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Importance of Grade in the Surgical Management of Rectal Neuroendocrine Tumors

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BACKGROUND: The incidence of rectal neuroendocrine tumors (NETs) is increasing, and surgery is potentially curative. Current guidelines to proceed with surgical resection depend mainly on tumor size or T stage. We evaluated the role of grade on surgical decision-making and disease trajectory for rectal NETs.

METHODS: Patients with rectal NETs referred to a centralized cancer program between 2004-2015 were reviewed. Baseline characteristics and treatment were recorded. Associations between grade, tumor characteristics, relapse, and survival were determined using Chi-Square, Log-rank, and Kaplan-Meier univariate analyses.

RESULTS: Overall, 65 patients were referred with rectal NETs, with 11% aged ≥70 years and 45% females. Of these, 49%, 26% and 14% had grade 1 (G1), 2 (G2), and 3 (G3) disease, respectively. The rate of procedural intervention declined with increasing grade, ranging from 97% in G1 to 11% in G3 patients ($p<0.001$). Of G1 patients, only 19% of patients had surgical resection after endoscopic polypectomy; all of these patients had transanal excision. Conversely, 92% ($p<0.001$) of G2 patients had surgical resection of which 50% were radical resections. Positive margins were the most common reason for additional procedures (51%). On final pathology, grade was associated with pT stage ($p<0.001$) and lymphovascular invasion (LVI; $p=0.036$)where 42% and 25% of G2 patients had ≥pT2 and LVI, compared to 6% and 0% in G1 patients, respectively. Log-rank test showed that G2 patients were more likely to recur compared to G1 patients (44% vs. 3%; $p=0.003$). Only one G3 patient underwent radical resection

as 89% had metastatic disease at diagnosis. Grade was associated with mortality ($p<0.001$)with G3 patients having the shortest median survival (4.7 months) compared to G2 (86 months) and G1 patients (median not reached).

CONCLUSION: Grade is an important marker of disease trajectory in rectal NETs and impacts definitive surgical decision-making and disease outcome.

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