# THE INFINITY® BRUSH IMPROVES THE RESULTS OF BRUSH CYTOLOGY OF MALIGNANT BILIARY STRICTURES

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## Introduction

The etiological diagnosis of biliary strictures remains difficult. The most commonly used technique is endobiliary cytological brushing made during retrograde catheterization with an efficiency of only 10 to 30%. Endobiliary cholangioscopic biopsies under cholangioscopy or endomicroscopy yield superior results ranging from 70-90%. These techniques, however, are costly and limited in availability. We wanted to evaluate, in a prospective randomized controlled study, the efficacy of a new brush. The Infinity® brush (U.S. Endoscopy) is more abrasive and larger than conventional brushes.

## Material and Methods

From May to July 2012, patients with suspected malignant biliary stenosis underwent endoscopic retrograde cholangiography with brushing.

40 patients with suspected malignant biliary strictures were included in this study, 20 in group 1 (Infinity® brush), (13 cholangiocarcinoma and 7 pancreatic cancer), 20 in group 2 (conventional brush) (11 cholangiocarcinoma and 9 pancreatic cancer).

Brushing was performed with either an Infinity® brush (U.S. Endoscopy) or a conventional biliary cytology brush. A smear was prepared from the sample. The brush was then placed into a tube of formalin and subjected to centrifugation. The resulting pellet was immersed in paraffin wax. The smear and cell block were then submitted to the pathology lab.

## Results

Brushing allowed for the diagnosis of malignancy and the type of cancer in 85% of the cases in group 1 versus 30% of the cases in group 2. One failure of the Infinity® brush was due to the inability to cross a very proximal left duct stricture (cholangiocarcinoma). Cytological sampling was non-contributory in 2 other cases (chloangiocarcinoma and pancreatic lymphona) in Group 1, and 14 cases in Group 2. The confirmation of the malignant nature of the stenosis and histological types that were collected by brushing were confirmed either by EUS punctures or biopsies per cholangioscopy.

**Infinity® brush**

**Standard brush**

| | Infinity | Standard |
|---|---|---|
| Number of Patients | 20 | 20 |
| ***Location of Stricture*** | | |
| Proximal bile duct | 10 | 9 |
| Distal bile duct | 8 | 9 |
| Left hepatic duct | 1 | 2 |
| Secondary branch IHD | 1 | 0 |
| ***Suggested Diagnosis*** | | |
| Cholangiocarcinoma CBD | 13 | 11 |
| Pancreatic cephalic cancer | 7 | 9 |

***2 passes were made with the device***

| | Infinity | Standard |
|---|---|---|
| Positive Diagnosis | 85% | 30% |
| ***Histology Type*** | | |
| Cholangiocarcinoma (CBD) | 11 (84.6%) | 2 (18%) |
| Pancreatic Adenomacarcinoma | 6 (85.79%) | 4 (44%) |

## CONCLUSION

**The new *Infinity® brush* significantly improves the results of brush cytology of biliary strictures. The quality of the sample not only confirmed malignancy but in most cases the type of histology of the lesion as well.**