



8TH - 10TH NOVEMBER, 2024 | GRAND HYATT MUMBAI

Registration Number:

547

Title of the Presentation:

Retrospective analysis of diagnostic accuracy of image guided pancreatic biopsies.

Authors and Institute:

Dr. Swapnil Lamkane, Dr. Suyash Kulkarni, Dr. Meenakshi Thakur, Dr. Kunal Gala, Dr. Nitin Shetty.

INTRODUCTION:

- Pancreatic cancer is a highly fatal disease with a poor prognosis.
- Diagnosing pancreatic lesions—such as cancer, focal pancreatitis, tuberculosis, lymphoma, and metastases—poses significant challenges. These lesions often cannot be easily differentiated through standard laboratory testing and imaging.
- Thus, pancreatic biopsy is crucial for accurate diagnosis. While laparoscopic and EUS-guided biopsies require general anaesthesia and hospitalization, image-guided biopsies are typically performed as day procedures.
- CT and ultrasound imaging are routinely used to evaluate pancreatic masses and guide percutaneous biopsy, offering a practical and efficient approach to diagnosis.

AIMS:

- **Primary Aim:**

- To determine the diagnostic accuracy of image guided pancreatic biopsy.

- **Secondary Aim:**

- To determine various factors affecting yield of biopsy.
- To evaluate the safety of procedure.

METHODOLOGY:

• **OVERVIEW:**

- ✓ Retrospective study.
- ✓ Patients who underwent CT guided biopsy from 01.01.2015 to 30.06.2021 have been included in this study.
- ✓ Data was analysed for approximately 181 cases.

• **INCLUSION:**

- ✓ Patients having pancreatic mass who underwent image guided biopsy
- ✓ Post biopsy availability of histopathology report
- ✓ Availability of post surgical HPR and/ or follow up imaging at our institute.

• **EXCLUSION:**

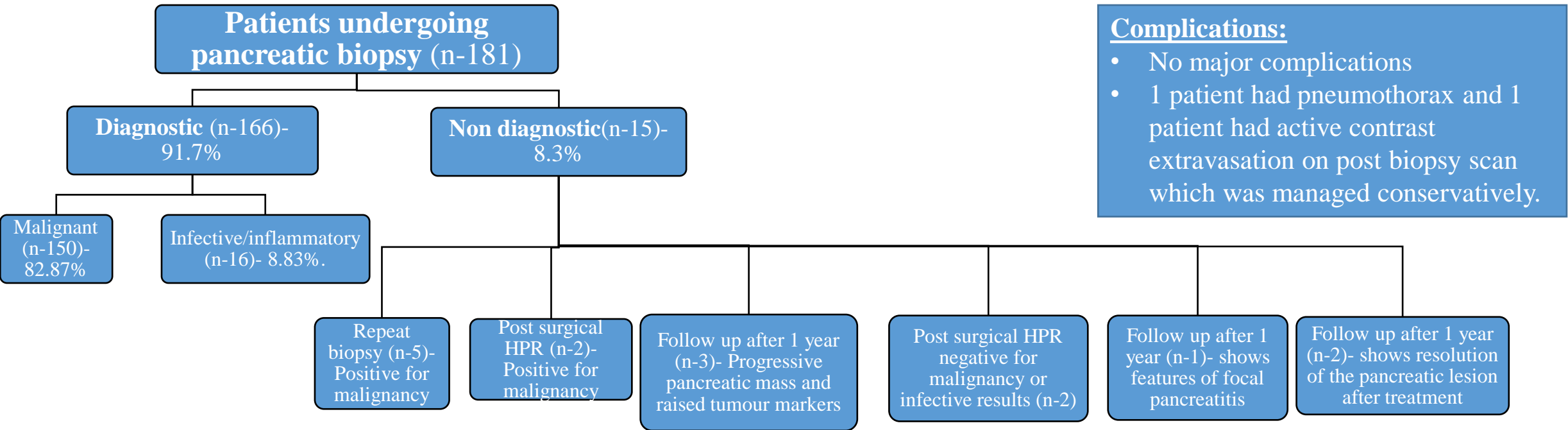
- ✓ Post-biopsy histopathology reports not available.
- ✓ Images were not available on PACS.
- ✓ Patients with no follow up imaging available.

Total 181 biopsies
were studied

166 were
diagnostic in the
first attempt

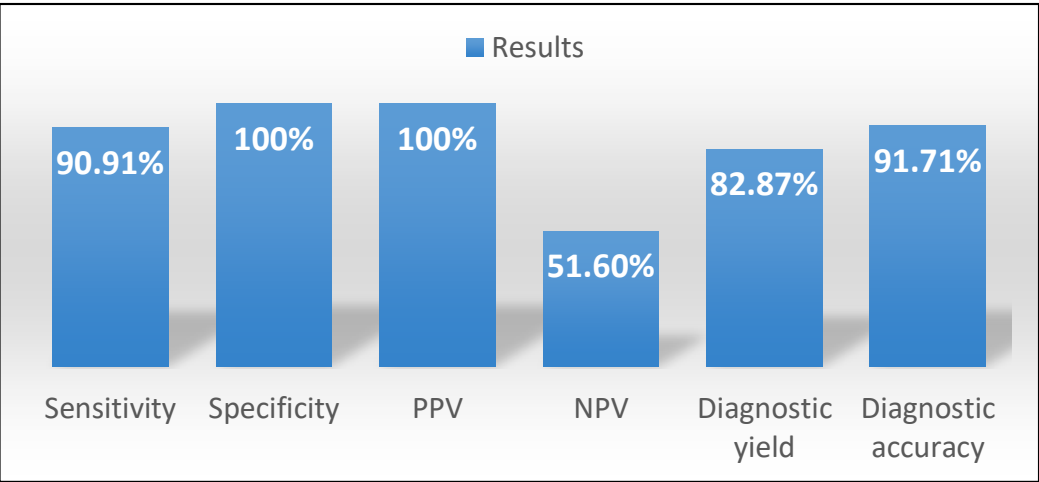
15 underwent
further evaluation
with repeat biopsy/
surgery/ follow up
imaging

RESULTS:



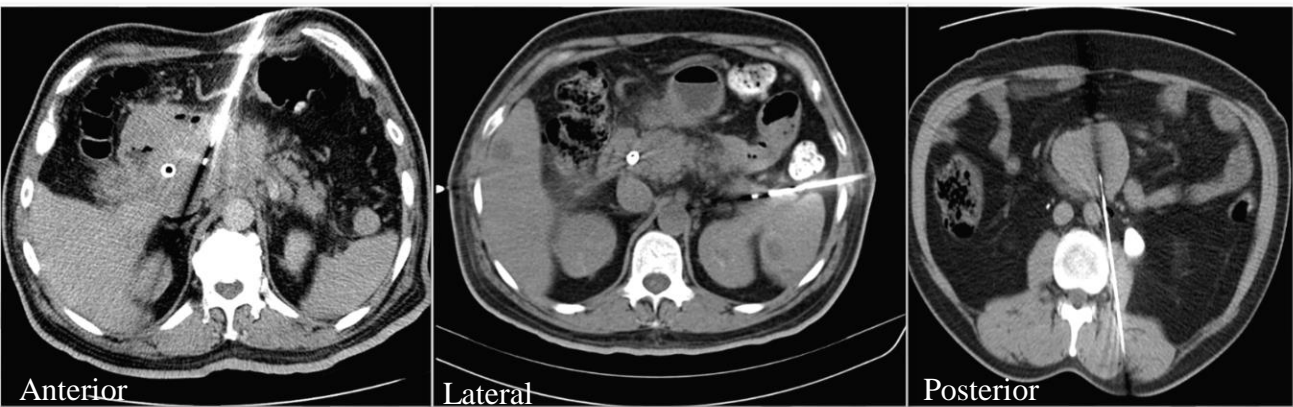
Complications:

- No major complications
- 1 patient had pneumothorax and 1 patient had active contrast extravasation on post biopsy scan which was managed conservatively.



Comparison to similar studies	SENSITIVITY	SPECIFICITY	DIAGNOSTIC ACCURACY
<i>Our Study</i>	90.91%	100%	91.70%
Paulsen et al (n-107)	93.90%	100%	94.40%
Elvin et al (n-50)	90.40%	100%	92%
Jenning et al (n-142)	90.90%	86%	92.60%
Zech et al (n-63)	78%	100%	81%
Brandt et al (n-251)	92%	100%	93%
Yang et al (n-88)	92.60%	100%	93%
Amin et al (n-372)	90.00%	100%	90%
Tyng CJ et al(n-103)	98.00%	100%	98%
Karlson et al(n-110)	91.00%	100%	89%

Approach and Diagnostic accuracy



BIOPSY APPROACH AND BIOPSY HPR CORRELATION

		HPR		Total	P Value
		Diagnostic	Non diagnostic		
BIOPSY APPROACH	ANTERIOR	143(90.5%)	15(9.5%)	158(100.00%)	0.258
	LATERAL	14(100%)	0(0%)	14(100.00%)	
	POSTERIOR	9(100%)	0(0%)	9(100%)	
	Total	166(91.7%)	15(8.3%)	181(100.00%)	

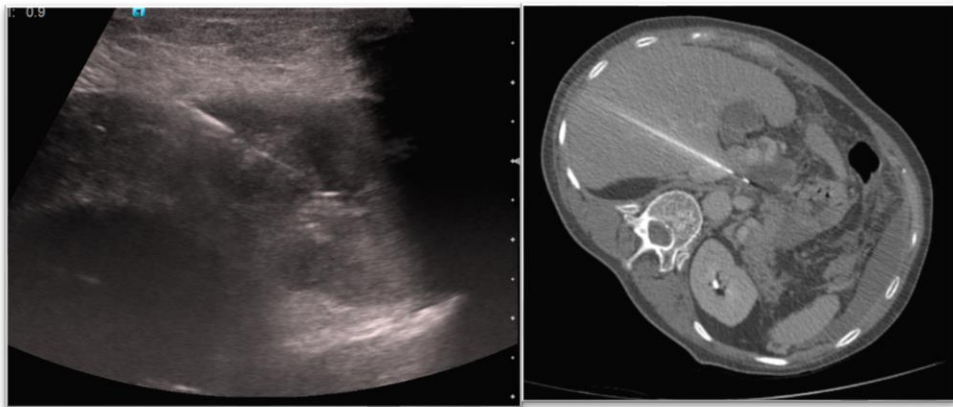
SIZE OF CORES AND BIOPSY HPR CORRELATION

		HPR		Total	P Value
		Diagnostic	Non diagnostic		
SIZE OF CORES	<1 CM	151(91%)	15(9%)	166(100.00%)	0.22
	≥1 CM	15(100%)	0(0%)	15(100.00%)	
	Total	166(91.7%)	15(8.3%)	181(100.00%)	

NUMBER OF CORES AND BIOPSY HPR CORRELATION

		HPR		Total	P Value
		Diagnostic	Non diagnostic		
NUMBERS OF CORES	<3	9(91%)	2(9%)	11(100.00%)	0.21
	≥3	157(92.35%)	13(7.65%)	170(100.00%)	
	Total	166(91.7%)	15(8.3%)	181(100.00%)	

Modality and Diagnostic accuracy



MODALITY USED IN BIOPSY AND BIOPSY HPR CORRELATION

		HPR		Total	P Value
		Diagnostic	Non diagnostic		
MODALITY USED IN BIOPSY	USG	30 (93.8%)	2(6.2%)	32(100.00%)	0.645
	CT	136(91.3%)	13(8.7%)	149(100.00%)	
	Total	166(91.7%)	15(8.3%)	181(100.00%)	

NUMBER OF CORES AND BIOPSY HPR CORRELATION

		HPR		Total	P Value
		Diagnostic	Non diagnostic		
NUMBERS OF CORES	<3	9(91%)	2(9%)	11(100.00%)	0.21
	≥3	157(92.35%)	13(7.65%)	170(100.00%)	
	Total	166(91.7%)	15(8.3%)	181(100.00%)	

SIZE OF PANCREATIC MASS AND BIOPSY HPR CORRELATION

		HPR		Total	P Value
		Diagnostic	Non Diagnostic		
SIZE OF PANCREATIC MASS	≤3 CM	39(90.70%)	4(9.30%)	43 (100.00%)	0.076
	>3 CM	127(92.03%)	11(7.97%)	138(100.00%)	
	Total	166(91.71%)	15(8.29%)	181(100.00%)	



Conclusion:



- There is *high sensitivity, specificity and diagnostic accuracy of biopsy in this study*. This was comparable to the other worldwide studies.
- Various factors associated with diagnostic yield of the biopsy *improves with technically targeted lesion and PET avidity* in respective cases.
- The yield of biopsy *was higher for primary lesion*; as compared to those done to rule out recurrent disease in post treatment cases.
- There is *low complication rate* which has made it an indispensable tool for obtaining the histopathological diagnosis and guiding further treatment of patient at our institute.
- No significant correlation with the diagnostic yield was seen with different approach, approaches are chosen to avoid critical structures.
- No significant correlation was seen when different modalities used, If lesion well visualized on USG first preference will be USG guided biopsy, If not than CT is used.
- Size and number of cores of biopsy did not have statistically significant correlation with the biopsy yield.
- Size of core- of >1 cm was always better since it yielded better as compared to <1 cm
- No. of core – More than 3 core had yielded better compared to <3 cores.

References:

- Gupta S, Wallace MJ, Cardella JF, Kundu S, Miller DL, Rose SC. Quality Improvement Guidelines for Percutaneous Needle Biopsy. *Journal of Vascular and Interventional Radiology*. 2010 Jul;21(7):969–75.
- Tyng CJ, Almeida MFA, Barbosa PNV, Bitencourt AGV, Berg JAAG, Maciel MS, et al. Computed tomography-guided percutaneous core needle biopsy in pancreatic tumor diagnosis. *World J Gastroenterol*. 2015 Mar 28;21(12):3579–86.
- Paulsen SD, Nghiem H v., Negussie E, Higgins EJ, Caoili EM, Francis IR. Evaluation of imaging-guided core biopsy of pancreatic masses. *American Journal of Roentgenology*. 2006 Sep;187(3):769–72.
- Kahriman G, Ozcan N, Dogan S, Ozmen S, Deniz K. Percutaneous ultrasound-guided core needle biopsy of solid pancreatic masses: Results in 250 patients. *J Clin Ultrasound* [Internet]. 2016 Oct 1 [cited 2022 Dec 23];44(8):470–3. Available from:
- Su YY, Liu YS, Chao YJ, Chiang NJ, Yen CJ, Tsai HM. Clinical Medicine Percutaneous Computed Tomography-Guided Coaxial Core Biopsy for the Diagnosis of Pancreatic Tumors. 2019 [cited 2022 Dec 23];
- Hsu MY, Pan KT, Chen CM, Lui KW, Chu SY, Lin YY, et al. CT-guided percutaneous core-needle biopsy of pancreatic masses: comparison of the standard mesenteric/retroperitoneal versus the trans-organ approaches. *Clin Radiol* [Internet]. 2016 Jun 1 [cited 2022 Dec 23];71(6):507–12.
- Cheng B, Zhang Y, Chen Q, Sun B, Deng Z, Shan H, et al. Analysis of Fine-Needle Biopsy vs Fine-Needle Aspiration in Diagnosis of Pancreatic and Abdominal Masses: A Prospective, Multicenter, Randomized Controlled Trial. *Clinical Gastroenterology and Hepatology*. 2018 Aug 1;16(8):1314–21.