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Assessment Outcomes Histopathology of Ovarian Tumors

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Abstract:

Background: Ovarian tumors account for 3% of all cancers and account for 25% of female genital tract-related malignancies.

Aim: This paper was focused on assessment outcomes related to related to patients who have undergone histopathology of Ovarian Tumors.

Patients and methods: The current cross-sectional study was enrolled patients with ovarian tumors to evaluate the outcomes of Histopathology of Ovarian Tumors. This study was conducted by modelling of present data that collected from different hospitals in Iraq between 17th May 2022 and 24th July 2023. The database was included patients with ages 25-60 years under BMI, which classify into (18.5-24.9), (25-29.9), (and 30-34.9). The data was processed to analysis tumor types and its effect on the survival rate of patients, where Comorbidities are considered one of the causes who effect on patients in the long term. Our results were analysed and designed by the SPSS program.

Results and discussion: the majority of patients was over 40 years old and had developed ovarian tumors, with smoking and obesity being identified as risk factors. Clinical outcomes showed that 87.8% of patients had a BMI of 29.9, whereas 12.2% were smokers. To further the outcomes, the study included various types of tumour detection. It was found that a Serous tumour was present in 50.0% of patients, Mucinous in 17.6%, and Fibroma in 12.2%. Additionally, the research discovered that 80% of patients had benign tumours, while 20% had malignant tumours. Patients with tumour sizes greater than or equal to 10 cm had a survival rate of 41.33%, while patients with tumour sizes between 8-10 cm had a rate of 29.33%.

Conclusions: Our study revealed that 80% of female patients had benign tumors while only 20% had malignant tumors. Additionally, our findings imply a decrease in patient survival rates over time.

Keywords: Ovarian tumors, benign tumor, malignant tumor, Mucinous, and Serous.

Introduction

Ovarian borderline tumours, also identified as low malignant potential tumours and tumours with atypical proliferation, were recognised by the World Health Organisation in 1973 [1]. They are distinguished by cellular proliferation and nuclear atypia, without a pattern of infiltration or stromal invasion, but with the potential to develop non-invasive and invasive tumour implants and recurrences that can manifest up to five or more years after diagnosis [2-5].

They make up 10-20% of malignant epithelial neoplasms of the ovary, with some authors in recent decades reporting an increase in their incidence of up to 25%. This suggests a potential association with a lack of protection from oral contraceptives and the use of fertility-promoting drugs. BRCA gene mutations are rarely linked to this condition [6-8].

It occurs in women younger than those with invasive cancers and typically affects those aged between 41 and 47. At least one-third of cases are in women under 40 years old. [9]

The clinical presentation closely resembles that of invasive cancers with a gradual onset, although symptoms such as swelling and pain are more prominent. The definitive diagnosis requires examination of the surgical specimen, yet the method for diagnostic and surgical staging is akin to that for invasive cancers. [10,11]

50% of the tumours are serious, with the presence or absence of a micropapillary pattern described. 45% are mucinous, either intestinal or endocervical, and the remainder consist of endometroid, clear cell, and transitional cell types. The transoperative diagnosis of the resected specimens is usually inaccurate in 30-40% of cases, which can lead to confusion regarding the appropriate surgical therapy for these patients. [12-14]

While over 80% of patients exhibit early lesions, which results in a favourable prognosis, inaccurate surgical staging, particularly in patients who desire to maintain their fertility, can lead to inadequate treatment as a result of misclassification. This, in turn, may promote the recurrence of tumours and unfavourable long-term outcomes [15].

Patients and methods

The current cross-sectional study was enrolled patients with ovarian tumors to evaluate outcomes of Histopathology of Ovarian Tumors. This study was conducted modelling of present data for patients with tumors, included 74 cases that were collected from different hospitals in Iraq between 17th May 2022 and 24th July 2023. The database was included patients with ages 25-60 years under BMI, which classify into (18.5-24.9), (25-29.9), (and 30-34.9). The data was processed to analysis tumors types and its effect on the survival rate of patients, where Comorbidities are considered one of the causes who effect on patients in the long term. Our results were analysed and designed by the SPSS program.

Our study was modelling ovarian tumor databases by K-nearest- neighbor and linear regression through plotting and modelling with diagrams show predicted and observed outcomes where tumors types included adult granulosa cell tumor, Fibroma, Mature teratoma, Mucinous, Serous, Sertoli-Leydig cell tumor, and Yolk sac tumor. In terms of databases modelling, our findings were risk factors through conduct correlation between causes of tumors and tumor types to identify the disease of the patient in terms of Malignant tumor and Benign tumor. Clinical data was determined Outcomes histopathology of Ovarian Tumors that distributed as main keys in diagnoses of patients which involved FIGO stage, tymor Size that divided into < 5, (5-8), (8-10), ≥ 10, and tumor Localization. Our study was plotted the survival rate of patients in associated with time.

Results

Table 1: Distribution of patients with ovarian tumor based on age.

		Age
N	**V**	70
	Mi	4
Me		42.7714
SEOM		1.25310
Med		43.0000
Mo		25.00[a]
SD		10.48418
Min		25.00
Max		60.00

Table 2: Distribution of patients with ovarian tumor based on BMI.

		F	P (%)	VP (%)	CP (%)
V		4	5.4	5.4	5.4
	18.5-24.9	5	6.8	6.8	12.2
	25-29.9	34	45.9	45.9	58.1
	30.0-34.9	31	41.9	41.9	100.0
	T	**74**	**100.0**	**100.0**	

Table 3: Identify Comorbidities related with patients who have ovarian tumor.

Comorbidities Variables		*F*	*P (%)*	*VP (%)*	*CP (%)*
V		4	***5.4***	5.4	***5.4***
	Cardiovascular disease	16	***21.6***	21.6	***27.0***
	Diabetes	10	***13.5***	13.5	***40.5***
	Hypertension	26	***35.1***	35.1	***75.7***
	Liver disease	8	***10.8***	10.8	***86.5***
	Neurological problems	4	***5.4***	5.4	***91.9***
	Renal disease	6	***8.1***	8.1	***100.0***
	T	74	***100.0***	100.0	

Table 4: Classify education level associated with patients who have ovarian tumor.

		F	*P (%)*	*VP (%)*	*CP (%)*
V		4	5.4	5.4	5.4
	High	16	21.6	21.6	27.0
	Low	12	16.2	16.2	43.2
	Middle	42	56.8	56.8	100.0
	T	74	100.0	100.0	

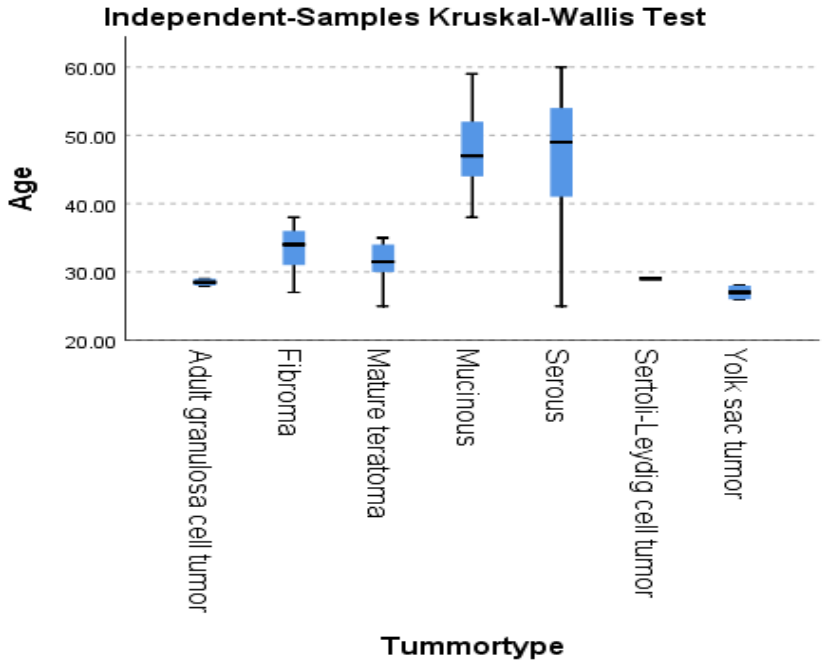
Table 5: Determine the rate of smoking and non-smoking patients.

		F	*P (%)*	*VP (%)*	*CP (%)*
V		4	5.4	5.4	5.4
	No-smoker	61	82.4	82.4	87.8
	Smoker	9	12.2	12.2	100.0
	T	74	100.0	100.0	

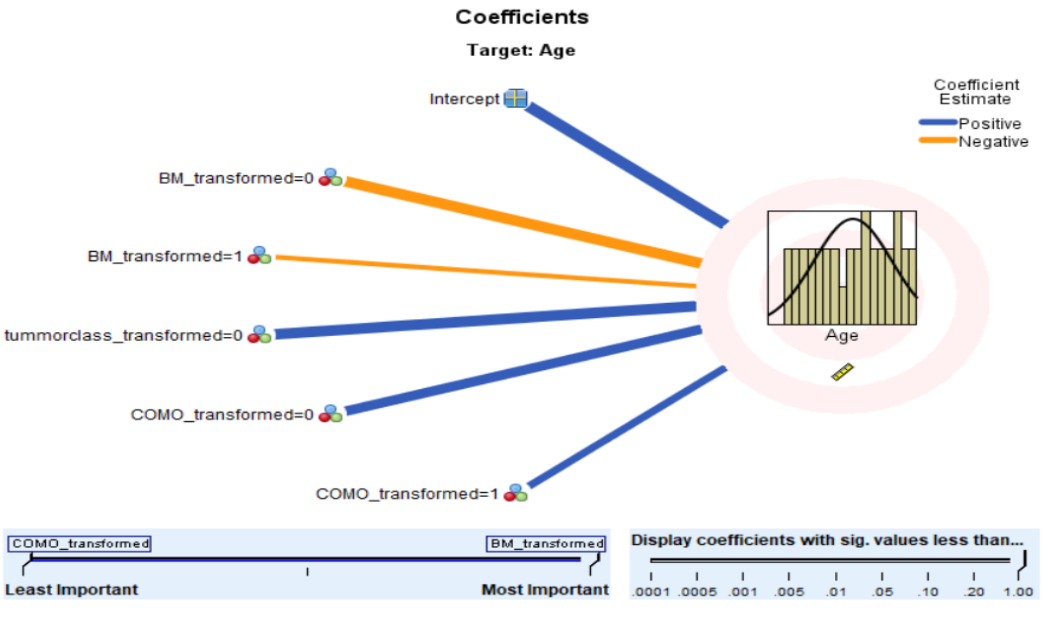
Table 6: Distributions of patients with ovarian tumor according to type of tumor.

		F	*P (%)*	*VP (%)*	*CP (%)*
V		4	5.4	5.4	5.4
	Adult granulosa cell tumor	2	2.7	2.7	8.1
	Fibroma	9	12.2	12.2	20.3
	Mature teratoma	6	8.1	8.1	28.4
	Mucinous	13	17.6	17.6	45.9
	Serous	37	50.0	50.0	95.9
	Sertoli-Leydig cell tumor	1	1.4	1.4	97.3
	Yolk sac tumor	2	2.7	2.7	100.0
	T	**74**	**100.0**	**100.0**	

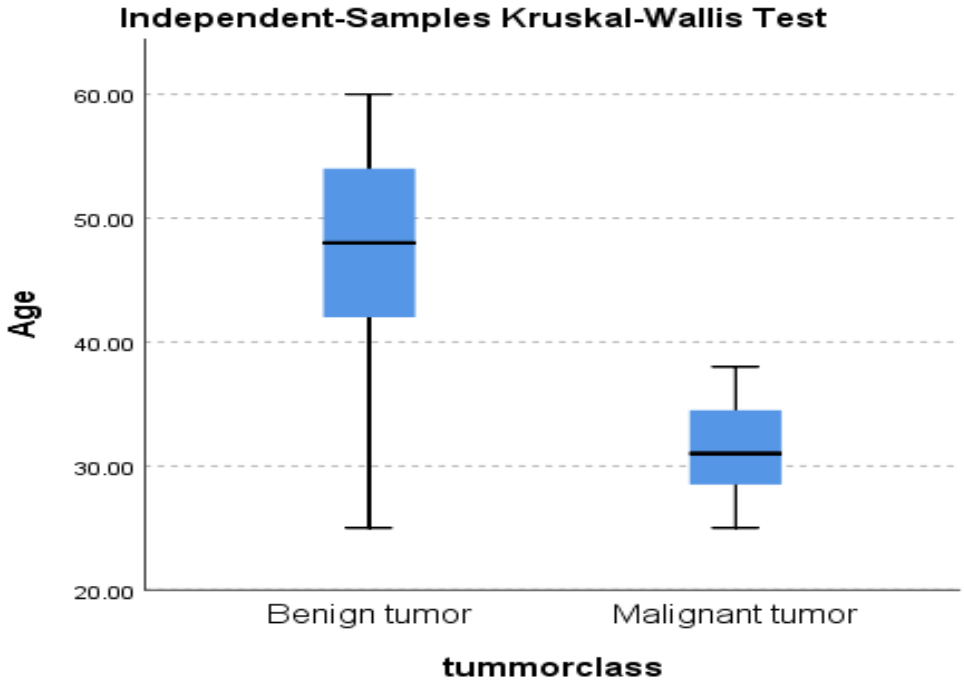
A. Ovarian Tumor type in associated with age.



B. Analyse risk factor



C. Identify ovarian patients into Benign tumor and Malignant tumor.



D. Classify tumor types into Benign tumor and Malignant tumor.

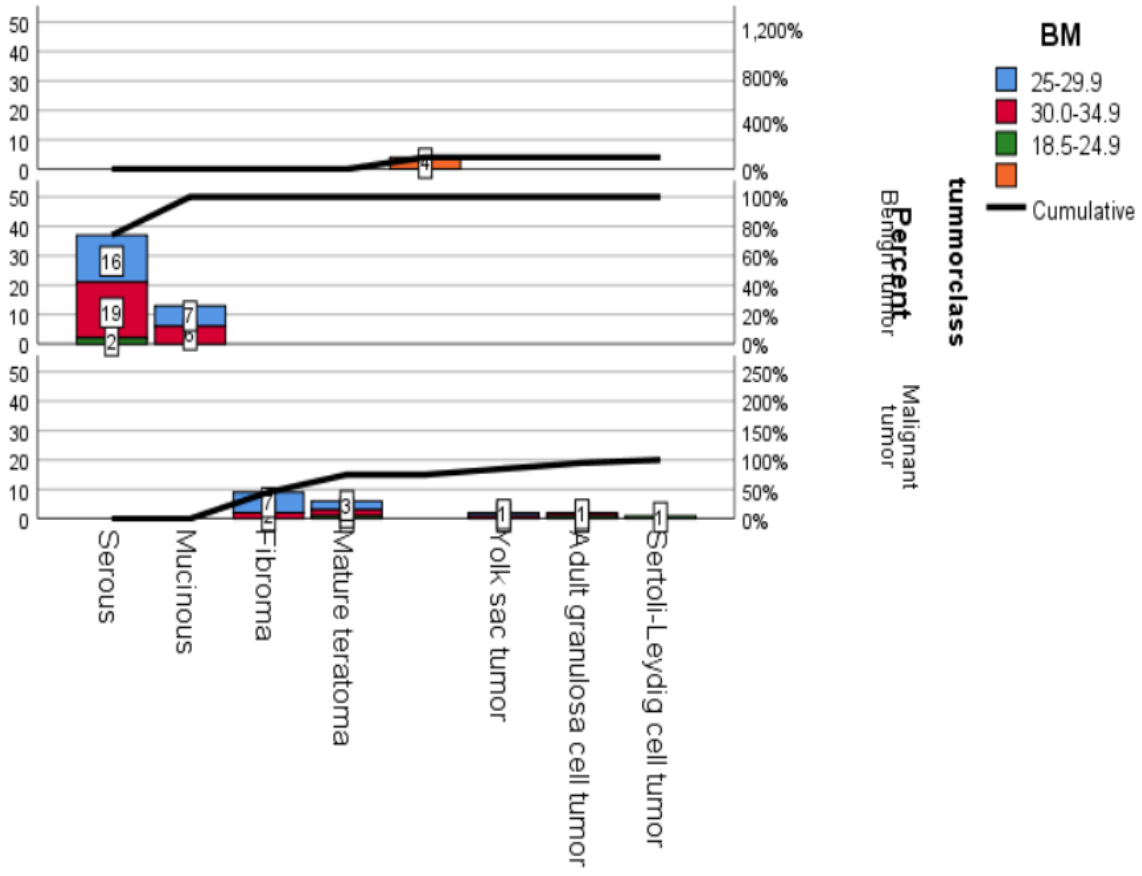


Figure 1: Plotting Modelling outcomes of patients with ovarian tumor based on the linear regression model, K-nearest neighbor model, and Kruskal- Wallis Test.

Table 7: Outcomes of histopathology of Ovarian Tumors

Variables	Number of patients: 70	Percentage (%)
FIGO stage		
Stage I	55	73.33%
> Stage I	20	26.67%
Size (cm)		
< 5	10	13.33%
5-8	12	16.0%
8-10	22	29.33%
≥ 10	31	41.33%
Localization		
Unilateral	47	62.67%
Bilateral	28	37.33%

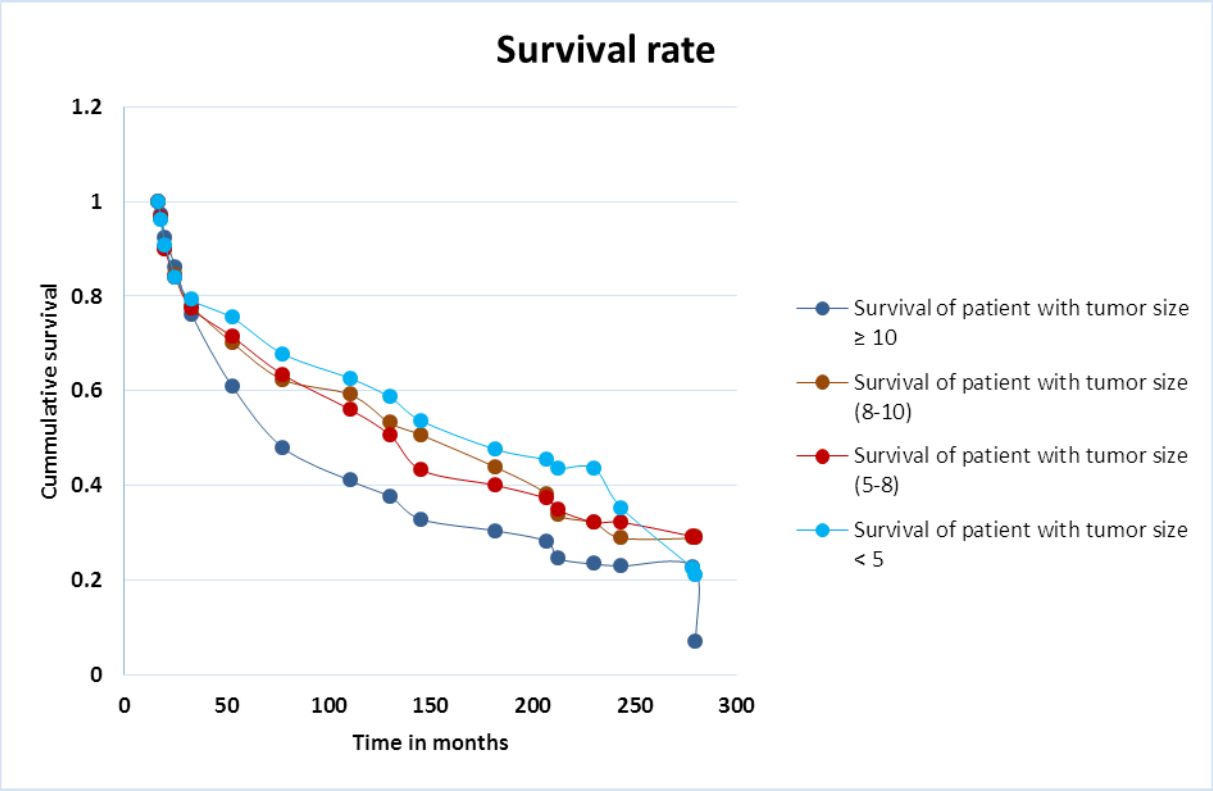


Figure 2: Enrol rate of survival for patients with ovarian tumor.

Discussion

Our research examined female patients who were diagnosed with ovarian tumors and enrolled in the study. Many patients were over 40 years old and had developed ovarian tumors, with smoking and obesity being identified as risk factors. Clinical outcomes showed that 87.8% of patients had a BMI of 29.9, whereas 12.2% were smokers. Additionally, comorbidity findings revealed that 35.1% of patients had hypertension, 21.6% had cardiovascular disease, and 13.5% had diabetes.

To further the outcomes, the study included various types of tumour detection. It was found that a Serous tumour was present in 50.0% of patients, Mucinous in 17.6%, and Fibroma in 12.2%. Additionally, the research discovered that 80% of patients had benign tumours, while 20% had malignant tumours.

In terms of data modelling, we utilised K-nearest neighbour and linear regression models as artificial intelligence to identify the risk factors impacting patients in the long term. Our results showed that among the factors analysed, comorbidities were of the least significance, while obesity and smoking were deemed to be the most significant risk factors.

In the histopathology of Ovarian tumors, clinical secondary outcomes were evaluated. Patients with tumour sizes greater than or equal to 10 cm had a survival rate of 41.33%, while patients with tumour sizes between 8-10 cm had a rate of 29.33%.

According to studies published between 2020 and 2021 [16,17], it was found that benign tumors were more common than malignant ones across all age groups. Surface epithelial tumors were also found to be the most prevalent class of tumors in both benign and malignant cases, with tumors originating from the surface epithelium being the most common variant. Additionally, various modalities can aid in the early detection of malignant lesions of the ovary. Recent research has shown that benign tumors are more common in the third decade, whereas malignant tumors are prevalent in individuals aged between 40 and 60 years old [18]. Benign tumors are characterized by abdominal lumps and pain, while malignant tumors tend to present with abdominal pain, gastrointestinal symptoms, and, in some cases, ascites. [19] By contrast, alternative research has found that abdominal pain was the principal symptom of ovarian masses, with the most prevalent benign epithelial tumour being serous cystadenoma and clear cell carcinoma, the most frequent form of a primary malignant tumour.

In terms of mortality rate, the last studies indicated that the mortality rate for patients with ovarian tumors varies depending on the age group and whether the tumor is benign or malignant. It were noticed that a total mortality rate of 12%, with only four patients dying from malignant tumors [20]. Another study published in 2015 which enrolled that benign tumors were more common in the 31-40 age group, while malignant tumors were more prevelance in the 41-50 age group as well as most common ovarian tumor was surface epithelial tumors, with serous cystadenocarcinoma being the most common malignant tumor. [21]

Conclusion

This study was presented a wide model about histopathology of Ovarian tumors. Although our success was processed to determine risk factors on patients in the long-term and diagnose tumor types in assocaited with malignant tumors and benign tumors. However, our results found that women patients with benign tumors 80% were over than malignant tumors 20%. Moreover, these findings indicate a decline in patient survival over time.

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