Comparative Study of Frozen Section with Histopathology in Ovarian Lesions

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Background

The main purpose of Frozen Section (FS) reporting is to provide rapid diagnosis to guide intra or peri-operative patient management. The indications of FS are rapid diagnosis of benign versus malignant in an undiagnosed tumour, identification of tissue and unknown pathological processes, evaluation of margins, identification of lymph node metastasis, confirmation of presence of representative samples for paraffin section diagnosis.

Clinically detected ovarian masses have a heterogenous nature, including neoplasms and benign non-neoplastic lesions or cysts. The 3 main categories of ovarian neoplasms are benign, borderline and malignant, which differ with respect to their biological characteristics, management and prognosis. Peri-operative imaging have only limited value in differentiating between these tumor categories. Intra-operative pathology consultation or frozen sections can help clinicians in making an appropriate decision on the surgical management of ovarian neoplasms.The extent of surgical management is based on the histologic diagnosis and the category of tumors.

Aims & Objectives

1. To do a Frozen Section examination on 50 consecutive ovarian lesion cases at our institution.
2. To do a Histopathological study on these 50 ovarian lesions at our institution.
3. To compare the results of Frozen section and histopathology of these 50 cases.

Material & Methods

Cases

All ovarian lesions at our institution are routinely analyzed for FS study. At least 50 consecutive intra-operative consultations of ovarian lesions are evaluated. Both retrospective and prospective cases were considered for the study. Tumors of varying grades and types were included in the study.

Methods

Gross examination: The entire specimens received were processed to obviate any sampling errors. None of the cases were assessed by touch prep or fine-needle aspiration.

Frozen Section: Specimens received for FS were sampled from representative areas. 50 consecutive cases of ovarian lesions were studied. Sections for FS study were cut using a Leica cryostat machine and stained with Toluidine blue and Hematoxylin-Eosin (H&E). Subsequently, for the permanent sections, specimens were fixed in 10% formalin, grossed and adequate representative sections were taken according to the standard guidelines. The sections were then evaluated by H&E stain. The intra-operative consultation diagnoses (benign versus malignant) were compared with that obtained from H&E stained permanent section (taken as the gold standard).

Routine histological processing: Once FS reporting is over, specimens were fixed in 10% buffered formalin and paraffin-embedded. Five – seven micron serial sections stained by routine hematoxylin-eosin (H&E) were studied by light microscopy.

Statistical evaluation: A comparison of the accuracy of FS diagnosis with the histopathological diagnosis (gold standard) was done and tabulated.

Results

After the research,the findings stated frozen section as a good intra-operative tool in relation to histopathology in ovarian lesions. Sensitivity,Specificity, and predictive values were calculated for the accuracy of FS diagnosis.

Conclusions

The study helped to assess the accuracy of the FS diagnosis and its comparision with the gold standard of histopathology diagnosis. This quality control study on FS in our institution helped improve the diagnostic accuracy and better patient care as it has a direct bearing on the therapy and prognosis of the lesion.