



EXTENT OF RESECTION OF THE PRIMARY LESION WITH DRAINING LYMPH NODES DETERMINES LONG-TERM CANCER-SPECIFIC SURVIVAL IN NON-MUCINOUS APPENDICEAL ADENOCARCINOMAS: A NATIONAL SEER DATABASE STUDY OVER 15 YEARS

APPENDICEAL ADENOCARCINOMAS: A NATIONAL SEER DATABASE STUDY OVER 15 YEARS

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Introduction

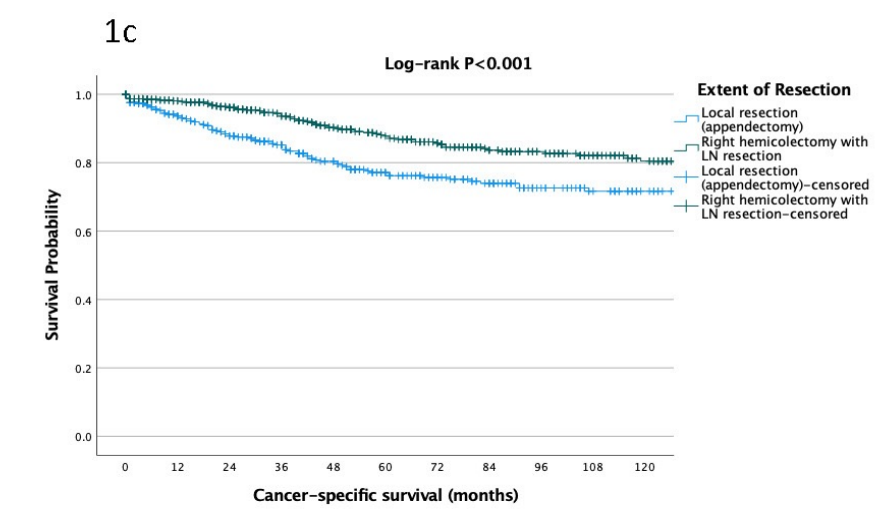
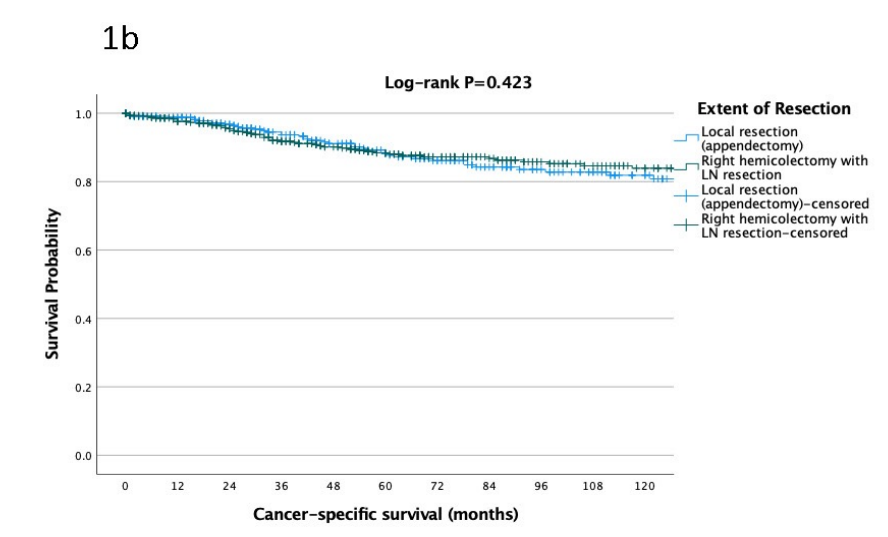
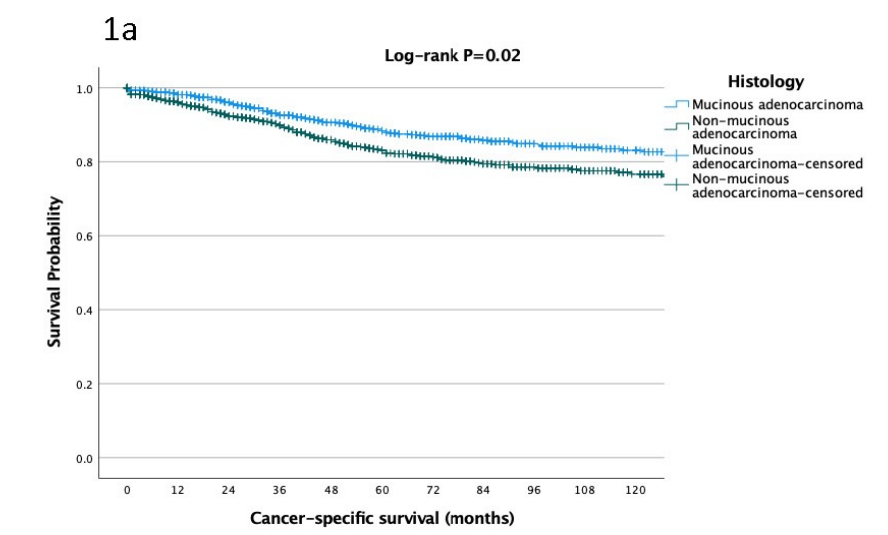
Adenocarcinomas of the appendix are rare cancers for which no national comprehensive cancer network (NCCN) guidelines exist and for patients who undergo resection with curative intent there is a paucity of data on prognostic factors affecting long-term cancer-specific survival.

Methods

- A retrospective study from National Cancer Institute's Surveillance Epidemiology and End Results on patients who underwent curative resection over a 15-year period (2004-2019) for primary appendiceal adenocarcinoma.
- Of a total of 16,699 patients, 14,945 were excluded (exclusion criteria were non-adenocarcinoma histological types, patients with regional or distant metastasis as per SEER stage).
- Effects of factors [Age, race, tumor biology (mucinous versus non-mucinous tumors), extent of resection of primary lesion & lymph nodes] on cancer-specific long-term survival were studied. Survival analysis was performed using the Kaplan-Meier method & statistical significance set at p<0.05. Survival outcomes were reported as mean survival (months).

Results

- Of 1754 patients, 827 (47.1%) were females and 927 (52.1%) were males. The mean age in years (±SD) was 62.43± 14.3. The racial distribution was as follows-blacks 237(13.5%), whites 1398 (79.7%), and others 119 (6.8%). 771 (44.6%) underwent local resection (appendectomy or segmental resection of colon without lymph node resection) & 983 (55.4%) hemicolectomy with lymph node resection.
- Favorable survival prognosticators (**Table**) were age <50, white race, and well-differentiated histology.
- Patients with mucinous tumors experienced better survival (**Figure 1a**).
- Patients who underwent right hemicolectomy with lymph node resection experienced better survival compared with those who had an appendectomy or segmental colonic resection, for non-mucinous tumors (**Figure 1c**), rather than mucinous tumors (**Figure 1b**).



Factor studied	Mean cancer-specific survival (months)	P value
Age (< 50 years vs. = or > 50 years)	169 157	0.01
Gender (Female vs. Male)	161 157	0.22
Race (white vs. black and other)	161 145	0.04
Median household income (Below vs. Above, \$60,000)	152 162	0.054
Tumor biology (mucinous vs. non mucinous)	185 145	0.002
Differentiation (well vs. moderate or poorly differentiated)	185 155	0.01
Lymph node sampling or resection status (Yes vs. No)	166 143	<0.001
Overall extent of resection (appendectomy or segmental resection vs. hemicolectomy with lymph node resection)	152 165	<0.001
Mucinous subgroup: extent of resection (appendectomy or segmental resection vs. hemicolectomy with lymph node resection)	161 167	0.423
Non-mucinous subgroup: extent of resection (appendectomy or segmental resection vs. hemicolectomy with lymph node resection)	144 162	<0.001

Discussion

- We report novel demographic, tumor-related, and operative prognostic factors impacting long-term cancer-specific survival in patients who undergo resection for appendiceal adenocarcinoma.
- These tumors are likely to be encountered by gastroenterologists in clinical practice, either preoperatively or post-operatively as part of a multi-disciplinary team.
- Our data, if validated by large trials would be invaluable in advocating an aggressive approach for eligible patients with a hemicolectomy and lymph node resection rather than appendectomy alone, especially in non-mucinous adenocarcinomas of the appendix.

Conclusions

- Right hemi-colectomy with regional lymph node dissection appears to be the favorable treatment of choice compared with appendectomy alone for appendiceal adenocarcinoma
- Appendiceal adenocarcinoma incidentally found in appendectomy specimens will most likely benefit from a right hemicolectomy with regional lymph node dissection to confer a long term (10 year) survival advantage.

References

Low-Risk **Non-mucinous Adenocarcinoma** of the Appendix: When Is an Appendectomy Enough? Turner KM, Patel SH. Ann Surg Oncol. 2022 Apr;29(4):2144-2145.

Clinical Significance of Lymph Node Dissection and Lymph Node Metastasis in Primary **Appendiceal** Tumor Patients After Curative Resection: a Retrospective Multicenter Cohort Study. Takeyama H, Murata K, Takeda T, Fujii M, Kagawa Y, Kawachi H, Yamaguchi T, Noura S, Masuishi T, Inoue A, Takii Y, Suto T, Sakamoto K, Tei M, Kishimoto M, Yao T, Sugihara K; study group of appendiceal neoplasms in Japan Society of Colorectal Cancer Research Group. J Gastrointest Surg. 2022 Jan;26(1):128-140.

Appendectomy is Oncologically Equivalent to Right Hemicolectomy for Well Differentiated T1 **Appendiceal Adenocarcinoma**. AIMasri SS, Hammad AY, Singhi AD, Paniccia A, Zureikat AH, Celebrezze JP, Choudry HA, Nassour I. Dis Colon Rectum.