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Qualité histologique des prélèvements de lésions pancréatiques solides sous écho endoscopie : comparaison entre aiguille de ponction biopsie et aiguille d'aspiration fine

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La Faculté n'entend donner aucune approbation aux opinions émises dans les thèses : celles-ci sont propres à leurs auteurs.

Abréviations

EUS : Endoscopic ultrasound

CI 95% : Confidence interval 95%

FNA : Fine needle aspiration

FNB : Fine needle biopsy

IPMN : Intraductal papillary mucinous neoplasm

NET : Neuroendocrine tumor

ROSE: Rapid on-site evaluation

Spe : Specificity

Se : Sensitivity

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Résumé

Introduction : La plupart des études comparant les ponctions de lésions pancréatiques sous contrôle écho endoscopique à l'aiguille d'aspiration (FNA : Fine needle aspiration) et à l'aiguille de biopsie (FNB : Fine needle biopsy) n'ont montré aucune différence en termes de précision diagnostique. Peu d'études ont évalué la qualité de l'échantillon histologique obtenu avec chaque aiguille. Pourtant, elle est cruciale pour le diagnostic de certaines lésions pancréatiques. L'objectif de notre étude était de comparer la qualité histologique des échantillons obtenus avec les aiguilles FNA et FNB pour les lésions solides du pancréas.

Matériel et méthodes : Nous avons réalisé une étude rétrospective incluant tous les patients ayant subi une ponction d'une lésion pancréatique solide sous contrôle écho endoscopique de janvier 2017 à octobre 2018, avec une aiguille FNA 22G ou une aiguille FNB 22G type Acquire®. Pour chaque échantillon obtenu, la présence de carottes tissulaires et leur taille ont été déterminées ainsi que le nombre de cellules. Les événements indésirables ont également été enregistrés.

Résultats : Quatre-vingt-huit patients ont été inclus, 40 (45,5%) dans le groupe FNA et 48 (54,5%) dans le groupe FNB. Une carotte tissulaire a été obtenue dans 15/40 (37,5%) des cas dans le groupe FNA contre 42/48 (87,5%) dans le groupe FNB ($p < 0,005$). L'aire moyenne de carotte tissulaire obtenue était de 0,4 +/- 0,7 mm^2 dans le groupe FNA contre 2,8 +/- 3,3 mm^2 dans le groupe FNB ($p = 0,005$). Les échantillons du groupe FNA avaient un nombre moyen de cellules de 40740.4 +/- 73243.0 contre 25987.8 +/- 45861.7 dans le groupe FNB ($p = 0,3$). Dans le groupe FNA, 4 (10,0%) cas d'hémorragie mineure immédiate ont été observés. Aucun évènement indésirable

immédiat n’est survenu dans le groupe FNB. Aucun événement indésirable n'a été observé dans les 30 jours suivant la procédure endoscopique avec les deux aiguilles.

Conclusion : L’aiguille FNB type Acquire® a permis d'obtenir une carotte tissulaire dans près de 90% des cas, contre seulement 40% avec la FNA. La surface moyenne du total des carottes obtenues avec l’aiguille FNB était 7 fois plus grande que celle obtenue avec la FNA. A l’ère de la médecine personnalisée, l’analyse moléculaire prend une place prépondérante nécessitant un prélèvement tissulaire : l’aiguille FNB type Acquire® va donc devenir l’aiguille de référence pour le prélèvement de lésions solides pancréatiques.

Summary

Introduction: Most studies evaluating endoscopic ultrasound guided puncture of pancreatic lesions with fine needle aspiration (FNA) or fine needle biopsy (FNB) have shown no difference in term of diagnostic accuracy. Few studies have assessed the quality of histological sample obtained with each needle. Yet, the amount of histological sample is crucial to the diagnosis of some pancreatic lesions. The aim of the present study was to compare the histological quality of samples obtained with FNA and FNB for solid pancreatic lesion.

Material and methods: We performed a retrospective study including all patients who underwent EUS-guided sampling procedure of a pancreatic lesion from January 2017 to October 2018, with either a 22G FNA needle or a 22G FNB needle Acquire® type. For each sample obtained, presence of core tissue and its area was determined, so as cellularity. Adverse events were also recorded.

Results: Eighty-eight patients met the inclusion criteria, 40 (45.5%) in the FNA group and 48 (54.5%) in the FNB group. A core tissue was obtained in 15/40 (37.5%) of the cases in the FNA group versus 42/48 (87.5%) in the FNB group ($p < 0.005$). The mean area of the total core tissue obtained was 0.4 +/- 0.7 mm^2 the FNA group and 2.8 +/- 3.3 mm^2 in the FNB group (p=0.005). FNA samples had a mean cellularity of 40740.4 cells +/- 73243.0 versus 25987.8+/- 45861.7 for FNB samples without statistical significance (p= 0.3). In the FNA group, 4 (10.0%) cases of immediate minor hemorrhage were observed. No immediate adverse event was observed in the FNB group. No adverse event within 30 days after the procedure was observed with both needles.

Conclusion: FNB Acquire® allowed to obtain a core tissue in near 90% versus 40% with FNA. The mean area of the core tissue obtained with FNB was 7-fold bigger than those obtained with FNA. In the era of personalized medicine, more tissue would be necessary to perform molecular analysis : the FNB Acquire® needle would become the needle of choice to obtain enough tissue from solid pancreatic lesions.

I. Introduction

Endoscopic ultrasound (EUS) guided fine needle aspiration (FNA) has become the reference method for the diagnosis of pancreatic lesions since its first description by Vitman *et al.* in 1992[1]. The performance of FNA showed a sensitivity of 90.8% (CI95% 89.4%-92%) and a specificity of 96.5% (CI95% 94.8%-97.7%)[2] for pancreatic lesions. Performance of FNA can be increased with Rapid On Site Evaluation (ROSE) but it is not always available in many centers[3]. Some lesions remain difficult to diagnose for the pathologist, like autoimmune pancreatitis or chronic pancreatitis, because FNA fails to obtain enough material to distinguish these situations from adenocarcinoma. Thus, the amount of histological material obtained through EUS-guided sampling procedure is decisive to perform enough analysis to be certain of the diagnosis of the lesion.

Over the past ten years, new designs of needle have been developed in order to obtain a core biopsy – meaning a preserved tissue architecture – called fine needle biopsy (FNB). Several types of FNB needles have been designed so far but the main ones are: Sharkcore® needle, ProCore® needle and Acquire® needle[4]. The Acquire® needle has a unique geometry (Franseen tip geometry) with three points cutting surface and was supposed to obtain more tissue during the EUS-guided sampling procedure.

Most studies comparing FNA and FNB focused on diagnostic perfomances of each needle. These studies have long shown no difference other than a fewer number of passes with FNB to obtain diagnosis[5–8]. Recently, one prospective, randomized, and controlled trial demonstrated better histological yield with the ProCore® FNB needle over FNA needle (EchoTip® Ultra) in the assessment of pancreatic mass[9]. However,

few studies have assessed the quality of histological samples obtained with each needle.

The aim of the present study was to compare the histological quality of samples obtained with FNA and FNB needles for solid pancreatic lesions accessible with a linear EUS.

II. Material and methods

a) Study design

We performed a retrospective study at the University Hospital of Lille. Using a hospital database, we identified all consecutive patients who underwent EUS-guided sampling procedure from January 2017 to October 2018. Patients were included if they had a confirmed solid pancreatic lesion accessible for sampling with a linear EUS. Only samples obtained with a 22G needle were included. Exclusion criteria were as follow: lymph node determined either on morphological exam or after histological analysis, cystic lesion according to morphological exams, coagulopathy define by a prothrombin time < 50% and/or platelet count < 50G/L.

b) Data collection

For each sample, we have retrospectively collected the following data: age of patient, type and size of the needle used, technical success meaning the obtention of a macroscopic visible fragment, size of the lesion and its location in the pancreas, number of needle passes, and EUS sampling approach (trans-gastric or trans-duodenal).

c) EUS-sampling technique

EUS-guided sampling procedures were performed under deep sedation by 4 experienced endoscopists trained in EUS tissue acquisition at our academic center. The lesion was first localized with a linear EUS (Olympus® GFUCT180). The sampling was performed using either a FNA needle (EchoTip® Cook Medical) or FNB needle (Acquire® Boston Scientific). Of note, we started to use FNB needle in our center in January 2018. Under real-time EUS guidance, the 22G needle was advanced within the lesion and the stylet was progressively removed. A negative pressure using a 10cc syringe connected to the needle was applied[10]. We use systematically the fanning

technique, meaning that multiple areas of the tumor were sampled by each needle pass[10]. The sample was then expressed in a tube of ThinPrep Cytolyt ® using flush of of the same solution.

d) Histological assessment

The tube of Cytolyt® containing the sample was centrifuged and the centrifugation pellet was then transferred in a tube containing ThinPrep PapTest®. Using Hologic Thin Prep® device, the sample was dispersed to collect cells which were transferred automatically on a slide. The tube was centrifuged a second time and the pellet was fixed in formol, embedded in parrafin, and a hematoxylin, eosin, and saffron staining was then performed. Immunostaining was performed if necessary. If not enough material was available after second centrifugation, the sample was homogenized using Themoscientific Cytoblock® solution and then processed as usual.

All the samples were digitized automatically using a slide scanner (Zeiss Axios scan®) at the same magnification (20x). Cytologic samples were analyzed for cell counting using a program provided by the Bio Imaging Center Lille (BICeL) with the Image J® software (figure 1). Images of inclusion sample were analyzed by counting all the core tissues (defined by a preserved tissue architecture) and manually delineated for core area measurement in mm^2 by one fellow gastroenterologist (Thomas Lambin) and one fellow pathologist (Oriane Karleskind) blinded from the type of needle (figure 2).

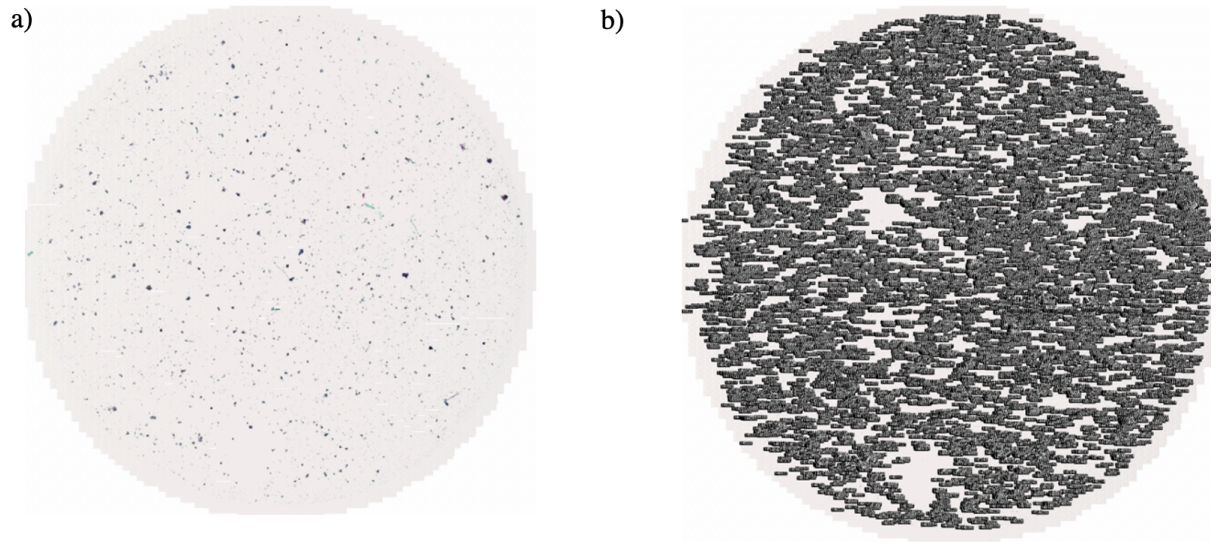

Figure 1: Cytological sample before (a) and after (b) analyze of the number of cells. Each black square corresponds to a cell. The final number of cell is automatically calculated by the software.

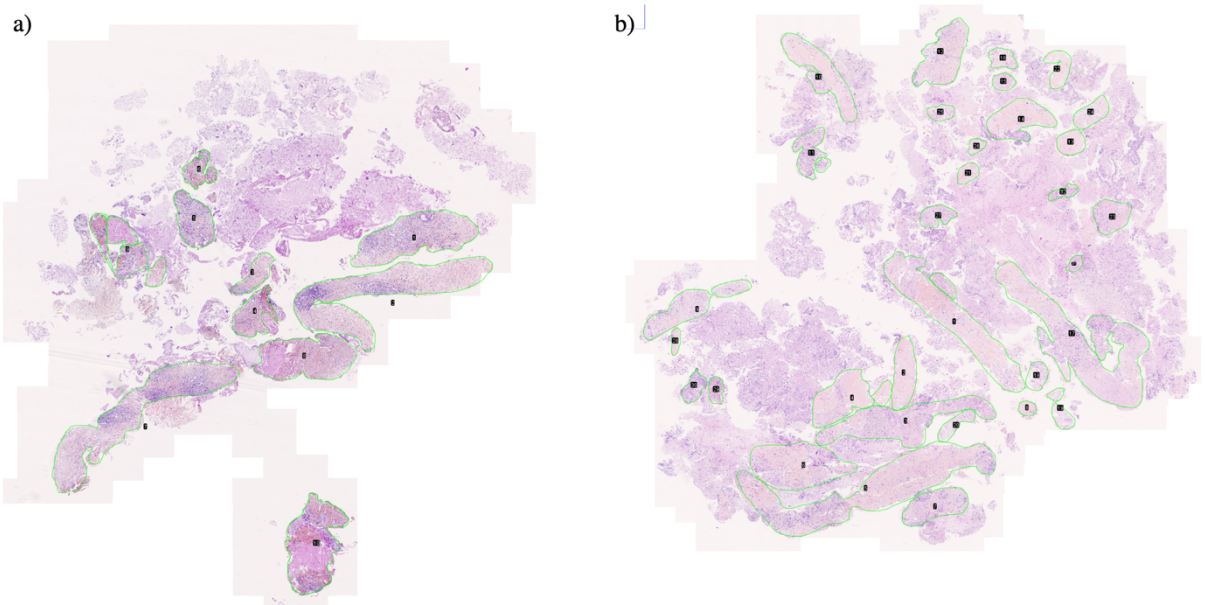

Figure 2: Two histological samples (a, b) with the core tissue manually delineated.

e) Outcome measurement

The primary outcome was comparison of core tissue obtention rate with each needle. Secondary outcomes were: (1) comparison of core tissue area between FNA and FNB samples, (2) comparison of the number of cells obtained with each type of needle, (3) rate of immunostaining and number of antibodies analyzed for each sample, (4) rate of adverse events, (5) assessment of sensitivity (Se) and specificity (Sp) of each needle to discriminate malignant from benign lesion. For calculation of Se and Spe, final diagnosis was obtained either based on the pathology report of the EUS-guided procedure, or surgery when available. If none of the previous data was available, final diagnosis was determined based on follow-up. For these patients a follow-up of more than 6 months was required. Lesions like pancreatic adenocarcinoma, neuroendocrine tumor (NET), intraductal papillary mucinous neoplasm (IPMN), and metastasis were considered as malignant. Necrosis, autoimmune pancreatitis, solid-pseudopapillary neoplasm of the pancreas were considered as benign lesions.

f) Statistical analysis

Descriptive data were presented in frequency or average +/- standard deviation. T-test analysis was used to compare numerical data. Chi-square test was used to compare categorical data. Data were analyzed using Prism 8® software.

II. Results

a) Patients' characteristics

Patients' characteristics are described in table 1. From January 2017 to October 2019, we have included 88 patients who underwent EUS-guided sampling procedure and met the inclusion criteria. Among them 40 (45.5%) underwent EUS procedure with a FNA needle and 48 (54.5%) with a FNB needle. Mean age of patients was 65.2 (+/- 11.6) years (FNA: 69.0 +/-10,4 and FNB: 62,1 +/- 11,7, p =0,05).

All procedures performed were technically successful in each group. In the FNA group, locations of the lesion were as follow: 24 (60.0 %) in the head of the pancreas, 6 (15.0%) in the body, 6 (15.0%) in the tail, one (2.5%) in the uncus, two (5.0%) in both the corpus and the tail, and one (2.5%) in both the neck and the corpus. In the FNB group, locations were as follow: 27 (56.3%) in the head of the pancreas, 4 (8.3%) in the neck, 7 (14.5%) in the body, 8 (16.7%) in the tail, one (2.1%) in both the head and the neck, and one (2.1%) in both the neck and the corpus. The mean size of the lesions was 3.1 +/- 1.3 cm in FNA group versus 2.7 +/- 0.9 cm in the FNB group (p=0.2).

Number of passes in the FNA group was as follow: 1 pass in 9 (22.5%) patients vs 5 (10.4%) in the FNB group, 2 passes in 26 (65.0%) patients vs 36 (75.0%), 3 passes in 3 (7.5%) patients vs 7 (14.6%) and 4 passes in 2 (5.0%) patients vs 0 (0.0%) in the FNB group (p=0.3).

EUS sampling approach was as follow (FNA versus FNB): trans-gastric in 18 (45.0%) versus 16 (33.3%) patients and trans-duodenal in 22 (55.0%) versus 31 (64.6%) patients (p=0.3). Of note, in one patient of the FNB group, the passage was trans-jejunal because the patient had a history of gastric by-pass.

	FNA	FNB	Total
Number of patients, n (%)	40 (45.5%)	48 (54.5%)	88 (100%)
Mean age (+/-SD)	69,0 (+/-10.4)	62,1 (+/-11.7)	65,2 (+/- 11.6)
Technical success, n (%)	40 (100%)	48 (100%)	88 (100%)
Location of lesion, n (%)			
Head	24 (60.0%)	27 (56.3%)	51 (58.0%)
Neck	0 (0.0%)	4 (8.3%)	4 (4.5%)
Body	6 (15.0%)	7 (14.5%)	13 (14.8%)
Tail	6 (15.0%)	8 (16.7%)	14 (15.9%)
Uncus	1 (2.5%)	0 (0.0%)	1 (1.1%)
Other	3 (7.5%)	2 (4.2%)	5 (5.7%)
Size of the lesion (cm, +/- SD)	3,1 (+/- 1.3)	2,7 (+/- 0.9)	2,9 (+/- 1.1)
Number of needle passes, n (%)			
1	9 (22.5%)	5 (10.4%)	14 (15.9%)
2	26 (65.0%)	36 (75.0%)	62 (70.5%)
3	3 (7.5%)	7 (14.6%)	10 (11.4%)
4	2 (5.0%)	0 (0.0%)	2 (2.2%)
EUS sampling approach, n (%)			
Trans-gastric	18 (45,0%)	16 (33.3%)	34 (38.6%)
Trans-duodenal	22 (55.0%)	31 (64.6%)	53 (60.2%)
Trans-jejunal	0 (0.0%)	1 (2.1%)	1 (1.2%)

Table 1 : patients' characteristics.

b) Histological assessment

A core tissue was obtained in 15/40 (37.5%) of the cases in the FNA group versus 42/48 (87.5%) in the FNB group ($p < 0.005$) (figure 3). When we only compare patients for those a core tissue was obtained, the mean area of the total core tissue obtained was 0.4 +/- 0.7 mm^2 the FNA group and 2.8 +/- 3.3 mm^2 in the FNB group ($p=0.005$) (figure 4). The mean number of fragments of core tissue obtained with FNA needle was 5.3 +/- 7.2 versus 12.8 +/- 10.0 with the FNB needle ($p=0.005$). The mean area of each fragment of core tissue was 0.15 +/- 0.19 mm^2 in the FNA group versus 0.20 +/- 0.18 mm^2 in the FNB group ($p=0.4$).

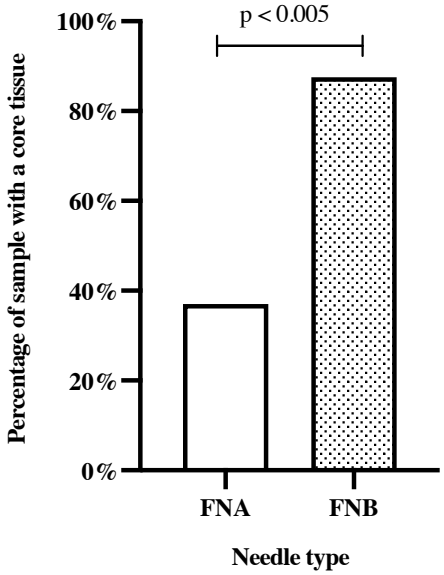

Figure 3: Percentage of sample with a core tissue according to the needle type. FNA: fine needle aspiration; FNB: fine needle biopsy.

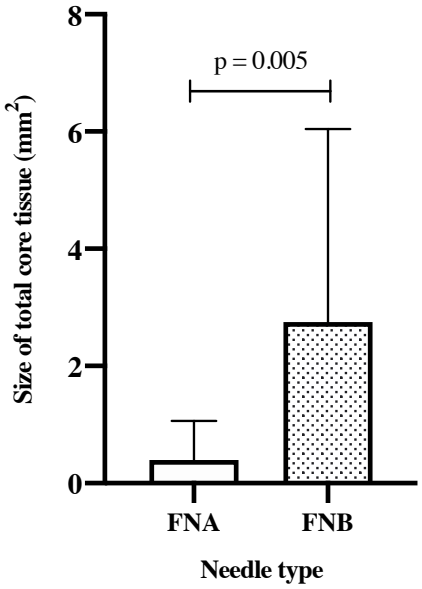

Figure 4: Size of total core tissue in mm^2 according to the needle type. FNA: fine needle aspiration; FNB: fine needle biopsy.

Immunostaining was performed in 12/40 (30.0%) of the samples in the FNA group versus 19/48 (39.6%) in the FNB group without statistical significance (p=0.3).

Among samples for which an immunostaining was performed, less antibodies were tested for samples obtained with the FNB needle with a mean number of 3.4 +/- 1.9 antibodies versus 5.4 +/- 3.5 antibodies in the FNA group (p=0.05) (figure 5).

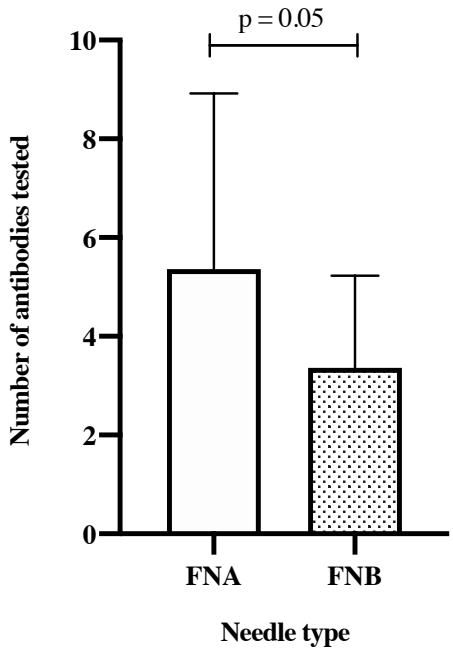

Figure 5 : Number of antibodies tested according to the needle type. FNA: fine needle aspiration; FNB: fine needle biopsy.

c) Cytological assessment

FNA samples had a mean cellularity of 40740.4 cells +/- 73243.0 versus 25987.8+/- 45861.7 for FNB samples without any significant difference (p= 0.3) (figure 6).

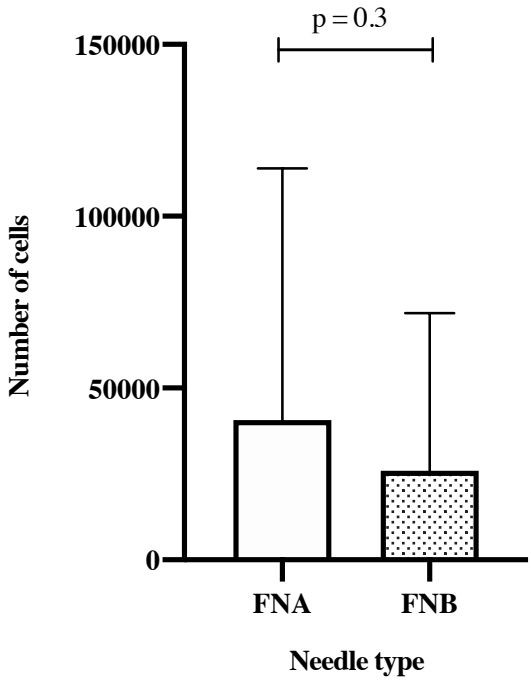

Figure 6: Number of cells according to the needle type. FNA: fine needle aspiration; FNB: fine needle biopsy.

d) Final diagnosis and diagnostic performance

In the FNA group, final diagnosis was as follow: 30 (75.0%) adenocarcinomas, 3 (7.5%) NET, two (5.0%) autoimmune pancreatitis, and one (2.5%) metastasis of a kidney adenocarcinoma. There was not enough data to conclude on diagnosis in 4 (10.0%) patients (table 2).

In the FNB group, final diagnosis was as follow: adenocarcinoma in 34 (70.7%) patients, NET in 3 (6.2 %) patients, two (4.2%) IPMN, two (4.2%) chronic pancreatitis, one (2.1%) solid-pseudopapillary neoplasm of the pancreas, one (2.1%) metastasis of a breast adenocarcinoma, and one (2.1%) cystadenonecrosis. For 4 (8.3%) patients, there was not enough data to conclude on diagnosis (table 2).

To determine diagnostic performances of the two types of needle, we only use data from patients for whom we have enough data (36 patients in the FNA group, 44 patients in the FNB group). In the FNA group, sensitivity and specificity were 85.3% and 100% respectively and were not statistically different in the FNB group (92.5% and 100% respectively).

	FNA	FNB	Total
Adenocarcinoma	30 (75.0%)	34 (70.7%)	65 (72.7%)
Neuroendocrin tumor	3 (7.5%)	3 (6.2%)	6 (6.8%)
Autoimmune pancreatitis	2 (5.0%)	0 (0.0%)	2 (2.3%)
Solid-pseuopapillary neoplasm	0 (0.0%)	1 (2.1%)	1 (1.1%)
Chronic pancreatitis	0 (0.0%)	2 (4.2%)	2 (2.3%)
Metastatis	1 (2.5%)	1 (2.1%)	2 (2.3%)
IPMN	0 (0.0%)	2 (4.2%)	2 (2.3%)
Cystadenonecrosis	0 (0.0%)	1 (2.1%)	1 (1.1%)
Not enough data	4 (10.0%)	4 (8.4%)	6 (9.1%)

Table 2 : Final diagnosis.

e) Adverse events

In the FNA group, 4 (10.0%) cases of immediate minor hemorrhage were observed. They resolved spontaneously and no transfusion were needed. No adverse event was observed within 30 days after the endoscopic procedure. In the FNB group, no adverse event was observed either during the procedure or within 30 days after the endoscopic procedure.

III. Discussion

Over the past ten years, many studies have compared FNA and FNB needles[8,9,11–29] to diagnose pancreatic lesions without a clear benefit of FNB apart from a fewer number of needle passes to obtain the diagnosis with FNB. In our study, we have evaluated the histological quality of pancreatic samples obtained with each needle type. We found that FNB Acquire® allowed to obtain a core tissue in 87.5% of the cases versus 37.5% with FNA. The mean area of the core tissue obtained with FNB was 2.8 +/- 3.3 mm^2 versus 0.4 +/- 0.7 mm^2 with FNA. However, there was no difference of cellularity between the two needles and the rate of immunostaining was also the same.

Rate of core tissue obtention with FNB needle was evaluated in a study by Alkhateeb *et al.*, who found that a core tissue was obtained with a FNB needle (Acquire®) in 87% of the cases with a mean number of passes of 2.74. FNA needle could obtain a core tissue in only 36% of the cases despite a high number of passes (mean 5.52). The size of core tissue was not evaluated[30]. In a recent randomized trial by Asokkumar *et al.*, FNB provided more tissue than FNA with a median total tissue area of 5.2 mm^2 with FNB vs 1.9 mm^2 with FNA[31]. These results are in accordance with ours, but area of our samples is smaller (0,33 mm^2 with FNA vs 2.69 mm^2 with FNB). We only included pancreatic lesions contrary to Asokkumar's study that included all solid lesions accessible with an EUS. Number of passes was also higher in this study. Another study by Alatawi *et al.*, also found an increase rate of core tissue with a FNB needle (ProCore® type) compared to FNA (76% vs 32%, $p<0.001$)[12]. In this study the number of core tissue obtained and the size of each micro fragment were not different between the two groups. A prospective randomized study evaluating the area of core tissue between FNA and FNB didn't find any difference as well[7]. Of note, these

two last studies used FNB ProCore® needle whereas we used Acquire® needle. We believe that the unique shape of the Acquire® needle can increase the amount of core tissue obtained. This has been confirmed in a study by Karsenti *et al.*, which demonstrated a higher cumulative length of tissue core biopsied per needle pass with the 22G Acquire® needle compared to the 20G ProCore® needle (8.2 mm vs 4.2 mm per needle pass)[32].

We didn't find any differences in the cellularity between the two groups with a mean cellularity of 40740.4 cells +/- 73243.0 in the FNA group versus 25987.8+/- 45861.7 in the FNB group without significant difference. This is in accordance with a study by Vanbiervliet *et al.*, who didn't find any difference between FNA and FNB needle using a visual analogical score[18] . However, Noh *et al.* found that FNB has 2.7 fold more chances to be highly cellular than FNA. In this study, cellularity was assessed using a qualitative scale with 3 categories : sparsely cellular, moderately cellular, and highly cellular sample[8]. Another study by Jiang *et al.*, didn't find any difference as well[33]. These contradictory results could be explained by the fact that a qualitative scale was used. In our work, we first described a precise quantitative way to determine cellularity. We used an imaging software with a reliable computer program to automatically count the number of cells.

To our knowledge no studies have previously evaluated the impact of needle type on immunostaining. In our study, immunostaining was performed in 37.7% of the cases in the FNA group versus 50.7% in the FNB group without significant difference. The number of antibodies tested was higher in the FNA group. It is difficult to conclude since the number of patients for whom an immunostaining was performed is low (31/88). However, one hypothesis could be that since the amount of material is higher in the EUS-FNB group, it's easier to make the diagnosis and less antibodies tested are

needed to confirm it. A prospective study included a sufficient number of patients would be necessary to confirm this hypothesis.

In the future, management of pancreatic adenocarcinoma would be based on personalized medicine. A key model for personalized medicine in pancreatic cancer is organoids created from the patient tumor[34–36]. Organoids can be considered as miniaturized organs which can be generated from surgical sample. However in pancreatic adenocarcinoma only 20% of the patients are suited for surgery[37]. There is a need for a less invasive way to collect enough tissue to generate organoids. Our study demonstrated that FNB needle can provide a core tissue in around 90% of the cases. In the future it could be the needle of choice to generate organoids. A recent study has shown that pancreatic adenocarcinoma organoids could be generated in 87% of the cases with a FNB needle[38].

Adverse events of EUS-guided sampling methods are very rare[10,39]. In our study only 4 episodes of immediate hemorrhage occurred with FNA needle without any need of endoscopic hemostasis or blood transfusion. In the FNB group no adverse event occurred. Number of patients is too low to draw definitive conclusion but FNB appears to be as safe if not safer than FNA needle despite the geometry of the needle allowing more tissue to be sampled. Of note, EUS guided sample is performed by experienced endoscopist in our center which could underestimate the rate of complication. This low complication rate is in accordance with another retrospective study by Mitri *et al.* who reported no adverse event in 59 patients who underwent puncture of a pancreatic lesion with the same needle[40].

Our study has several limitations mainly due to its retrospective design. Eighty percent of the lesions diagnosed were adenocarcinoma and NET of the pancreas. Thus, the results can't be generalized to other lesions such as autoimmune

pancreatitis. All the procedures were performed by experienced endoscopists in a single tertiary center in endoscopy. We used only one type of FNB needle (Acquire®) so the results can't be generalized to other types of FNB needle. However, we chose to use this needle since the study of Karsenti *et al.* has demonstrated a higher cumulative length of tissue core biopsied compared to the ProCore® needle. Endoscopist were not blinded from the needle type but evaluation of histological quality (core tissue rate, core tissue area, and cellularity) was evaluated blinded from the needle type or with a computer program.

IV. Conclusion

FNB Acquire® allowed to obtain a core tissue in near 90% versus 40% with FNA. The mean area of the core tissue obtained with FNB was 7-fold bigger than those obtained with FNA. In the era of personalized medicine, more tissue would be necessary to perform molecular analysis : the FNB Acquire® needle would become the needle of choice to obtain enough tissue from solid pancreatic lesions.

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Titre de la thèse : Qualité histologique des prélèvements de lésions pancréatiques solides sous écho endoscopie : comparaison entre aiguille de ponction biopsie et aiguille d'aspiration fine

Thèse - Médecine - Lille – 2020
Cadre de classement : Gastro-entérologie
DES + spécialité : Gastro-entérologie et hépatologie
Mots-clés : écho endoscopie, aiguille de prélèvement, qualité histologique

Introduction : La plupart des études comparant les ponctions de lésions pancréatiques sous contrôle écho endoscopique à l'aiguille d'aspiration (FNA : Fine needle aspiration) et à l'aiguille de biopsie (FNB : Fine needle biopsy) n'ont montré aucune différence en termes de précision diagnostique. Peu d'études ont évalué la qualité de l'échantillon histologique obtenu avec chaque aiguille. Pourtant, elle est cruciale pour le diagnostic de certaines lésions pancréatiques. L'objectif de notre étude était de comparer la qualité histologique des échantillons obtenus avec les aiguilles FNA et FNB pour les lésions solides du pancréas.

Matériel et méthodes : Nous avons réalisé une étude rétrospective incluant tous les patients ayant subi une ponction d'une lésion pancréatique solide sous contrôle écho endoscopique de janvier 2017 à octobre 2018, avec une aiguille FNA 22G ou une aiguille FNB 22G type Acquire®. Pour chaque échantillon obtenu, la présence de carottes tissulaires et leur taille ont été déterminées ainsi que le nombre de cellules. Les événements indésirables ont également été enregistrés.

Résultats : Quatre-vingt-huit patients ont été inclus, 40 (45,5%) dans le groupe FNA et 48 (54,5%) dans le groupe FNB. Une carotte tissulaire a été obtenue dans 15/40 (37,5%) des cas dans le groupe FNA contre 42/48 (87,5%) dans le groupe FNB (p <0,005). L'aire moyenne de carotte tissulaire obtenue était de 0,4 +/- 0,7 mm^2 dans le groupe FNA contre 2,8 +/- 3,3 mm^2 dans le groupe FNB (p = 0,005). Les échantillons du groupe FNA avaient un nombre moyen de cellules de 40740.4 +/- 73243.0 contre 25987.8 +/- 45861.7 dans le groupe FNB (p = 0,3). Dans le groupe FNA, 4 (10,0%) cas d'hémorragie mineure immédiate ont été observés. Aucun évènement indésirable immédiat n'est survenu dans le groupe FNB. Aucun événement indésirable n'a été observé dans les 30 jours suivant la procédure endoscopique avec les deux aiguilles.

Conclusion : L'aiguille FNB type Acquire® a permis d'obtenir une carotte tissulaire dans près de 90% des cas, contre seulement 40% avec la FNA. La surface moyenne du total des carottes obtenues avec l'aiguille FNB était 7 fois plus grande que celle obtenue avec la FNA. A l'ère de la médecine personnalisée, l'analyse moléculaire prend une place prépondérante nécessitant un prélèvement tissulaire : l'aiguille FNB type Acquire® va donc devenir l'aiguille de référence pour le prélèvement de lésions solides pancréatiques.

<u>Composition du Jury</u> :

Président : Madame le Professeur Emmanuelle Leteurtre

Assesseurs : Madame le Professeur Stéphanie Truant,
Monsieur le Professeur Pr Benjamin Pariente
Directeur de thèse : Monsieur le Docteur Romain Gérard