



Ice versus Preservation: Comparing the Secrets of Frozen and Formalin-Fixed Sections

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Abstract

Introduction: The frozen section procedure is a pathological laboratory procedure to perform rapid microscopic analysis of a specimen. It is used most often in oncological surgery. The technical name for this procedure is cryo-section.

Objective: to compare H&E images of a frozen section and formalin fixed section.

Methods: A thin slice of tissue is cut from a specimen, and is frozen in a cryostat using freezing media and section are cut (3-5 μ) and taken onto a glass slide.

These are stained using various stains, most commonly H&E stain.

Results and Conclusions: To provide a diagnosis that will allow the surgeon to make an intra-operative decision regarding further surgeries.

To avoid subsequent surgical procedure

To make primary diagnosis when pre-op diagnosis is not available

Assess margins, when additional excision to attain negative margins is an option.

Assess adequacy of diagnostic tissue in a biopsy specimen from an open or a complicated procedure.

Cytogenetics - Tumor tissue banking.



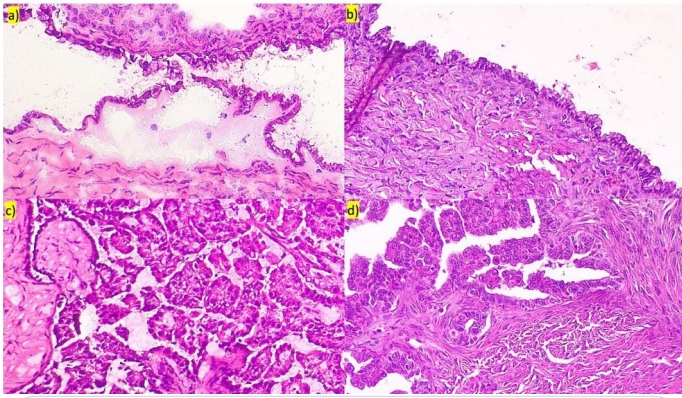


Figure 1: (a & c - frozen section, b & d - FFPE).

(a) & (b) 48-year female patient with complaints of abdominal pain. CT scan shows Right Ovarian mass with multiple septations. Lab investigations revealed mildly raised CA-125 levels. H&E images show a cystic lesion lined by single layer of tall columnar mucin secreting cells with basally placed nucleus. There is no evidence of atypia or invasion into the surrounding ovarian stroma. Later IHC profile was done to rule out metastatic tumor and a final diagnosis of Benign Mucinous Cystadenoma.

(c) & (d) 40-year female, imaging showed bilateral ovarian masses along with markedly raised CA-125 levels. H&E images show an adenocarcinoma with papillary arrangement invading ovarian stroma. There is nuclear pleomorphism, high grade atypia and increased mitosis. Morphology and IHC rendered a diagnosis of Serous Carcinoma.

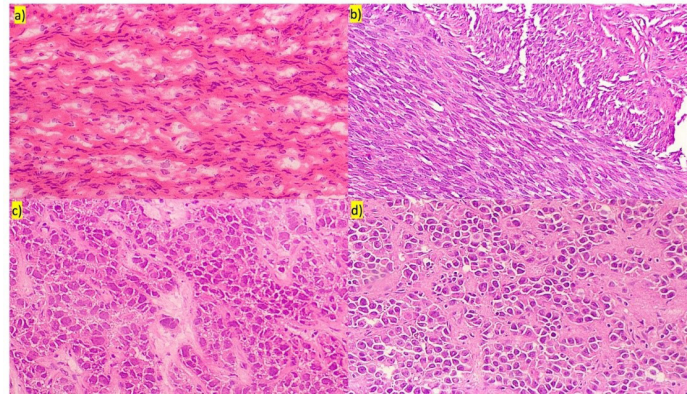


Figure 2: (a & c - frozen section, b & d - FFPE).

(a) & (b) 35-year female, CT scan shows Left Ovarian mass and CA-125 levels within normal limits. H&E images show a solid lesion comprising bland and plump spindle cells having scant eosinophilic cytoplasm arranged in diffuse sheets blending with surrounding ovarian stroma. There is no atypia or increased mitosis. Reticulin stain shows pericellular staining pattern and IHC revealed SF1 and inhibin positivity. Final diagnosis of Ovarian Fibroma was given.

(c) & (d) 18-year female presented with bilateral ovarian lesions and omental caking. Lab raised CA-125, AFP and LDH levels. H&E images show tumor cells arranged in trabeculae, nests and sheets separated by fibrous septa having lymphocytic inflammation. These tumor cells are polygonal with eosinophilic cytoplasm and distinct cell borders. IHC markers SALL4, OCT3 and CD117 were positive indicating a diagnosis of Dysgerminoma.