# Mixed Neuroendocrine Non-Neuroendocrine Neoplasm of the Gallbladder. Case Report and Review of Literature

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## Background

- Incidence of gallbladder carcinoma in the United States is 0.9 – 1.6 per 100,000 patients, and gallbladder. neuroendocrine tumors (NT) account for 0.5% of all NT.
- Mixed neuroendocrine-non-neuroendocrine tumors (MiNEN) are a type of tumor formed by two distinct components: a non-neuroendocrine component, most often adenoma or adenocarcinoma, and a neuroendocrine component.
- One theory proposed that neuroendocrine cells may originate from intestinal or gastric metaplasia secondary to chronic inflammation from gallstones or cholecystitis.
- There are less than 80 cases of primary gallbladder MiNEN reported in the literature.
- These lesions are typically highly aggressive and quickly metastasizing.

## Case Presentation

- 67 yo female was evaluated of a gallbladder polyp with sharp right upper quadrant and flank pain that was not associated with food intake.
- Pertinent laboratory findings included an ALT of 201 units/L and AST of 290 units/L, rest were normal.
- CT and MRCP showed an enhancing 1.9x1.2 cm polyp in the inferomedial gallbladder wall (Figure 1).

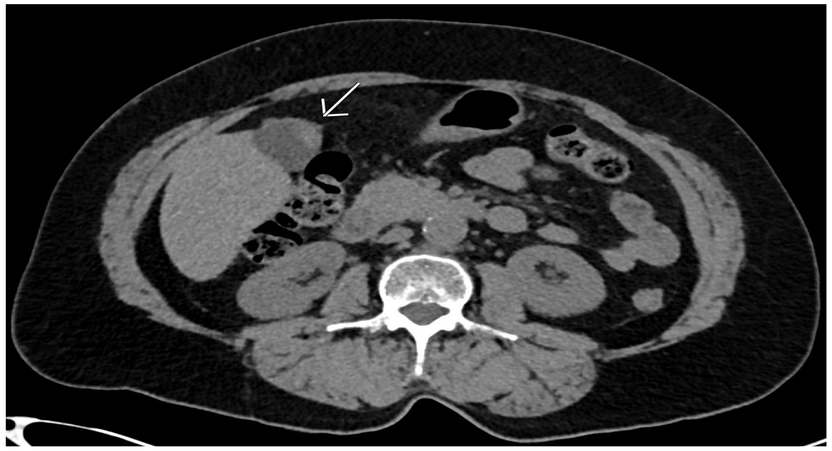
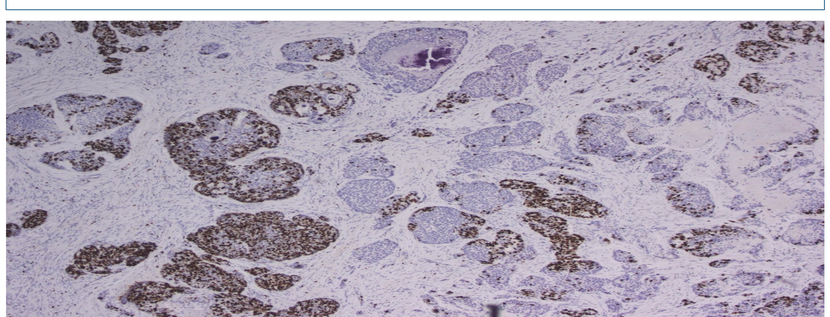


Fig 1. CT scan with inferiomedial gallbladder polyp (white arrow).

## Results

- Patient underwent a laparoscopic cholecystectomy, frozen pathology consistent with an invasive adenocarcinoma (Figure 2).
- This followed by a laparoscopic liver wedge resection of segment 4B/5 and hepatoduodenal lymphadenectomy.
- Final pathology revealed a 3.5 cm MiNEN with perineural invasion and 0 of 10 lymph nodes negative for malignancy, staged pT3N0.
- Tumor Board Recommendation: adjuvant FOLFOX chemotherapy.
- Patient 7-mo surveillance is negative for recurrence.



A dual population of tumor cells is appreciated on Synaptophysin stain, which highlights the neuroendocrine component of the tumor.

## Discussion

- Five-year survival for primary gallbladder cancer is less than 20%.
- The median survival time for patients with MiNEN has been estimated to be 12.2 to 36 months.
- There is some evidence supporting surgical intervention to increase progression free survival in those with MiNEN.
- Though there is limited evidence that in patients with MiNEN, postoperative chemotherapy increase in survival.

## Conclusions

- Primary gallbladder MiNEN are extremely rare tumors.
- The pathogenesis of this malignancy is poorly understood.
- More research should be perform to gain a better understanding of the disease process and to establish standardized treatment protocols.

## References

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