Assessment of Standard EUS FNB for Molecular Testing in Cancer: A Retrospective Tertiary Center Study.

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Background

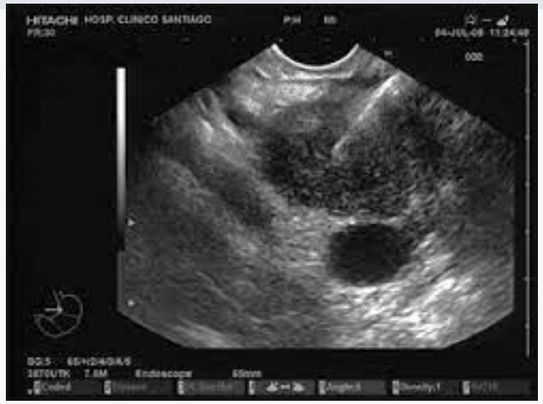
Precision oncology is a promising development in cancer treatment that uses target therapies based on the genomic profile of a patient's cancer. Nearly 30% of pancreatic cancers have detectable genomic lesions that could potentially impact management. This study assessed whether standard endoscopic ultrasound-guided fine needle biopsy (EUS FNB) could produce sufficient samples for molecular research.

Aim

This study Assess the adequacy of specimen cellularity and quality from FNB for successful NGS in pancreatic cancer. And evaluate impact of needle size,. number of passes, mass size, and location on NGS yield

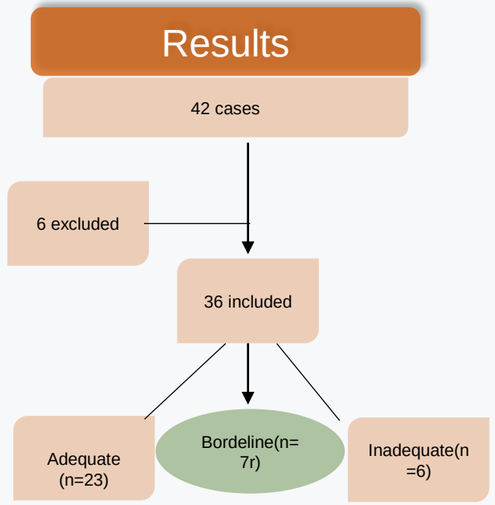
Methodology

Data from electronic medical records was used to perform a retrospective analysis on patients who underwent EUS-guided FNB for solid gastrointestinal lesions at Manchester University NHS Foundation Trust between January 1 and December 31, 2022. Lymphoma samples and cystic lesions were not included. If a sample contained more than 100 tumor cells and more than 20% of the cells sampled were malignant , it is considered adequate. Our standard protocol involves; three passes of a 22ga EUS FNB Needle (AcquireTM, Boston Scientific, Natick, MA). Rapid onsite cytologic evaluation (ROSE) was not available.



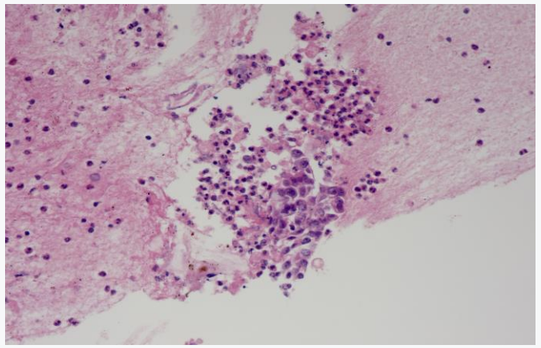
EUS-Guided Fine needle biopsy

Results



Borderline specimen does not strictly meet adequacy criteria but the reviewing pathologist think there was enough material to attempt molecular testing.

Preliminary results were analyzed from 42 cases. 36 samples met our inclusion criteria, while 6 cases were excluded(4 cysts, 1 reactive lymph node and one rectal adenocarcinoma).The mean age of patients was 64.8 years. The mean mass size was 35.3 mm. Of the 36 samples, 23 (63.8%) were deemed suitable for molecular testing while 6 (16.6%) were borderline. The remaining 7 samples (19.4%) were unsuitable for molecular testing. For these unsuitable samples, The location was no statistically significant. There were no adverse events recorded



Borderline sample with dispersed groups of tumor cells and lots of inflammatory cells.

Conclusion

Preliminary findings from 36 EUS-guided samples for solid GI masses demonstrate the feasibility of obtaining adequate material for molecular profiling, in 2/3s of cases. However, 19% were still inadequate, particularly from the head of pancreas. Ongoing optimization of tissue acquisition, processing and analysis is vital to further improve molecular diagnostic yield and to allow personalized medicine in pancreatic cancer. The study is limited by sample size. We suggest larger studies are required to identify the ideal technique; for example, in terms of needle used and tissue acquisition method. Ultimately this will allow harmonization between units.