# The Clinical Utility of Ki-67 in Assessing Tumor Biology and Aggressiveness in Patients with Appendiceal Carcinoid Tumors

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## Introduction

The correlation of Ki-67, a growth fraction marker of cell proliferation, with tumor biology and survival in patients with appendiceal carcinoid tumors remains unknown..

## Methods

- A retrospective chart review was performed of 37 patients with appendiceal carcinoid tumors who underwent operative intervention from 1991 – 2008.
- MIB-1, a monoclonal antibody of Ki-67 measuring its expression, was used to determine cell proliferation and correlated with clinical and histological parameters.
- MIB-1 index was based on the WHO (World Health Organization) classification.

**Figure 1**: Metastatic Disease on Presentation vs. MIB-1 Index

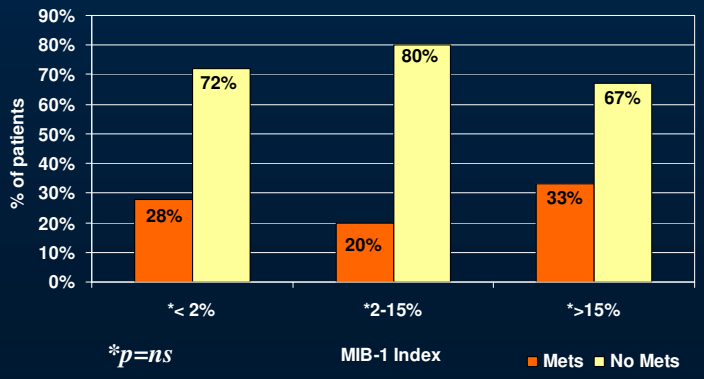
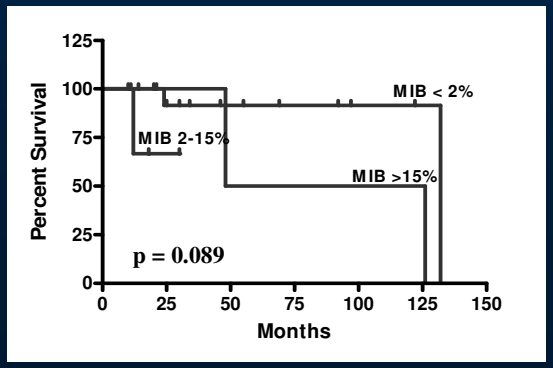



**Table 1**: Demographic Data

| | |
|---|---|
| **Mean Age (years)** | **48** |
| **Female (%)** | **67.6** |
| **Tumor Cell Types (%)** | |
| **Typical** | **62.1** |
| **Tubular** | **10.8** |
| **Unspecified** | **27.0** |
| **Location (%)** | |
| **Tip** | **40.5** |
| **Base** | **2.7** |
| **Wall** | **32.4** |
| **Unspecified** | **24.3** |

**Figure 2**: Survival vs. MIB-1 Index




## Results

- Table 1 demonstrates patient demographic and tumor characterization
- Increased MIB proliferative index did not significantly correlate with tumor size > 2cm (Table 2)
- MIB index did not significantly correlate with metastasis on presentation or survival (Figures 1 and 2).
- However, a slight decreasing trend was observed in survival with increased MIB index.
- At median follow-up of 32 months, there were 5 mortalities and 2 recurrences.

**Table 2**: Tumor Size vs. MIB-1 Index

| Tumor size | MIB <2% | MIB 2-15% | MIB >15% |
|---|---|---|---|
| **<2cm** | **20** | **3** | **1** |
| **>2cm** | **3** | **0** | **0** |
| **Unspecified** | **6** | **2** | **2** |

## Conclusion

- No significant correlation was demonstrated between Ki-67 and tumor size>2cm or presentation with metastatic disease.
- At 32-month follow-up, no significant association between Ki-67 and survival was demonstrated.
- While further investigation is needed, Ki67 does not appear to correlate with tumor aggressiveness or survival in patients with appendiceal carcinoid tumor.