 2024. The hospital was randomly chosen from the four central hospitals in Tabuk City. All the records of adult women who were diagnosed with cancer in the years 2019-2021 were approached. A data sheet was used to gather the age, type of cancer, method of diagnosis, and laterality. The Statistical Package for Social Sciences was used for data analysis. Out of 544 patients with malignancies, the most common cancers in Tabuk City were breast, colon, and thyroid (18.2%, 12.7%, and 12.1 respectively), while gynecological malignancies were the seventh of all cancers. Uterine and ovarian tumors were found in 1.7% and 1.5%; all were malignant, and 45% were adenocarcinoma—the diagnosis histology 52.6%, 36.8%, and surgery in 10.6%. The majority of the tumors were bilateral (84.2%), 10.6 involved the right side, and 5.2% involved the left. Gynecological malignancies ranked sixth among cancers in Tabuk City; uterine cancer was the most prevalent gynecological cancer, followed by ovarian cancer, and most cases were adenocarcinoma. The methods of diagnosis were histology and cytology, followed by surgery. Further extensive multicenter studies investigating gynecological malignancy patterns and risk factors are suggested.

Keywords: *Uterine malignancy, Ovarian carcinoma, Tabuk, Saudi Arabia*

Introduction

With 19.3 million new cases in the year 2020 worldwide, cancer is a significant health concern globally, with gynecological cancer accounting for 19% of all cancer.[1]

The International Agency for Research on Cancer reported that nearly one million gynecological cancers occurred in 2020.[2] In the Kingdom of Saudi Arabia, 13000 cancers occurred among women, according to the International Agency for Research on Cancer 2020 report; research focusing on gynecological malignancies is scarce in Saudi Arabia. The available studies were limited by the short duration and limited number of patients.[3] The incidence of gynecological cancer among Saudi women ranked fourth, following breast, thyroid, and colorectal. Significant variation was reported in the incidence of gynecological cancer depending on the geographical location, genetics, and environmental factors.[4] The cancer burden is on the rise in Saudi Arabia. However, a changing pattern of different types of malignancies was observed. Therefore, readily accessible data is of paramount importance. The decision-makers and healthcare providers need the data for better planning and resource direction.[5] In addition, identifying patients at risk and their sociodemographic data will enable the best treatment choice and direct the preventive measures, including smoking cessation clinics and lifestyle changes.[6] The Kingdom of Saudi Arabia is a big country (> 2 million km^2) with significant geographical diversity.[7] Therefore, studies assessing the pattern of cancer in different regions are essential.

Despite the high healthcare access and Quality and decreased mortality in Saudi Arabia from 1900-2017. However, the years lived with disability from disease, including neoplasms, has increased during the same period.[8]

Ovarian cancer ranked eighth in females worldwide as prevalence and cause of death in Saudi Arabia; it is the seventh cancer in women, and the disease is rising (fourfold in the year 2018).[1, 9]

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Endometrial carcinoma is the sixth cancer in women, regarding the female genital tract, the second most common carcinoma.[10, 11] To our knowledge, no researchers have assessed the prevalence of gynecological cancer in Tabuk City, Saudi Arabia. Therefore, we went ahead to assess the same in Tabuk, Saudi Arabia, focusing on ovarian and uterine malignancies.

Materials and Methods

Study type and setting

A retrospective study was conducted in King Fahd Specialists Hospital in Tabuk City, Saudi Arabia, from November 2023 to February 2024. The hospital was randomly chosen from the four central hospitals.

The study period and data extraction

All the records of patients diagnosed with cancer in King Fahd Specialists Hospital in Tabuk City, Saudi Arabia, during 2019-2021 were approached. A data sheet was used to gather the age of the patients, type of cancer, method of diagnosis, malignant potential, and laterality (left, right, or paired). King Fahd Specialists Hospital in Tabuk City covers all of Tabuk Region and receives referrals from other Hospitals and primary healthcare centers. Tabuk City is one of the big Cities in the Northwest of Saudi Arabia, with 667,000 residents (2021 data). The Oncology and Pathology Department records are well organized and complete. In addition, the patient's details were obtained from the multidisciplinary tumor meetings.

Inclusion and exclusion criteria

We included gynecological cancer (ovarian and uterine, cervix, and vagina) among adult women. Children with cancer were excluded.

Ethical consideration

The records were approached confidentially with extreme adherence to the Helsinki Declaration. No patient's name, file number, or any personal information were reported. The investigator kept the data sheet in an incepted file. The ethical committee of the University of Tabuk approved the research (UT-282-125-2023).

Data analysis

We used the New York Statistical Package for Social Sciences, version 27 (IBM, SPSS). The results are presented in **Table 1**, as mean± S.D. and percentages.

Results and Discussion

In the present study, 544 records of patients with malignancy were approached (age ranged from 37-92 years, mean± S.D., 60.7±16.6. The most common cancers in Tabuk City were breast, colon, and thyroid (18.2%, 12.7%, and 12.1 respectively), while gynecological malignancies were the sixth of all cancers (3.5%), excluding lymph node malignancies. **Table 1**.

Uterine and ovarian tumors were found in 1.7% and 1.5%, respectively; all were malignant, and the majority were in situ (68.4%), while 42.1% were adenocarcinoma. Regarding the method of diagnosis, 52.6% were diagnosed by histology, while the diagnosis was cytology in 36.8%. The granulosa cell tumor was diagnosed after surgery. Most tumors were bilateral (84.2%); 10.6 involved the right side, and 5.2% involved the left **(Tables 1 and 2)**.

Table 1. The different shades of cancer in King Fahd Specialists Hospital in Tabuk City during the period 2019-2021.

Type of cancer	No %
Breast	99 (18.2%)
Lymph nodes	70 (12.8%)
Colon	69 (12.7%)
Differentiated thyroid carcinoma	66 (12.1%)
Carcinoma of the lung	29 (05.3%)
Bone marrow	26 (04.8%)
Gynecological malignancies	19 (03.5%)
Liver malignancies	18 (03.3%)
Urinary bladder	17 (03.1%)
Stomach	16 (18.2%)
Nasopharynx	16 (18.2%)

Table 2. The pattern of ovarian and uterine malignancies in King Fahd Specialists Hospital, Tabuk City, Saud Arabia total number=354).

Character	No%
Ovarian tumor	8 (1.5% in all cancers and 42.1% of gynecological)
Uterine tumor	9 (1.7% in all cancers and 47.4% of gynecological)
Both ovary and uterus (granulosa cell tumor)	2 (0.4%)
Vaginal malignancy	2 (0.4%)
Endocervix	1 (0.2)
Adenocarcinoma	8 (42.1%)
Laterality	
Paired	16 (84.2%)
Left	1 (5.2%)
Right	2 (10.6%)
Method of diagnosis	
Cytology	7/ (36.8%)
Histology	10 (52.6%)
Surgery	2 (10.6%)
Age years (mean± S.D.)	69.7±16.6

In the present study, 544 records of the patients who were diagnosed with cancer were retrieved. Uterine ovarian and cancer rates were 1.7% and 1.5 respectively. The current findings were lower than Alhamadh and colleagues who conducted a study in Riyadh, Saudi Arabia (321 cancer records included) and found ovarian cancer in 7.5% of cancer and uterine cancer in 9.3%.[12] Importantly, Alhamadh *et al.*

investigated only solid malignancies. The distribution of cancers in Tabuk City was slightly different from Alhamadh and colleagues, who found breast, colon, and thyroid cancers were most prevalent, with gynecological malignancy lower in the list. The current data observed that gynecological malignancy is the sixth most common malignancy. Almohammadi *et al*.[13] conducted a study in the Al-Madinah Al-Munawarah region, Saudi Arabia. They found 13.5% of gynecological malignancies were ovarian, while 69% arise from the uterus, in line with the present study in which uterine cancer was more common (47.4% versus 42.1%). Studies conducted in the USA concluded the predominance of uterine cancer in agreement with the current findings.[14] The inclusion and exclusion criteria and sociodemographic data explain the discrepancy in the rate of cancers. The figure for ovarian and uterine cancer is alarming compared to Europe, where uterine neoplasms are the fourth women's neoplasm (incidence, 12.9-20.2 per 100,000). An increasing mortality from uterine cancer was observed in North America and Europe due to the high prevalence of obesity, genetics, and sociodemographic factors.[15] With one million and three hundred thousand gynecological neoplasms and the fact that 50% died from these malignancies in the year 2020, the threat to women is serious.[16] Endometrial cancer prevalence is high in the USA, Europe, and Australia and lower in South and Central Asia. The variation in the prevalence is due to the difference in risk factors, including obesity, diabetes, polycystic ovary syndrome, and estrogen exposure.[1, 17] An increasing incidence of gynecological malignancies was observed in Asia and parts of Europe.[18, 19] Ovarian cancer is rare below 40 years; the commonest age group is 50-70 years. However, ovarian cancer is the most fatal gynecological cancer 207,252 died out of the registered 313,959 registered cases in the year 2020.[20] The late presentation of ovarian cancer is due to the nonspecific symptoms related to the gastrointestinal or urinary tract. Therefore, most women present with stage 111 and 1V with deleterious consequences.[21] Appropriate screening tools and targeting modifiable risk factors are highly needed for the prevention and treatment promptly; the risk factors of ovarian cancer are family history of breast and ovarian malignancy, smoking, unhealthy diet, lack of exercise, hormone replacement therapy, and vitamin D deficiency.[22] Significantly, the presence of MMR and specific BRCA genes increases the risk of ovarian cancer by 10% to 40%.[23] Vitamin D deficiency in Saudi females is high (69.6%-80.1%).[24] Smoking is prevalent among males (32.5%) and females in Saudi Arabia (3.9%). Therefore, women might be at high risk due to smoking cigarettes or passive smoking.[25] Smoking cessation, sun exposure, and vitamin D supplementation are needed.

We found one case of granulosa cell tumor and one vaginal cancer, and in line with other observations.[26, 27]

In the present study, most tumors were malignant and in situ; the current findings were similar to Almohammadi *et al*.[13], which found grade 1 and 11 in 84.1% of malignancies.

The strength of this study is that it was the first to be conducted in Tabuk City, Saudi Arabia. Our data can be used as a baseline for future research and inform the policymaker for better planning.

Study limitations

The retrospective methodology, the small sample size, and the study was conducted at a single tertiary care center.

Conclusion

Ovarian cancer was the most prevalent cancer in Tabuk City, Saudi Arabia, followed by uterine cancer; most cases were adenocarcinoma. The methods of diagnosis were cytology and histology, followed by surgery. Further large multicenter studies investigating gynecological malignancy' patterns and risk factors are suggested.

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Conflict of interest

None.

Financial support

None.

Ethics statement

The records were approached confidentially with extreme adherence to the Helsinki Declaration. No patient's name, file number, or any personal information were reported. The investigator kept the data sheet in an incepted file. The ethical committee of the University of Tabuk approved the research (UT-282-125-2023).

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