



On-site cytological examination following EUS FN-B

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Background & Aims

Early diagnosis of pancreatic neoplasia plays a key role in their adequate treatment. Endoscopic ultrasound guided fine-needle biopsy (EUS FN-B) is currently considered part of the standard protocol for diagnosis of Pancreatic neoplasia (fig.1), along with on-site evaluations such as Rapid on-site evaluation (ROSE) and Macroscopic on-site evaluation (MOSE).



Fig 1.0: Endoscopic ultrasound guided fine-needle

- (1) Determine the significance of Tele-ROSE.
- (2) To estimate if the time till diagnosis is significantly reduced with Tele-ROSE.

Slides obtained by Tele-ROSE (Fig 2.0), a recently introduced on-site evaluation that does not require a pathologist on-site.

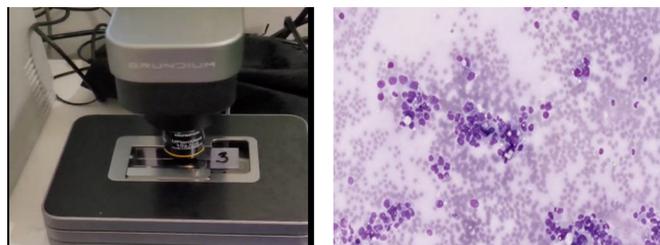


Fig 2.0: Cytologic slides obtained with ROSE for histopathological examination

Methodology & Results

Subjects

This study was performed from January 2023 to November 2024 on 41 patients (Tab.1) ranging from 44 to 84 years old (Mean age 67). Patients predominately (85%) presented with solid lesions.

Demographic analysis			
		No. of PT	By %
Gender	M	22	53.7
	F	19	46.3
Age (Mean: 67)	40-49	5	12.2
	50-59	4	9.8
	60-69	12	29.3
	70-79	17	41.5
	80-89	3	7.3
Morphology	Solid	35	85.4
	Cystic	2	4.9
	Solid+Cystic	4	9.8

Table 1: Demographic analysis

Study design

Patients were randomly allocated whether the EUS FN-B procedure is performed with Tele-ROSE or with the standard MOSE only (fig.3). Out of the 41 patients, 20 (48.8%) underwent Tele-ROSE and 21 (51.2%) underwent MOSE.

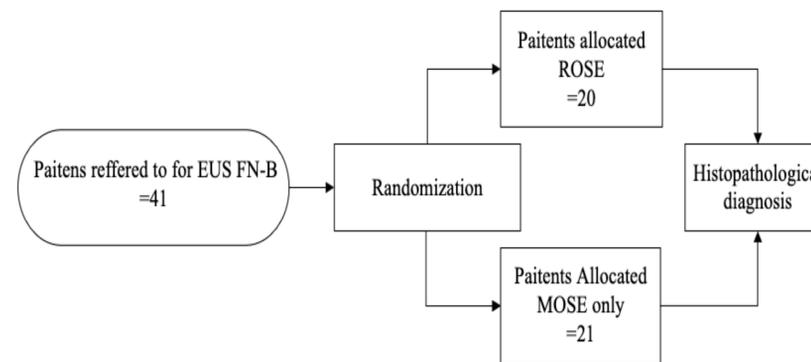


Fig 3.0: Overview of the study

Tele-ROSE is performed, enabling the pathologist to view the tissue sample remotely and provide an early diagnostic projection (fig.4). Duration of the procedures, location of lesion, early diagnostic projection of representative tissue and time till histopathological diagnosis was recorded (tab.2).

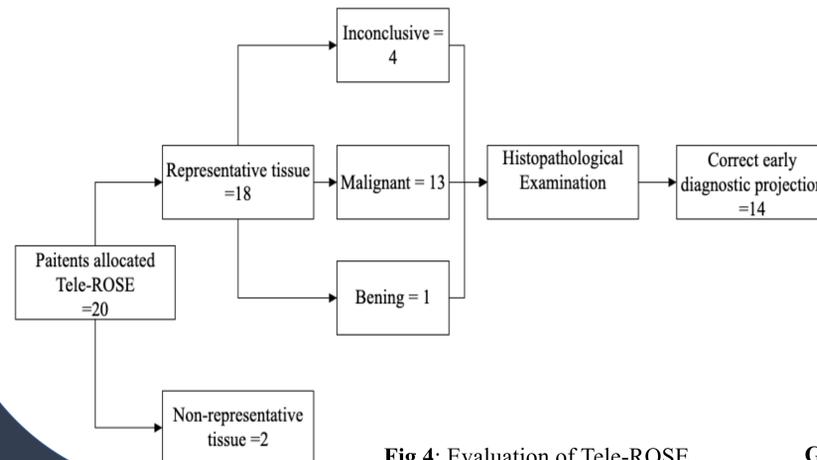
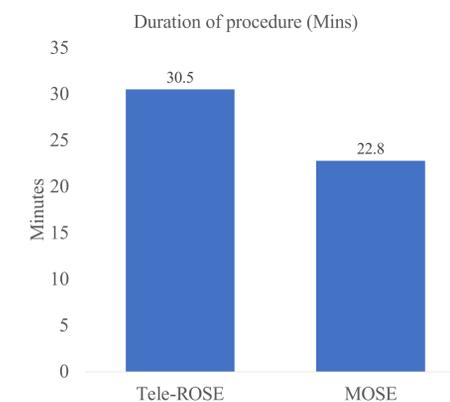


Fig 4: Evaluation of Tele-ROSE



Graph 1: Duration of procedure

Tele-ROSE early diagnostic projection was definitive up to 70% for representative biopsies, with the highest accuracy in Malignant tissue (100%: 13 of 13). Additionally, Tele-ROSE reduced the time to histopathological diagnosis by 1.6 days (21%) compared to MOSE. However, Tele-ROSE recorded a 7.7-minute increase in procedure duration, 34% longer than MOSE (graph 1).

EUS FN-B analysis			
		Tele-ROSE	MOSE
Biopsies		20	21
Representative		18	-
Histopathological Tissue Diagnosis	Benign	0	0
	Malignant	17	16
	Atypical	3	5
Time till histological verification (Days)		6	7.6
Duration of procedure (Mins)		30.5	22.8

Table 2: EUS FN-B analysis for both Tele-ROSE and MOSE.

Conclusion

Although Tele-ROSE shows an early diagnostic projection and a relatively accurate predictive diagnosis, it remains uncertain whether the 1.6-day reduction in diagnostic time has a significant impact on pancreatic cancer mortality. Data from a larger perspective cohort of patients are needed.

Acknowledgement

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