When ROSE is not possible: Evaluating the diagnostic yield of >4mm tissue specimen with macroscopic onsite evaluation. 22G EUS-FNB Acquire needle experience
BACKGROUND

• Endoscopic ultrasound-guided fine-needle biopsy (EUS-FNB) is a technique used for tissue acquisition providing the higher diagnostic accuracy for solid pancreatic and gastrointestinal lesions.

• Rapid onsite evaluation (ROSE) is the useful first-hand diagnostic technique.

• Because of its expensive technical requirement, macroscopic onsite evaluation (MOSE) is a desired method used to assess the visual characteristics/features of a sample/specimen for positive histopathological output.

• However, adequate size of the tissue is the requirement.

• What tissue size should we have for histopathological diagnosis, answer is debatable.

• Literature showed variability in tissue size with the favour towards >4mm tissue size.

  
  
  
The aim of the study is to evaluate the >4mm of tissue size for the adequacy of cellblock and histopathological diagnostic output.
METHODS

Data Collection:
- Retrospective study (Gastroenterology-department, Liaquat National Hospital).
- After institutional permission, gastrointestinal/pancreatic EUS-FNB data was collected from departmental EMR.
- Consecutive data of patient’s tissue size, ROSE, and histopathological output of cellblock, collected from Jan-2019 to July-2023.
- Abandoned procedures data were excluded.

Statistical Analysis:
- Data was entered and analysed using SPSS version 25.
- ROC curve was plotted to determine the performance of tissue size in prediction of positive histopathologic/cell block and AUC was calculated.
- Sensitivity, specificity, positive and negative predictive values were computed at threshold of tissue size of > 4mm.
RESULTS

• Total 122 EUS-FNB data (69.9%, 84/122 malignant) was collected from EMR.
• Median age 60 years (IQR=48-67), males (59.8%) dominance,
• Pancreas common biopsy site (73.8%). ROSE was 94% (79/84) malignant,
• Histopathological/Cellblocks were Malignant in 93% (78/84) lesion.
• Tissue size of >4mm was malignant in 82% (64/78) cellblocks.
• ROC curve, for >4mm tissue size and taking malignant histopathology/cellblock as gold standard, showed an AUC of 0.85 with statistical significance.
• At threshold of 4mm tissue size and above, sensitivity, specificity were 82%, 82%
• Positive and negative predictive value were 89% and 72% respectively.
Figure 1: ROC Curve for more than 4mm tissue size taking malignant cellblock as gold standard

Diagonal segments are produced by ties.
Tissue Size and CellBlock/Histopathological Finding

Count

Cellblock Finding
- Negative Cell-Block Finding
- Positive Cell-Block finding

EUS FNB Cases

Tissue Size <4mm

Tissue Size >4mm

Cell Block Tissue Size
DISCUSSION

• EUS FNB is the technique, makes the process of malignant tissue acquisition and diagnosis feasible.

• Despite, importance of ROSE, now world is shifting towards less expensive and easy to approach technique of MOSE.

• However, the success of MOSE depends on the adequate tissue size for cellblock and diagnostic output.

• Like other studies, this study also highlight the importance of tissue size of at least >4mm as one of the basic requirements for MOSE technique.
Conclusions:

4mm and above tissue size can be useful for the predictability of higher histopathological (Cellblock) diagnostic output in gastrointestinal and pancreatic solid lesions.

• Keywords:
  • Tissue size,
  • MOSE
  • Needle