

Highly flexible

## Puncture Biopsy Forceps

oval spoonshaped mouth with protruding spike, for endosonographic controlled collection of a tissue sample. **Highly flexible, memory effect**





Locking screw

In this setting, the spike and branches of the forceps are retracted and protected.

**Cautious opening movement** to open the forceps branches.



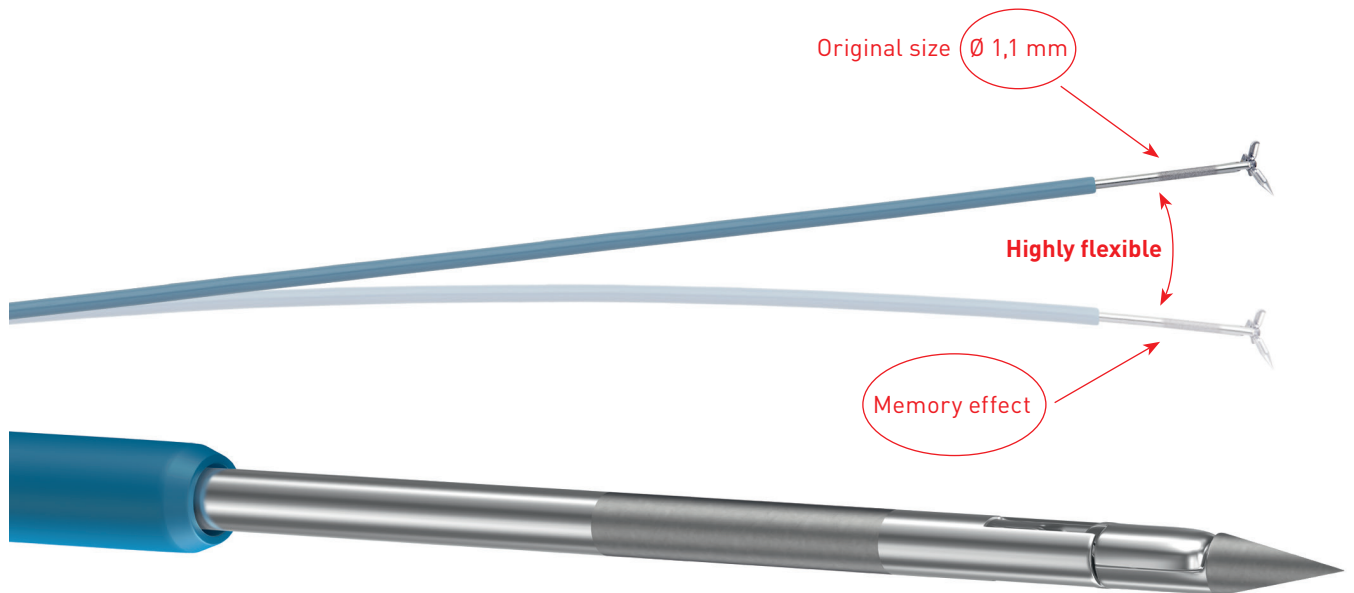
Locking screw for fixing the branches.



**Figure 1:**  
EUS image of tumor of patient 1 with the MTW PBF needle in the tumor.

# Puncture Biopsy Forceps

oval spoonshaped mouth with protruding spike, for endosonographic controlled collection of a tissue sample. **Highly flexible, memory effect**



## Experience with the MTW Puncture Biopsy Forceps – Case series

Geke Litjens<sup>1</sup>, MD and Erwin-Jan, M van Geenen<sup>2</sup>, PharmD, MD, PhD | Radboud University Medical Center, Department of Radiology and Nuclear Medicine<sup>1</sup> | Department of Gastroenterology and Hepatology Nijmegen<sup>2</sup>

Between July 1st and October 31st 2018 EUS-guided biopsy, of the pancreas, with the 19-gauge Puncture Biopsy Forceps (PBF) of MTW Endoskopie Manufaktur, Wesel, Germany was performed at the Radboudumc on 4 patients. In all patients fine needle aspiration (FNA) was also performed with a conventional 22-gauge needle (...), with on-site pathology present. All EUS procedures were performed by the same gastroenterologist (EvG).

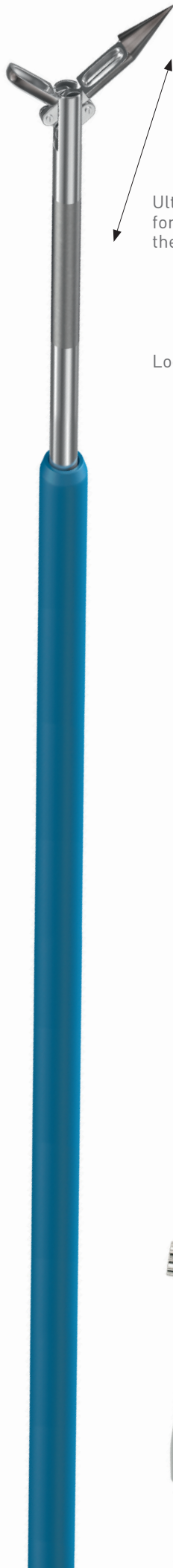
All patients were male and the age ranged from 57 to 71 years. Patient 1, 3 and 4 were planned for an EUS-guided biopsy because they were suspected to have pancreatitis but a malignant tumor was also in the differential diagnosis. Patient 2 was suspected to have a locally advanced pancreatic adenocarcinoma for which pathological confirmation was desired before starting systemic therapy. No adverse events occurred.

In 2015 we tested a previous version of the PBF [1] after which the needle design is updated. The new needle is still very sharp which results in easy penetration of the gastric or duodenal wall and the pancreatic tissue. The forceps mechanism in the tip continues to work well even after multiple biopsies in the same patient. The tip of the new needle is made of Nitinol which facilitates better bridging possibilities which results into better aiming of the needle. Although the tip is now flexible, working in a position in which the endoscope is strongly curved is still challenging due to the thickness of the needle (19-gauge).

The EUS-opacity of the new needle was decreased, compared to the previous version of the needle (Figure 2). Therefore, EUS-needle was adjusted and tested on a piece of beef, which resulted in an improved (very good) EUS visibility. This newest version was not used on patients in our centre yet.



Closed branches of forceps



Ultrasound marking  
for better visibility in  
the EUS display

Locking screw

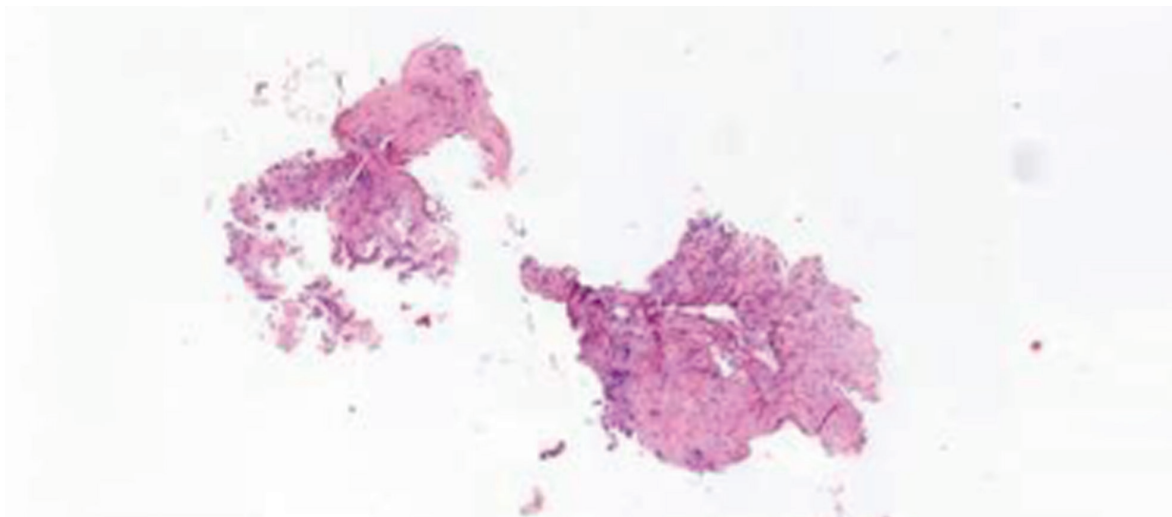


2 mm opening movement for opening the forceps branches



Luer-Lock for connecting to endoscope.

**Figure 2:** Overview of histology of patient 1, obtained with the MTW PBF.



The handle of the needle was also updated since the first version. There is a lock mechanism to prevent the needle from opening while it is being introduced. This is a useful update to improve safety, however in patient 2 the needle was still accidentally opened in the shaft by the nurse that assisted the procedure.

The pathological yield of the needle was very variable. In patient 1 the PBF-biopsy consisted of two small tissue fragments (Figure 2). The histology contained a few groups of strongly atypical cells in a stromal fragment the findings were consistent with adenocarcinoma.

The cytology obtained with FNA of patient 1 also contained atypical cells consistent with adenocarcinoma. The histology of this patient was accidentally fixated in cytology liquid, instead of formalin. The assisting nurse did not realize that it was a histological biopsy. This was communicated with pathology department and the PBF-biopsy was processed as histology.

In patient 2 the PBF-biopsy consisted of 1 tissue fragment with a size of 1mm, the histology contained non-atypical cylindrical epithelia, without signs of malignancy. The cytology obtained with FNA of patient 2 did contain signs of malignancy consistent with adenocarcinoma.

In patient 3 the PBF-biopsy consisted of only bowel epithelia, the tissue was probably not representative. The cytology obtained with FNA showed signs of inflammation and slightly atypical cells consistent with pancreatitis, possibly groove pancreatitis.

In patient 4 the PBF-biopsy contained not enough tissue for diagnostic analysis. The cytology obtained with FNA showed no signs of inflammation or malignancy.

#### Based on our experiences we have some recommendations

- When the needle is introduced in the lesion it should be opened and then pressed forward into the tissue before closing the needle again. This could improve the tissue yield.
- The nurses that assist EUS biopsy procedures with the MTW PBF should be carefully instructed about the use of the needle to prevent premature opening of the forceps.
- All personnel that is present during EUS biopsy procedures with the MTW PBF should be made aware that histology is obtained with this procedure instead of cytology. This will prevent that the obtained material is being fixated in the wrong liquid.
- If possible, the lock mechanism should be extended so that it is not possible to open the forceps within the shaft.

#### Possible indications for use of the MTW PBF

- Biopsy of lymph nodes in patients with esophageal carcinoma and lung cancer.
- Biopsy of submucosal tumours, like GISTs.
- Biopsy of pancreatic lesions.
- Biopsy of cyst walls of pancreatic lesions.
- The histology can be used for diagnosis if FNA alone is not adequate.
- The histology obtained can be used for genotyping to determine the best systemic therapy strategy.
- The histology obtained can be used for additional staining in scientific context.

In conclusion, the MTW PBF\* is a promising device, potentially for a broad range of indications. To determine the value of the PBF and its position in the diagnostic field a prospective study is needed in which the PBF is compared to other routinely used device(s).

\* Puncture Biopsy Forceps

## Puncture Biopsy Forceps

oval spoonshaped mouth with protruding spike, for endosonographic controlled collection of a tissue sample. Highly flexible, memory effect

Article no.	Forceps diameter mm	Tube diameter mm	Tube length cm	Forceps outlet max. cm
99061402115	1,1	1,95	142,2	7,5

We reserve the right to make technical changes and to deviate from the depicted images.

