

# MUCINOUS NEOPLASMS OF THE APPENDIX AND PERITONEUM : VIRTUAL MICROSCOPY FOR HISTOMORPHOLOGIC ASSESSMENT AND INTEROBSERVER DIAGNOSTIC REPRODUCIBILITY

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## Introduction

Among gastrointestinal (GI) tumours, pseudomyxoma peritonei (PMP) from appendiceal origin has unique clinical and morphologic features. Due to the relative paucity of patients and the absence of therapeutic consensus, evaluation and refinement of the morphologic criteria used for assessment of the disease are still difficult. As a result, a uniformly accepted classification is still lacking. In collaboration with NJ Carr, who initiated the conference consensus process, in Basingstoke, last year, and on behalf of the French group RENA-PATH, 11 experienced GI pathologists agreed to participate to a virtual workshop, in order to assess interobserver variability in PMP diagnosis and staging.

The goal of the study was to evaluate, for appendiceal and peritoneal mucinous neoplasms, the degree of concordance in the identification of diagnostic histological criteria by experienced pathologists, and to assess the degree of inter-individual variation in the application of WHO classification (2010) and TNM staging system (7th edition).

## Materials and methods

A single section stained with hematoxylin and eosin from 9 resected cases of mucinous neoplasms was selected by members of RENA-PATH. All digitalized at a maximum resolution (X40) using an HAMMAMATSU scanner system, to ensure that all participants evaluate exactly the same tumour areas; 1 to 16 questions were prepared for each case. All submitted cases were then reviewed by a panel of 11 pathologists with specific expertise and interest in PMP.

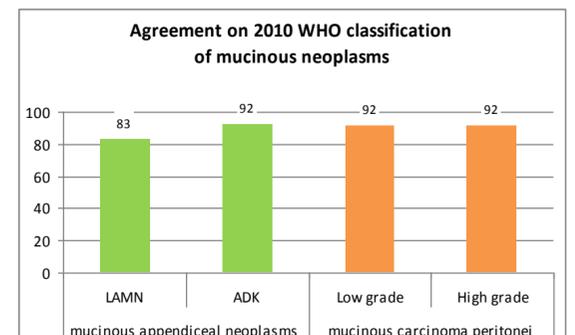
## Results / Discussion

Whole slide set evaluated by all participants; No abstention or "unknown diagnosis" for any submitted case

### Agreement for classification, WHO 2010

- Appendiceal mucinous neoplasms (AMN)**  
LAMN 83 % (10/12) / mucinous adenocarcinoma 92% (11/1)
- Peritonei mucinous carcinoma / PMP**  
Low grade 91.7% (11/12) / High grade 91.7% (11/12)
- Disagreement on the concept of High Grade AMN (HAMN) defined by low power architecture of LAMN + high grade cytology**
- Agreement for using pTNM classification (82%) in PMP**

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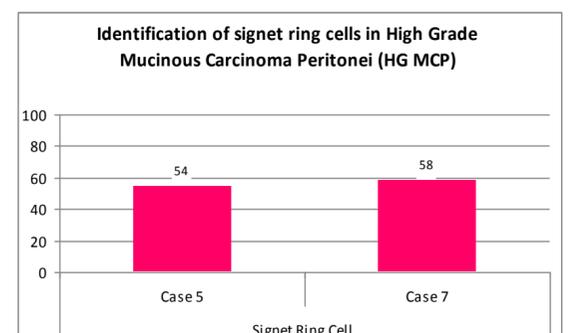
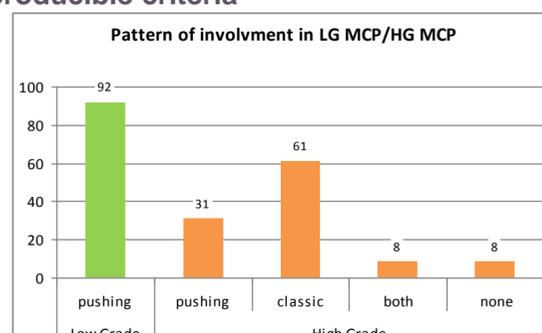
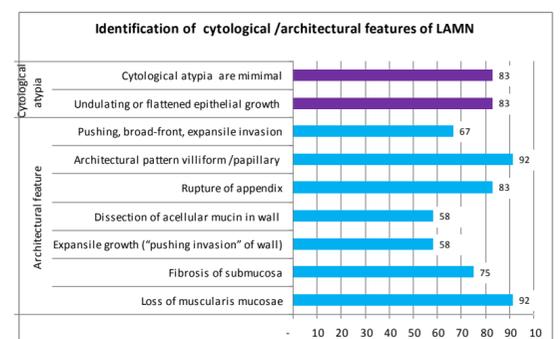
➤ **Pushing Invasion (PI) and dissection by acellular mucin (DAM) in appendix wall, are not reproducible criteria, and need to be better defined.** For some participants (17%), lesions with architectural features of LAMN with PI and DAM even in the absence of high grade cytological atypia, are diagnosed as adenocarcinoma (pT1)

➤ **Criteria need to be redefined to use HAMN according to a majority of participants**

➤ **The identification of signet ring cells is not reproducible; the lesion needs to be better defined,** as it is important for grading. Once reviewers agree on recognition of the lesion, its prognostic significance should be evaluated

➤ **Invasion of organs and pattern of invasion (broad-front invasion / classic by irregular glands or single cells with desmoplasia) are not reproducible criteria**

➤ **Improvement in staging assessment is needed**



## Conclusion

Although histopathological features of peritoneal disease are significant prognostic factors requiring pathologists to classify mucinous carcinoma peritonei (pseudomyxoma peritonei), reproducibility in interpretation must be improved. This international collaborative project allow pathologists worldwide to share their expertise and knowledge through a dedicated interactive workshop session. It is expected an improvement in the management of mucinous neoplasms of the appendix and peritoneum.