

## Pancreatic Cancer

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### Adjuvant Chemoradiotherapy for Ampullary Carcinomas

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**Background:** Surgery remains the mainstay of treatment for ampullary carcinomas. The role of adjuvant treatment remains to be defined. Retrospective studies seem to suggest only a slight benefit of adjuvant chemoradiotherapy in patients with high-risk disease. We conducted a single-center retrospective study to assess the clinical outcome of patients who received adjuvant chemoradiotherapy for ampullary cancer at the National Cancer Centre Singapore.

**Methods:** Between January 2000 and April 2008, 14 patients with ampullary carcinoma who were treated with adjuvant radiotherapy were analyzed. All but one patient underwent radical surgery. That patient had transduodenal ampullectomy due to medical contraindications. The median radiation dose was 50 Gy (range 45-55 Gy). Twelve (86%) patients received concurrent chemotherapy. Five (36%) patients also received initial induction and subsequent adjuvant chemotherapy. Chemotherapy regimens included bolus 5-fluorouracil/leucovorin infusions, weekly gemcitabine, or twice-daily capecitabine. Seven patients received palliative chemotherapy following relapse. The overall survival, local failure, and distant failure rates were estimated.

**Results:** The median follow-up was 4.7 years (1.9-7.3 years) for the 4 surviving patients, of whom 3 were free of disease recurrence at the time of analysis. Ten patients have since died, 9 from disease progression and 1 from a cardiac event. Ten (71%) patients relapsed, 2 (14%) local, 5 (36%) distant, and 3 (21%) with both. The median time to disease recurrence was 1.7 years (0.2-5.8 years). All patients with T3/T4 disease relapsed. The relapse rate was high among patients with adverse risk factors including positive nodal disease (67%), close/positive margins (60%), and presence of lymphovascular and/or perineural invasion (77%). Two patients who received only radiotherapy relapsed. The

most common site of local failure was in the superior mesenteric nodes (80%). Distant metastases occurred in the liver (63%), intra-abdominal nodes (50%), peritoneum (25%) and mediastinal nodes (25%). Side effects of treatment included neutropenic fever/sepsis (14%), diarrhea (7%), and gastric ulceration (7%). One patient required chemotherapy dose reduction due to neutropenic fever and another did not complete concurrent chemotherapy because of hypoalbuminemia and ascites. The 5-year local and distant failure rates were 36% and 57%, respectively. The 5-year overall survival rate was 29%, with a median survival of 2.7 years.

**Conclusion:** The clinical outcome of Asian patients with ampullary carcinoma is comparable with that in Western series. Despite the use of adjuvant treatment in our study, the recurrence rates in patients with high-risk disease remained high. The addition of adjuvant therapy may improve overall survival in this group of patients.