

Bioimaging and Cell Analysis of Selected Ex Vivo Cancer Tissues

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Background & Objectives

Ovarian carcinoma is often detected late, and current methods struggle to separate typical from atypical tumour cells, complicating grading and subtype diagnosis.

- Study morphological changes in ovarian carcinoma tissue using H&E staining
- Compare nuclear and cell architecture of HGSOC and clear cell carcinoma by microscopy and image analysis
- Screen the biomarkers Napsin A, p53, PanCK, WT1 and p16 by IHC

Materials & Methods

- **Samples:** 18 FFPE ovarian carcinoma cases (10 HGSOC, age > 40; 8 CCC, age > 45), PIMS Hospital, Islamabad
- **H&E:** deparaffinize, hydrate, hematoxylin, eosin, dehydrate, mount
- **IHC:** antigen retrieval, blocking, primary/secondary antibody, detection, counterstain
- **Imaging:** light and confocal microscopy



Sectioning



Staining

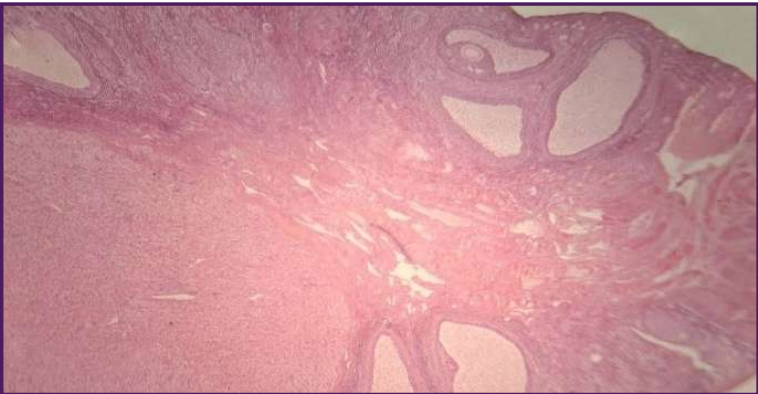


H&E slides

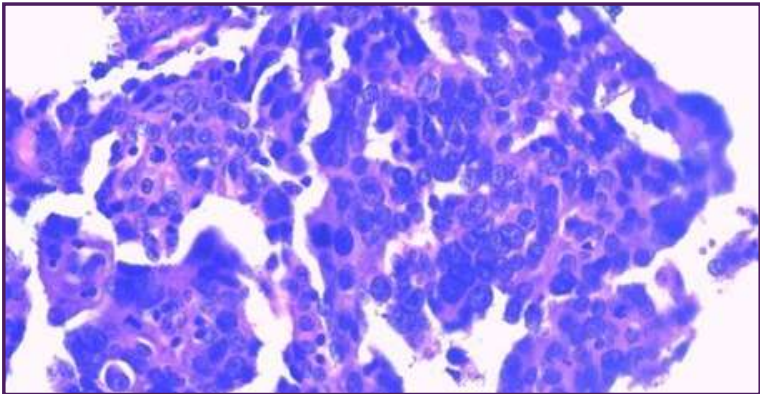


IHC

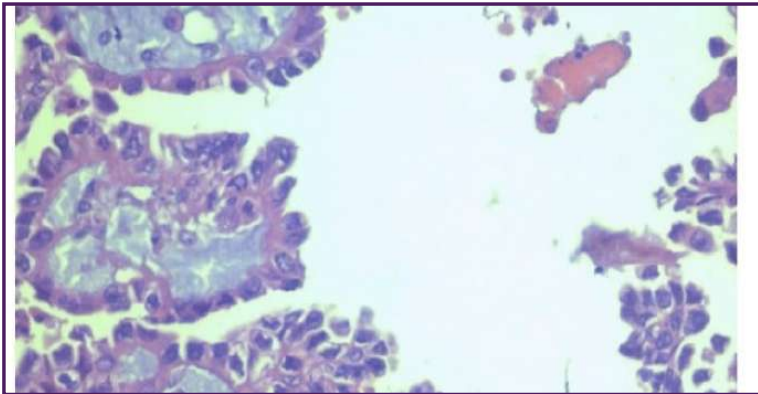
Results: H&E Morphology



Normal ovary (40x)
Cortex, medulla, collagenous fibres, cuboidal surface epithelium



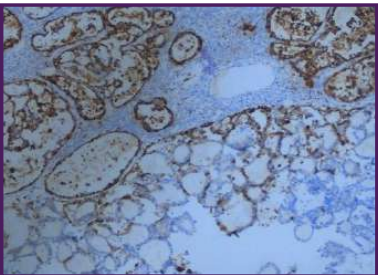
HGSOC (100x)
Nuclear pleomorphism, multinucleation, 16 mitoses/10 HPF, psammoma bodies



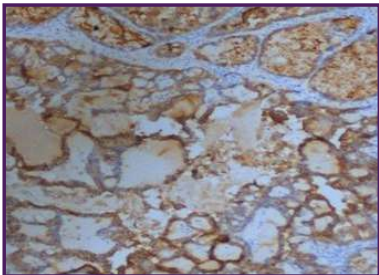
Clear cell carcinoma (100x)
Tubulocystic to solid pattern; cuboidal hobnail cells

Results: Immunohistochemistry (IHC)

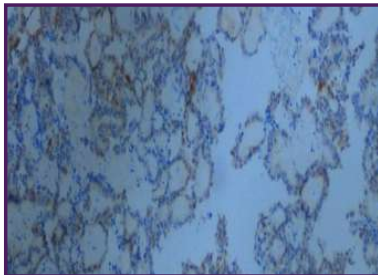
Clear cell carcinoma (CCC)



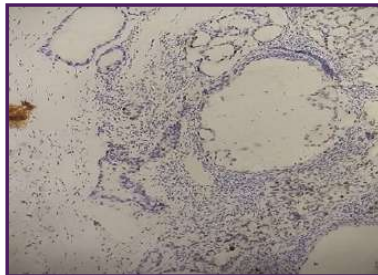
Napsin A +



PanCK +

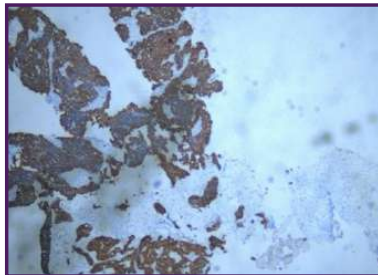


p16 patchy +

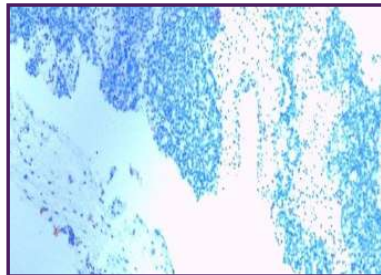


p53 wild type

HGSOC



WT1 +



p53 null

HGSOC vs Clear Cell Carcinoma

Feature	HGSOC	CCC
Pattern	Papillary/solid; pleomorphic cells	Tubulocystic, papillary, solid; hobnail
WT1	Positive	Negative
p53	Null / mutant type	Wild type
Napsin A	Negative	Positive
Endometriosis	Not associated	Often associated

Conclusion

- H&E revealed marked nuclear pleomorphism, high mitotic index and psammoma bodies in HGSOC, and hobnail cuboidal cells in CCC.
- **WT1** and **Napsin A** are favourable markers to separate HGSOC from CCC.
- Future: digital pathology, confocal microscopy and 3D tissue culture for early diagnosis.

References

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