



Immunohistochemical Evaluation of Ovarian Tumors with Histopathological Correlation: A Descriptive Study

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Abstract

Background: Ovarian tumours represent a heterogeneous group of neoplasms with varied histomorphology and biological behaviour. Accurate classification is essential for prognostication and management; however, overlapping morphological features often pose diagnostic challenges on routine histopathology. Immunohistochemistry (IHC) serves as a valuable adjunct in resolving such difficulties and improving diagnostic accuracy. Aim of the study was to evaluate ovarian tumours using histopathological examination and to correlate histological findings with immunohistochemical marker expression for accurate tumour classification. **Materials and Methods:** This descriptive study included 50 ovarian tumour specimens received in the Department of Pathology. Tumours were classified into benign, borderline, and malignant categories based on histomorphology according to WHO 2020 criteria. Immunohistochemistry was performed in representative and diagnostically challenging cases using a targeted panel of markers. Histological and immunohistochemical findings were correlated, and the final integrated diagnosis was established. **Results:** Benign tumours constituted 52%, malignant tumours 36%, and borderline tumours 12% of cases. Surface epithelial tumours were the most common category. Immunohistochemistry confirmed the initial histological diagnosis in 92% of cases, revised the diagnosis in 6%, and clarified equivocal histology in 2%. High-grade serous carcinoma was the most frequent malignant tumour. **Conclusion:** Histopathology remains the cornerstone of ovarian tumour diagnosis, while immunohistochemistry significantly enhances diagnostic precision in challenging cases, enabling accurate classification and WHO-aligned reporting.

Keywords: Ovarian tumours; Histopathology; Immunohistochemistry; Ovarian neoplasms; Diagnostic correlation



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INTRODUCTION

Ovarian tumours comprise a morphologically and biologically heterogeneous group of neoplasms ranging from benign cystadenomas to highly aggressive carcinomas and remain a major cause of gynaecologic cancer mortality due to frequent late-stage presentation. Accurate pathological diagnosis is essential, as tumour type, grade, and site of origin directly influence staging, prognosis, and therapeutic decisions. Contemporary diagnostic practice therefore emphasises an integrated approach combining detailed histomorphological evaluation with ancillary techniques, particularly immunohistochemistry (IHC), to achieve precise tumour classification (1,2).

The 5th edition of the World Health Organization (WHO) Classification of Female Genital Tumours (2020) advocates reproducible histotype-based classification and aligns morphology with underlying molecular pathways, such as TP53-aberrant high-grade serous carcinoma and mismatch repair-deficient endometrioid carcinoma. This framework underscores the importance of accurate histotype assignment in

modern pathology reporting (1,2). In parallel, reporting protocols from the International Collaboration on Cancer Reporting (ICCR) and the College of American Pathologists (CAP) emphasise comprehensive evaluation of tubo-ovarian carcinomas, reflecting the recognition that many so-called ovarian high-grade serous carcinomas arise from the fallopian tube epithelium (3,4).

Despite advances in classification systems, ovarian tumours often present diagnostic challenges on routine haematoxylin and eosin examination, particularly in poorly differentiated tumours, cases with overlapping morphology, limited sampling, or when distinguishing primary ovarian neoplasms from metastatic lesions. In such situations, IHC serves as a valuable adjunct by providing lineage confirmation and histotype-specific support. Markers such as PAX8, WT1, p53, and ER/PR play a key role in resolving these diagnostic dilemmas (5,6).

Recent diagnostic algorithms recommend the use of focused, morphology-driven immunohistochemical panels incorporating markers such as WT1, p53, p16, PAX8, Napsin A or HNF1B, ER/PR, and ARID1A. When applied in a question-based manner, these panels improve diagnostic accuracy while minimising cost and tissue exhaustion (5,6). Notably, the combined use of Napsin A and WT1 is particularly useful in distinguishing ovarian clear cell carcinoma from high-grade serous carcinoma, a distinction of significant clinical relevance due to differences in tumour behaviour and therapeutic response (7).

Several institutional studies, including Indian tertiary-care series, have documented the predominance of surface epithelial tumours and demonstrated the utility of immunohistochemistry in resolving diagnostically challenging cases. However, these studies also highlight variability in marker selection and inconsistent application of updated WHO concepts in routine practice (8–11). This variability underscores the need for a structured, morphology-guided immunohistochemical approach that defines a minimum, high-yield marker panel capable of addressing common diagnostic differentials across the spectrum of ovarian tumours.

The present study aims to evaluate ovarian tumours by correlating histomorphological findings with immunohistochemical expression patterns in representative and diagnostically challenging cases, using WHO 2020 classification principles. The study seeks to assess the role of IHC in confirming, refining, or revising provisional histological diagnoses across benign, borderline, and malignant ovarian neoplasms, thereby enhancing diagnostic accuracy, improving interobserver reproducibility, and supporting standardised reporting in accordance with ICCR and CAP recommendations. Ultimately, the study aims to identify a pragmatic, morphology-guided immunohistochemical approach that balances diagnostic yield with cost-effectiveness and optimal tissue utilisation in routine pathology practice.

MATERIALS AND METHODS

Study Design and Setting

This was a hospital-based descriptive and observational study conducted in the Department of Pathology of a tertiary care teaching hospital. The study period extended over a defined duration during which all eligible ovarian tumour specimens received in the department were evaluated. A total of 50 cases of ovarian tumours constituted the study sample. Ethical clearance was obtained from the Institutional Ethics Committee prior to commencement of the study, and patient confidentiality was strictly maintained.

Study Material

The study material comprised ovarian tumour specimens received as oophorectomy, salpingo-

oophorectomy, or hysterectomy with bilateral salpingo-oophorectomy specimens. All specimens were fixed in 10% neutral buffered formalin, processed routinely, and paraffin-embedded. Sections of 4–5 µm thickness were stained with hematoxylin and eosin (H&E) for histopathological evaluation. Cases requiring further characterization were subjected to immunohistochemical analysis using a selected panel of antibodies.

Sample Size

A total of 50 histopathologically diagnosed ovarian tumours were included in the study. The sample size was based on the availability of cases during the study period and was considered adequate to assess histological patterns and immunohistochemical correlations in ovarian neoplasms.

Histopathological Evaluation

All cases were examined independently by pathologists, and tumours were classified into benign, borderline, and malignant categories and further subtyped according to the WHO Classification of Tumours of Female Genital Tract (2020). Histological parameters such as architectural pattern, cellular morphology, nuclear features, mitotic activity, necrosis, and stromal response were assessed.

Immunohistochemical Study

Immunohistochemistry was performed on representative paraffin-embedded tissue sections using the streptavidin–biotin / polymer-based detection method. A problem-oriented immunohistochemical panel was applied based on histomorphological differential diagnosis and included markers such as PAX8, WT1, p53, p16, ER, PR, and Napsin A (as required). Appropriate positive and negative controls were used. Immunoreactivity was assessed based on localization, intensity, and proportion of stained tumor cells, and results were interpreted in correlation with histological findings.

Inclusion Criteria

- All ovarian tumour specimens received in the Department of Pathology during the study period
- Benign, borderline, and malignant ovarian neoplasms confirmed on histopathology
- Adequate tissue available for histopathological and immunohistochemical evaluation

Exclusion Criteria

- Non-neoplastic ovarian lesions (functional cysts, inflammatory lesions)
- Autolyzed or inadequately fixed specimens
- Cases with insufficient tissue for immunohistochemical analysis
- Recurrent tumors and metastatic tumors to the ovary with known primary elsewhere

Study Tools

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- Histopathology reporting proforma based on WHO 2020 classification
- Hematoxylin and eosin (H&E) stained slides
- Immunohistochemistry antibodies: PAX8, WT1, p53, p16, ER, PR, Napsin A (as required)
- Light microscope for slide evaluation

Data Collection (Point-wise)

- Demographic details: age and clinical presentation
- Gross findings: size, laterality, external surface, cut-section appearance
- Histopathological diagnosis and tumour category
- Histological subtype and grade (where applicable)
- Immunohistochemical marker expression patterns
- Correlation between histological diagnosis and IHC findings

- Final integrated diagnosis based on histology and immunohistochemistry

Statistical Analysis

The data collected were entered into a Microsoft Excel spreadsheet and analyzed using Statistical Package for the Social Sciences (SPSS) software (version 21). Descriptive statistics were used to summarize the data. Categorical variables such as type of ovarian tumor, histological subtype, and immunohistochemical marker expression were expressed as frequencies and percentages, while continuous variables such as age were expressed as mean $\pm$ standard deviation (SD).

The Chi-square (χ^2) test or Fisher's exact test (where appropriate) was applied to assess the association between histological diagnosis and immunohistochemical marker expression. A p-value < 0.05 was considered statistically significant. The results were presented in the form of tables and graphs to facilitate interpretation and comparison.

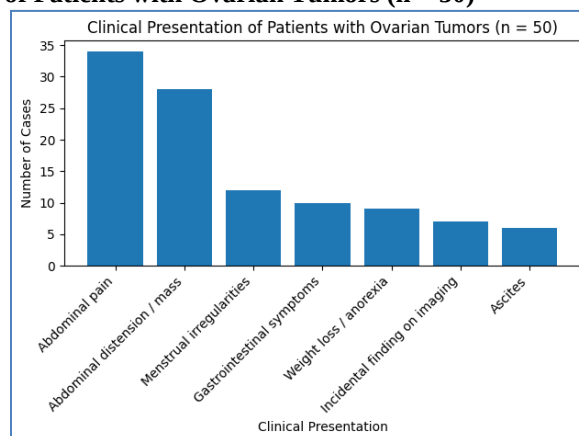
RESULTS

Table 1. Age Distribution of Ovarian Tumors by Tumor Category (n = 50)

Tumor Category	Number of Cases (n)	Mean Age (years) $\pm$ SD	Age Range (years)
Benign tumors	26 (52.0%)	38.4 $\pm$ 9.6	22–55
Borderline tumors	6 (12.0%)	44.8 $\pm$ 7.3	35–56
Malignant tumors	18 (36.0%)	56.2 $\pm$ 10.1	38–72
Total	50 (100%)	45.6 $\pm$ 12.4	22–72

Benign tumors (26 cases, 52.0%) occurred at a younger mean age (38.4 $\pm$ 9.6 years), while borderline tumors (6 cases, 12.0%) showed an intermediate mean age (44.8 $\pm$ 7.3 years). Malignant tumors (18 cases, 36.0%) presented at a higher mean age (56.2 $\pm$ 10.1 years). The overall mean age was 45.6 $\pm$ 12.4 years, demonstrating an increasing age trend with tumor aggressiveness (Table 1).

Figure 1. Clinical Presentation of Patients with Ovarian Tumors (n = 50)



Abdominal pain was the most common presenting symptom, observed in 34 cases (68.0%), followed by abdominal distension or mass in 28 cases (56.0%). Menstrual irregularities were noted in 12 cases (24.0%), while gastrointestinal symptoms were present in 10 cases (20.0%). Weight loss or anorexia occurred in 9 cases (18.0%), incidental detection on imaging in 7 cases (14.0%), and ascites in 6 cases (12.0%), reflecting the non-specific clinical presentation of ovarian tumors (Figure 1).

Table 2. Gross Size of Ovarian Tumors According to Tumor Category (n = 50)

Tumor Category	Number of Cases (n)	Mean Tumor Size (cm) ± SD	Size Range (cm)
Benign tumors	26	7.2 ± 2.8	3–14
Borderline tumors	6	9.6 ± 3.1	5–15
Malignant tumors	18	11.8 ± 4.2	6–20
Total	50	9.1 ± 4.1	3–20

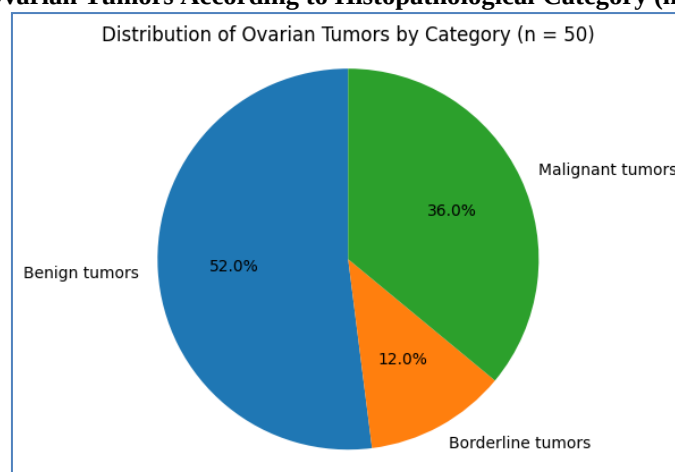
Benign ovarian tumors had a smaller mean size of 7.2 ± 2.8 cm, while borderline tumors showed an intermediate mean size of 9.6 ± 3.1 cm. Malignant tumors were the largest, with a mean size of 11.8 ± 4.2 cm. The overall mean tumor size was 9.1 ± 4.1 cm, demonstrating an increase in tumor size with increasing malignant potential (Table 2).

Table 3. Gross Pathological Features of Ovarian Tumors (n = 50)

Gross Feature	Category	Benign (n = 26)	Borderline (n = 6)	Malignant (n = 18)	Total (n = 50)	Percentage (%)
Laterality	Unilateral	22	4	11	37	74.0
	Bilateral	4	2	7	13	26.0
External Surface	Smooth	21	3	4	28	56.0
	Bosselated / Irregular	5	3	14	22	44.0
Cut-section Appearance	Cystic	19	1	2	22	44.0
	Solid	2	1	9	12	24.0
	Solid–cystic	5	4	7	16	32.0

Unilateral involvement was more common, observed in 37 cases (74.0%), while bilaterality was seen in 13 cases (26.0%). A smooth external surface predominated in 28 cases (56.0%), mainly among benign tumors, whereas bosselated or irregular surfaces were more frequent in malignant tumors (44.0%). On cut section, cystic appearance was the most common pattern (44.0%), followed by solid–cystic (32.0%) and solid tumors (24.0%). These gross features correlated with tumor behavior, with malignant tumors showing a higher frequency of bilaterality, irregular surfaces, and solid components (Table 3).

Figure 2. Distribution of Ovarian Tumors According to Histopathological Category (n = 50)



Benign ovarian tumors constituted the majority of cases with 26 patients (52.0%), followed by malignant tumors in 18 cases (36.0%) and borderline tumors in 6 cases (12.0%). This distribution demonstrates a predominance of benign lesions, with malignant tumors forming approximately one-third of the study population (Figure 2).

Among benign tumors (26 cases, 52.0%), serous cystadenoma was the most common histological type (12 cases, 24.0%), followed by mucinous cystadenoma (9 cases, 18.0%). Borderline tumors accounted for 6 cases (12.0%), with equal distribution between serous and mucinous subtypes (3 cases each, 6.0%). Malignant tumors constituted 18 cases (36.0%), of which high-grade serous carcinoma was the most frequent (8 cases, 16.0%), followed by endometrioid carcinoma (4 cases, 8.0%), clear cell carcinoma (3 cases, 6.0%), mucinous carcinoma (2 cases, 4.0%), and dysgerminoma (1 case, 2.0%) (Table 4).

Table 4. Histopathological Diagnosis of Ovarian Tumors According to WHO 2020 Classification (n = 50)

Histopathological Diagnosis	Number of Cases (n)	Percentage (%)
Benign Tumors (n = 26)		
Serous cystadenoma	12	24.0
Mucinous cystadenoma	9	18.0
Mature cystic teratoma	4	8.0
Fibroma	1	2.0
Borderline Tumors (n = 6)		
Borderline serous tumor	3	6.0
Borderline mucinous tumor	3	6.0
Malignant Tumors (n = 18)		
High-grade serous carcinoma	8	16.0
Endometrioid carcinoma	4	8.0
Clear cell carcinoma	3	6.0
Mucinous carcinoma	2	4.0
Dysgerminoma	1	2.0
Total	50	100.0

Table 5. Immunohistochemical Marker Expression Patterns in Ovarian Tumors (n = 50)

Histopathological Diagnosis	PAX8	WT1	p53	p16	ER	PR	Napsin A
Benign Tumors							
Serous cystadenoma (n=12)	+	+	Wild-type	–	+	+	–
Mucinous cystadenoma (n=9)	– / focal	–	Wild-type	–	–	–	–
Mature cystic teratoma (n=4)	–	–	Wild-type	–	–	–	–
Fibroma (n=1)	–	–	Wild-type	–	–	–	–
Borderline Tumors							
Borderline serous tumor (n=3)	+	+	Wild-type	Patchy +	+	+	–
Borderline mucinous tumor (n=3)	– / focal	–	Wild-type	–	–	–	–
Malignant Tumors							
High-grade serous carcinoma (n=8)	+	+	Aberrant (overexpression/null)	Diffuse +	+	±	–
Endometrioid carcinoma (n=4)	+	–	Wild-type	Patchy +	+	+	–
Clear cell carcinoma (n=3)	+	–	Wild-type	–	–	–	+
Mucinous carcinoma (n=2)	– / focal	–	Wild-type	–	–	–	–
Dysgerminoma (n=1)	–	–	Wild-type	–	–	–	–

(+ = positive, – = negative, ± = variable expression)

Serous tumors showed positivity for PAX8 and WT1 with wild-type p53 in benign and borderline lesions, while high-grade serous carcinomas demonstrated aberrant p53 expression with diffuse p16 positivity. Endometrioid carcinomas were PAX8 positive with ER and PR expression and WT1 negativity. Clear cell carcinomas showed characteristic Napsin A positivity with WT1 negativity. Mucinous tumors and non-epithelial tumors were largely negative for these markers. Overall, immunohistochemical marker expression correlated well with histological diagnosis and aided in accurate tumor subtyping (Table 5).

Table 6. Summary of Immunohistochemical Marker Expression According to Tumor Category

Marker	Benign Tumors (%)	Borderline Tumors (%)	Malignant Tumors (%)
PAX8 positivity	46.1	50.0	83.3
WT1 positivity	46.1	50.0	44.4
p53 aberrant pattern	0	0	44.4
p16 diffuse positivity	0	33.3	44.4
ER positivity	46.1	50.0	66.6
PR positivity	38.4	50.0	44.4
Napsin A positivity	0	0	16.6

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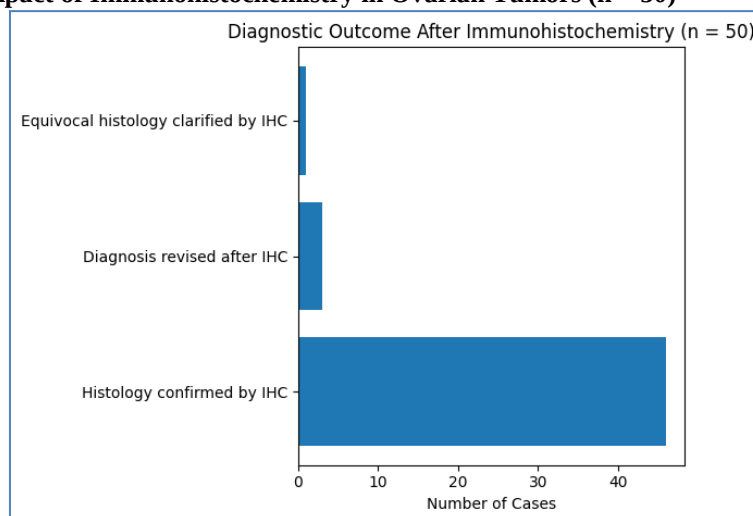
PAX8 expression was most frequent in malignant tumors (83.3%) compared to benign (46.1%) and borderline tumors (50.0%). WT1 positivity was observed predominantly in serous tumors across categories. Aberrant p53 expression and diffuse p16 positivity were seen exclusively in malignant tumors, highlighting their association with high-grade malignancy. Hormone receptor expression (ER and PR) was more common in malignant and borderline tumors, while Napsin A positivity was restricted to malignant tumors, reflecting its specificity for clear cell carcinoma (Table 6).

Table 7. Correlation Between Histological Diagnosis and Immunohistochemical Findings in Ovarian Tumors (n = 50)

Histological Diagnosis	Provisional Histological Diagnosis	IHC Findings	Final Integrated Diagnosis	Diagnostic Concordance
Serous cystadenoma (n=12)	Benign serous tumor	WT1+, PAX8+, p53 wild-type	Serous cystadenoma	Concordant
Mucinous cystadenoma (n=9)	Benign mucinous tumor	WT1-, PAX8-/focal, p53 wild-type	Mucinous cystadenoma	Concordant
Mature cystic teratoma (n=4)	Germ cell tumor	PAX8-, WT1-	Mature cystic teratoma	Concordant
Fibroma (n=1)	Sex cord-stromal tumor	WT1-, ER-	Fibroma	Concordant
Borderline serous tumor (n=3)	Borderline epithelial tumor	WT1+, PAX8+, p16 patchy	Borderline serous tumor	Concordant
Borderline mucinous tumor (n=3)	Borderline epithelial tumor	WT1-, PAX8-	Borderline mucinous tumor	Concordant
High-grade serous carcinoma (n=8)	Poorly differentiated carcinoma	WT1+, PAX8+, p53 aberrant, p16 diffuse	High-grade serous carcinoma	Concordant
Endometrioid carcinoma (n=4)	Endometrioid morphology	PAX8+, WT1-, ER+, PR+	Endometrioid carcinoma	Concordant
Clear cell carcinoma (n=3)	High-grade carcinoma	PAX8+, WT1-, Napsin A+	Clear cell carcinoma	Revised
Mucinous carcinoma (n=2)	Mucinous carcinoma	PAX8-, WT1-	Mucinous carcinoma	Concordant
Dysgerminoma (n=1)	Germ cell tumor	PAX8-, WT1-	Dysgerminoma	Concordant

Immunohistochemistry showed a high level of concordance with histological diagnosis in the majority of cases. Histological diagnosis was confirmed by IHC in most benign, borderline, and malignant tumors. Diagnostic revision was required in a small subset of cases, particularly among high-grade carcinomas, where immunohistochemical markers such as PAX8, WT1, p53, p16, ER/PR, and Napsin A helped refine tumor classification. Overall, IHC played a significant role in resolving morphologically challenging cases and establishing an accurate final integrated diagnosis (Table 7).

Figure 3. Diagnostic Impact of Immunohistochemistry in Ovarian Tumors (n = 50)



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Immunohistochemistry confirmed the initial histological diagnosis in the majority of cases (46 cases, 92.0%). Diagnostic revision was required in 3 cases (6.0%), while 1 case (2.0%) with equivocal histology was clarified after immunohistochemical evaluation. These findings highlight the important role of immunohistochemistry as a complementary tool in refining and confirming the diagnosis of ovarian tumors, particularly in morphologically challenging cases (Figure 3).

Table 8. Final Integrated Diagnosis of Ovarian Tumors Based on Histology and Immunohistochemistry (WHO 2020) (n = 50)

Final Integrated Diagnosis (WHO 2020)	Number of Cases (n)	Percentage (%)
Benign Tumors (n = 26)		
Serous cystadenoma	12	24.0
Mucinous cystadenoma	9	18.0
Mature cystic teratoma	4	8.0
Fibroma	1	2.0
Borderline Tumors (n = 6)		
Borderline serous tumor	3	6.0
Borderline mucinous tumor	3	6.0
Malignant Tumors (n = 18)		
High-grade serous carcinoma	8	16.0
Endometrioid carcinoma	4	8.0
Clear cell carcinoma	3	6.0
Mucinous carcinoma	2	4.0
Dysgerminoma	1	2.0
Total	50	100.0

After integration of histopathological findings with immunohistochemistry, benign tumors constituted 26 cases (52.0%), with serous cystadenoma being the most common (24.0%). Borderline tumors accounted for 6 cases (12.0%), equally divided between serous and mucinous types. Malignant tumors comprised 18 cases (36.0%), of which high-grade serous carcinoma was the most frequent (16.0%), followed by endometrioid carcinoma (8.0%) and clear cell carcinoma (6.0%). This final integrated diagnosis highlights the value of immunohistochemistry in accurate tumor classification according to WHO 2020 criteria (Table 8).

Table 9. Change in Diagnosis After Immunohistochemical Correlation in Ovarian Tumors (n = 50)

Diagnostic Status	Number of Cases (n)	Percentage (%)
Histological diagnosis confirmed	46	92.0
Diagnosis revised after immunohistochemistry	3	6.0
Diagnosis clarified (equivocal histology)	1	2.0
Total	50	100.0

Immunohistochemical correlation confirmed the initial histological diagnosis in 46 cases (92.0%). Revision of diagnosis was required in 3 cases (6.0%), while 1 case (2.0%) with equivocal histology was clarified after immunohistochemistry. These findings underscore the role of immunohistochemistry as an effective adjunct in refining and confirming the diagnosis of ovarian tumors (Table 9).

DISCUSSION

Ovarian tumours represent a heterogeneous group of neoplasms with wide variation in morphology, biological behaviour, and clinical outcome, making accurate pathological classification essential for prognostication and therapeutic planning. In the present study of 50 cases, benign tumours constituted the majority (52%), followed by malignant (36%) and borderline tumours (12%). This distribution is comparable to findings from several Indian and international studies, which consistently report a predominance of benign ovarian neoplasms with malignant tumours accounting for approximately one-third of cases (12,13). Variations in proportions across studies may reflect differences in referral patterns and institutional case load.

Age distribution analysis demonstrated a progressive increase in mean age with increasing tumour aggressiveness. Benign tumours predominantly affected women in the reproductive age group, whereas malignant tumours were more frequently encountered in the fifth and sixth decades of life. These findings are in agreement with earlier studies reporting younger age at presentation for benign tumours and later onset for epithelial ovarian malignancies (12,14). Abdominal pain and abdominal distension were the most common presenting symptoms, highlighting the non-specific clinical presentation of ovarian tumours and the tendency for malignant lesions to present at an advanced stage.

Gross examination provided valuable preliminary diagnostic information. Malignant tumours were generally larger, showed irregular or bosselated external surfaces, and displayed solid or solid-cystic cut-section appearances, while benign tumours were more often cystic with smooth surfaces. Similar gross features have been documented in previous studies, emphasising the importance of thorough gross examination and adequate sampling (13,15). Bilaterality was more commonly observed in malignant tumours, particularly serous carcinomas, consistent with earlier reports (12,16).

Histopathologically, surface epithelial tumours constituted the predominant category, with serous cystadenoma being the most common benign tumour and high-grade serous carcinoma the most frequent malignant tumour. These findings align with most institutional series and current WHO concepts recognising high-grade serous carcinoma as the most prevalent ovarian malignancy (12,17). Borderline tumours formed a smaller proportion of cases but were included due to their diagnostic complexity and frequent need for immunohistochemical correlation.

Immunohistochemistry proved to be a valuable adjunct, confirming the histological diagnosis in 92% of cases and refining or revising the diagnosis in 8%. This supports the established view that histopathology remains the cornerstone of ovarian tumour diagnosis, with immunohistochemistry functioning primarily as a targeted problem-solving tool (18). High-grade serous carcinomas demonstrated the characteristic immunophenotype of WT1 positivity, aberrant p53 expression, and diffuse p16 positivity, reflecting their TP53-driven molecular pathway (17,19). Endometrioid carcinomas showed PAX8 positivity with ER and PR expression and WT1 negativity, aiding distinction from serous tumours (18,20).

Clear cell carcinomas posed diagnostic challenges on morphology alone in certain cases. In the present study, Napsin A positivity with WT1 negativity was instrumental in confirming clear cell differentiation and distinguishing these tumours from high-grade serous carcinoma. Similar findings have been reported in earlier studies, underscoring the diagnostic utility of Napsin A (21). This distinction is clinically relevant due to the distinct biological behaviour and chemoresistance associated with clear cell carcinoma.

Overall, the findings of the present study closely parallel those of previously published series with respect to tumour distribution, histological spectrum, and the diagnostic contribution of immunohistochemistry. The study highlights the importance of a morphology-guided, judicious immunohistochemical approach using a limited but high-yield marker panel, particularly suited for routine practice in resource-constrained settings.

CONCLUSION

The present study confirms that histopathological examination remains the cornerstone for the diagnosis and classification of ovarian tumours, with benign tumours being the most common and surface epithelial tumours constituting the predominant category. Immunohistochemistry serves as a valuable adjunct in diagnostically challenging cases, especially in the accurate subtyping of epithelial ovarian malignancies. Integration of histomorphology with targeted immunohistochemical markers enhances diagnostic accuracy, supports WHO-aligned reporting, and contributes to optimal patient management.

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