

SECTION: Clinical

Procedure No. 01341/v2/12/2018

PROCEDURE TITLE: Use of the sheathed (Brisbane Aseptic Biopsy Device) or standard biopsy devices to obtain gastrointestinal biopsies to characterise mucosal bacterial colonisation

Review Officer: Q & S Manager,
Gastroenterology and Hepatology

Review Summary: v2

Applicable To: Endoscopy Suite staff

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Authority: Director, Department of
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Replaces: 01341v1

Key Words: Sterile Biopsy Device
Mucosa Associated Microbiome
Endoscopy

PURPOSE

Ensure that the mucosal biopsies obtain for the assessment of the mucosal microbiome, determination of microbial DNA load and for culture of mucosal associated microbes are appropriately taken and the results are not compromised by cross contamination.

REQUIRED EQUIPMENT

- Standard endoscopy equipment required for gastroscopy or colonoscopy
- Equipment for CO₂ insufflation
- Protective gear for staff
- Sterile gloves for the assistant
- Vials and media for processing of samples
- Sterile blunt needles to transfer material from biopsy forceps into the vial
- Biopsy forceps (sheathed such as the "Brisbane Aseptic Biopsy Device" provided by MTW Germany)

AUTHORISED TO UNDERTAKE THE PROCEDURE

- Trained and appropriately qualified Gastroenterologists, Surgeons or Registrars
- Nursing staff to assist with procedure and to handle samples

INDICATIONS OR CONTRAINDICATIONS

- Sampling of the mucosal biopsies (from all parts of the gastrointestinal tract reachable with standard endoscopic procedures) is indicated when it is desirable to characterise the mucosal associated microbiome (MAM), identify specific bacteria colonising the mucosa with culture or other methods, or quantitate the bacterial DNA of the MAM
- The procedure is contraindicated in an endoscopic procedure where mucosal biopsies are contraindicated (e.g. in patients with severe coagulation disorders)

RISKS AND PRECAUTIONS

Standard risks that are associated with endoscopic procedures with mucosal biopsies

PROCEDURE

- In the clinical setting the patient is required to sign the standard consent form that includes biopsies
- The endoscopy assistant (nurse) wears sterile gloves and avoids contamination of these gloves
- The endoscopic procedure is performed as usual. However, aspiration of luminal contents is avoided and after insertion of the scope and identification of the desired biopsy site (e.g. 2nd part of the duodenum), the aseptic biopsy device is advanced through the working channel until the tip of the device is visible in the field of view of the scope
- Then the biopsy forceps are carefully advanced through the sheath (while the sheath is held in position) and the seal that occludes the lumen of the covering sheath is pushed into the lumen of the gut by the advancing forceps
- Thereafter, the biopsy is taken while the covering sheath remains in position
- The biopsy forceps is removed from the sheath (the sheath remains in the working channel of the scope and the tip is kept away from the mucosa) while the left hand of the assisting RN holds the handle with the connector in her/his left (sterile hand)
- The forceps are looped in the right hand of the first assistant and are not allowed to touch the non-sterile areas. Any cross contamination of the handle of the Brisbane Biopsy Device is to be avoided

- The tip of the biopsy forceps is handed over to the second assistant and with a sterile blunt needle the sample is transferred into the transport medium with the appropriate medium (RNAlater®). The assistant does not touch the handle with potential cross contaminated materials including gloves
- The biopsy forceps then can be reinserted and another biopsy taken
- If biopsies for anaerobic culturing are taken, the forceps are pulled back 10 cm to ensure that the forceps is in the sheath and both the sheath and forceps are removed together. If needed, CO₂ can be injected into the sheath via the connector utilising a sterile syringe. The CO₂ is obtained from a plastic bag that contains several grams of dry ice or the endoscopic CO₂ insufflation system
- The biopsy forceps are placed in a bag (filled with CO₂) and transported as soon as possible to the respective laboratory for further processing
- Remaining biopsies are to be taken with standard biopsy forceps
- Samples are processed (e.g. cultured or DNA extracted) as required by the respective protocol

REFERENCES

1. Shanahan et al. Characterisation of the mucosa associated microbiome: a novel technique to prevent cross contamination. *Alimentary Pharmacology and Therapeutics*. 2016, 43:1186-95.